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Energy and Water Development: FY2016 Appropriations

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Summary

The Energy and Water Development appropriations bill provides funding for Army Corps of Engineers (Corps) civil works projects, the Department of the Interior's Bureau of Reclamation (Reclamation), and the Department of Energy (DOE), as well as the Nuclear Regulatory Commission (NRC) and several other independent agencies.

President Obama's FY2016 budget request was released February 2, 2015. Including adjustments, the request for Energy and Water Development agencies totaled $36.04 billion, compared with a total of $34.27 billion appropriated for FY2015, an increase of 5.2%.

Final FY2015 Energy and Water Development funding was included in the Consolidated and Further Continuing Appropriations Act, 2015 (H.R. 83, Division D). Energy and Water funding totaled $519 million above the request and $653 million above FY2014, including rescissions. The consolidated appropriations measure passed the House on December 11, 2014, and the Senate on December 13, 2014, and was signed by the President on December 16, 2014 (P.L. 113-235).

Major issues and initiatives in the FY2016 Energy and Water Development request include:

- *Waters of the United States.* The Corps would receive a $5 million increase to assist in developing and implementing a controversial rulemaking to define "waters of the United States";
- *Energy Efficiency in Manufacturing and Vehicles.* DOE's energy efficient manufacturing research would more than double and research on energy efficient vehicles would rise 59% under the FY2016 budget request;
- *Nuclear Waste Management.* Radioactive waste management funding would rise 52% in the Administration's request, which proposes to develop "consent based" alternatives to the statutorily authorized candidate disposal site at Yucca Mountain, NV;
- *ITER Fusion Reactor*. Cost, schedule, and management concerns have been raised about the International Thermonuclear Experimental Reactor (ITER).
- *Nuclear Weapons Activities.* The Administration is seeking a 10.5% increase for weapons activities and to combine and transfer two counterterrorism programs within DOE's National Nuclear Security Administration.
- *Waste Isolation Pilot Plant (WIPP) Recovery.* Efforts to resume operations at the WIPP defense transuranic waste repository in New Mexico would continue in FY2016. Although overall WIPP funding would decline, the budget request includes an increase for the recovery effort to resume waste shipments.
- *Surplus Plutonium Disposition.* DOE requested level funding for a multibillion-dollar plant to convert surplus nuclear weapons plutonium into civilian nuclear reactor fuel, but an upcoming cost report could affect the congressional debate.
- *Energy-Water Nexus.* DOE proposed a new Energy-Water Nexus crosscutting activity for FY2016 that would analyze the relationships between energy and water use and conduct research on water and energy systems.

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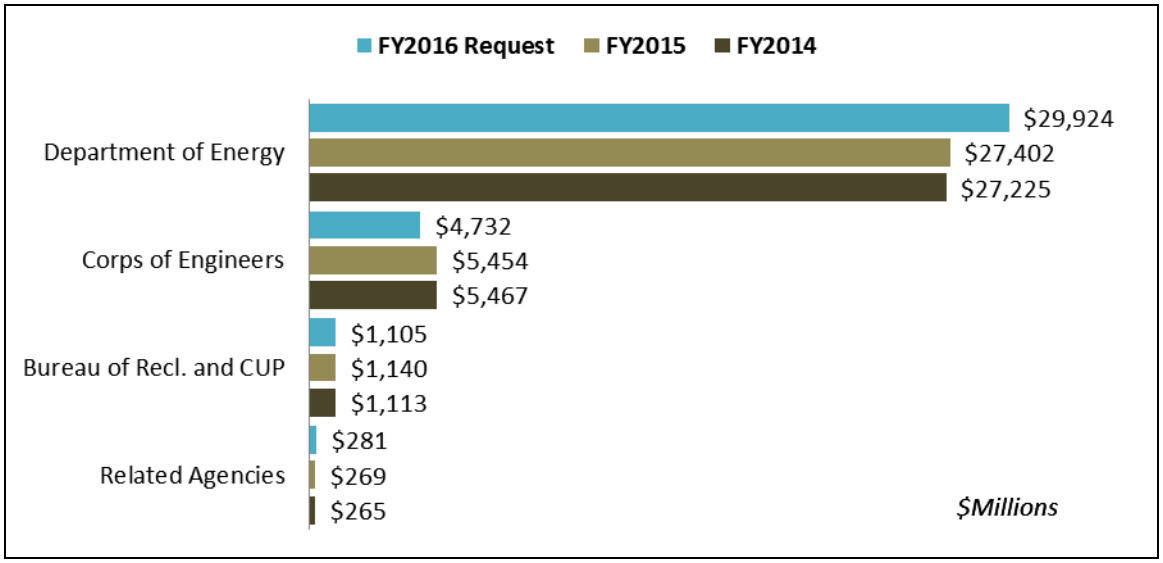
Introduction and Overview

The Energy and Water Development appropriations bill includes funding for civil works projects of the U.S. Army Corps of Engineers (Corps), the Department of the Interior's Central Utah Project (CUP) and Bureau of Reclamation (Reclamation), the Department of Energy (DOE), and a number of independent agencies, including the Nuclear Regulatory Commission (NRC) and the Appalachian Regional Commission (ARC).

President Obama's FY2016 budget request, released February 2, 2015, would provide $36.04 billion for agencies in the Energy and Water Development bill—5.2% above the $34.27 billion appropriated for FY2015. The FY2016 request for DOE was up by 9.2%, led by a proposed 13.0% increase in energy programs. The Corps would be reduced by 13.2%, and the Bureau of Reclamation would receive a 3.0% cut. **Figure 1** shows the major components of the Energy and Water Development bill.

Figure 1. Major Components of Energy and Water Development Appropriations Bill



Source: Agency budget justifications, congressional appropriations explanatory statements.

Final FY2015 Energy and Water Development funding was included in the Consolidated and Further Continuing Appropriations Act, 2015 (H.R. 83). Energy and Water funding totaled $519 million above the request and $653 million above FY2014, including rescissions. The consolidated appropriations measure passed the House on December 11, 2014, and the Senate on December 13, 2014, and was signed by the President on December 16, 2014 (P.L. 113-235).

Congressional consideration of the annual Energy and Water Development appropriations bill is affected by the procedural and statutory budget enforcement to which the bill is subject. The procedural budget enforcement is primarily through limits associated with the budget resolution on total discretionary spending and spending under the jurisdiction of each appropriations subcommittee. Statutory budget enforcement is derived from the Budget Control Act of 2011 (BCA; P.L. 112-25).

The BCA established limits on defense and nondefense discretionary spending. These limits are in effect each of the fiscal years between FY2012 and FY2021, and are primarily enforced by an automatic spending reduction process called sequestration. The Bipartisan Budget Act of 2013 (P.L. 113-67) established higher levels for the FY2014 and FY2015 spending limits than what would have otherwise been in effect. The original BCA process to calculate the limits is again in effect starting in FY2016. The President's FY2016 budget proposed to increase the existing levels of the discretionary spending limits by a total of about $74 billion, divided between defense ($37.9 billion) and nondefense ($37.5 billion) spending. The Energy and Water Development bill includes both defense and nondefense spending.

Funding Issues and Initiatives

The Obama Administration's FY2016 budget request included several significant initiatives and funding changes that could be the subject of debate in the 114th Congress. The issues highlighted in this section—listed approximately in the order they appear in the Energy and Water Development bill—were selected based on the total funding involved, the percentage of the proposed increase or decrease, the level of controversy involved, and their impact on broader public policy considerations.

Waters of the United States

The Corps would receive a $5 million increase for Clean Water Act (CWA) rulemaking activities, including developing a final rule to define "waters of the United States." Waters under CWA jurisdiction are subject to CWA regulatory requirements; for example, they cannot be dredged or filled without a Corps permit. For more information, see CRS Report R43455, *EPA and the Army Corps' Proposed Rule to Define "Waters of the United States"*, by Claudia Copeland.

Energy Efficiency in Manufacturing and Vehicles

DOE's energy efficient manufacturing research funding would more than double, with most of the increase going to the establishment of two new Clean Energy Manufacturing Institutes as part of the National Network for Manufacturing Innovation.[1] Research on energy efficient vehicles would rise 59% under the FY2016 budget request. The main activity increased under the vehicles program would be the Electric Vehicle Everywhere Grand Challenge Program, a 10-year program announced in March 2012 to encourage production of cost-competitive plug-in electric vehicles. The funding is included in DOE's Energy Efficiency and Renewable Energy program, which would see a total increase of 42%, from $1.914 billion in FY2015 to $2.723 billion in FY2016. Similar increases proposed by the Obama Administration in recent years have mostly been rejected by Congress.

[1] For details, see CRS Report R42625, *The Obama Administration's Proposal to Establish a National Network for Manufacturing Innovation*, by John F. Sargent Jr.

Nuclear Waste Management

Funding for the disposition of highly radioactive "spent," or "used," fuel from nuclear power plants would rise 52%—from $71.5 million to $108.4 million—in the Administration's request. The additional funding would expand DOE's efforts to develop a "consent based" waste management system as an alternative to a planned repository at Yucca Mountain, NV, which the Administration is no longer pursuing. The House, however, has regularly included funding to resume the Yucca Mountain project in its versions of the Energy and Water Development appropriations bill, although the funding has been routinely stripped by the Senate. With control of the Senate changing in the 114th Congress, the dynamics of the nuclear waste debate could be affected. For more information, see CRS Report RL33461, *Civilian Nuclear Waste Disposal*, by Mark Holt.

International Thermonuclear Experimental Reactor

The International Thermonuclear Experimental Reactor (ITER), under construction in France, continues to raise congressional concerns about management, schedule, and cost. The United States is to pay 9.09% of the project's construction costs, including contributions of components, cash, and personnel. The total U.S. share of the cost is currently estimated at between $4.0 billion and $6.5 billion, up from $1.45 billion to $2.2 billion in 2008. The Administration's proposed U.S. contribution for FY2016 was $150.0 million, the same as in FY2015.

Nuclear Weapons Activities

Maintaining U.S. nuclear bombs and missile warheads is the responsibility of DOE's National Nuclear Security Administration (NNSA). The Administration requested $8.85 billion for NNSA's Weapons Activities in FY2016, a 10.5% increase over the comparable funding level in FY2015. The Administration proposed to combine two NNSA counterterrorism programs in FY2016—Nuclear Counterterrorism Incident Response, and Counterterrorism and Counterproliferation—and transfer them to Defense Nuclear Nonproliferation, also run by NNSA.

Surplus Plutonium Disposition

After Congress rejected the Administration's proposal for FY2015 to place a controversial surplus plutonium disposition facility in South Carolina on "cold standby," DOE requested level funding for the project in FY2016. The Mixed-Oxide Fuel Fabrication Facility (MFFF), which would make fuel for nuclear reactors out of surplus weapons plutonium, has faced sharply escalating construction and operation cost estimates. DOE is to complete a congressionally mandated study of MFFF and a potentially less expensive alternative plutonium disposal method during FY2015, which could affect the congressional debate on the FY2016 funding request and the direction of the program. For more information, see CRS Report R43125, *Mixed-Oxide Fuel Fabrication Plant and Plutonium Disposition: Management and Policy Issues*, by Mark Holt and Mary Beth D. Nikitin.

Cleanup of DOE Nuclear Facilities

DOE's Office of Environmental Management (EM), which is responsible for environmental cleanup and waste management at the Department's nuclear facilities, would face an overall funding decrease of $43 million, although some sites would see an increase. The nearly flat funding—$5.82 billion in FY2016 compared with $5.86 billion in FY2015—would be coupled with efforts by DOE to negotiate changes in its environmental compliance requirements that could modify cleanup milestones at some sites, according to DOE's budget justification. The milestones are specified in enforceable environmental compliance agreements among DOE, the Environmental Protection Agency (EPA), and the states. DOE called for similar milestone renegotiations in its FY2015 budget justification.

Efforts to resume operations at the Waste Isolation Pilot Plant (WIPP) in New Mexico would continue in FY2016. WIPP is the centralized geologic repository for the permanent disposal of transuranic wastes generated at other DOE sites. WIPP operations ceased after two incidents in February 2014, one involving a truck fire and the other involving a radiological release. The FY2016 request of $243 million for WIPP is $77 million less than the FY2015 enacted appropriations of $320 million. The decrease is primarily due to the current cessation of waste disposal operations, although the request includes an increase for safety projects for the recovery effort to resume waste shipments.

Energy-Water Nexus

DOE proposed a new Energy-Water Nexus crosscutting activity for FY2016 that would analyze the relationships between energy and water use and conduct research on water and energy systems. In justifying the new activity, DOE noted that energy is a major user of the nation's water and that extraction, distribution, and treatment of water requires large amounts of energy. DOE offices that would be involved in this crosscut include Energy Policy and Systems Analysis, International Affairs, Energy Efficiency and Renewable Energy, Fossil Energy, Indian Energy Policy and Programs, and Science. Funding for Energy-Water Nexus activities, to be provided through existing program offices, would total $38.4 million in FY2016. For more information, see CRS Report R43200, *Energy-Water Nexus: The Water Sector's Energy Use*, by Claudia Copeland, and CRS Report R43199, *Energy-Water Nexus: The Energy Sector's Water Use*, by Nicole T. Carter.

Bill Status and Recent Funding History

Table 1 indicates the status of the FY2016 funding legislation and will be filled in as events occur.

Table 1. Status of Energy and Water Development Appropriations, FY2016

(budget authority in billions of current dollars)

Subcommittee Markup							Final Approval		
House	Senate	House Report	House Passage	Senate Report	Senate Passage	Conf. Report	House	Senate	Public Law

Table 2 includes budget totals for energy and water development appropriations enacted for FY2008 to FY2015, and the FY2016 request.

Table 2. Energy and Water Development Appropriations, FY2008 to FY2016

(budget authority in billions of current dollars)

FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016 Request
30.9	40.5[a]	33.4	31.7	34.4[b]	36.0[c]	34.1	34.8	36.0

Source: Compiled by CRS.

Note: Figures exclude permanent budget authorities and reflect rescissions.

a. Includes $7.5 billion for Advanced Technology Vehicle Manufacturing Loan Program.

b. Includes $1.7 billion in emergency funding for the Corps of Engineers.

c. Includes $5.4 billion in emergency funding for the Corps of Engineers.

Description of Major Energy and Water Programs

The annual Energy and Water Development Appropriations bill includes four titles: Title I—Corps of Engineers—Civil; Title II—Department of the Interior (Central Utah Project and Bureau of Reclamation); Title III—Department of Energy; and Title IV—Independent Agencies, as shown in **Table 3**. Major programs in the bill are described in this section in the approximate order they appear in the bill. Funding details for many of these programs are provided in separate CRS reports as indicated.

Table 3. Energy and Water Development Appropriations Summary

(budget authority in millions of current dollars)

Title	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
Title I: Corps of Engineers	10,068.2[a]	5,467.5	5,482.5	4,732.0		
Title II: CUP and Reclamation	1,014.0	1,113.1	1,140.5	1,106.0		
Title III: Department of Energy	25,160.7	27,355.5	28,152.9	29923.4		
Title IV: Independent Agencies	252.2	265.1	269.0	281.3		
Scorekeeping Adjustments[b]	-525.5	-74.4	-264.6			
E&W Total	**35,969.6**[a]	**34,126.8**	**34,780.3**	**36,043.4**		

Source: Administration budget requests, H.Rept. 113-486, Congressional Budget Office, Senate Appropriations Committee.

a. Includes $5.35 billion in supplemental funding for the Corps of Engineers under the Disaster Relief Appropriations Act, 2013 (P.L. 113-2).

b. Budget "scorekeeping" refers to official determinations of spending amounts for congressional budget enforcement purposes. These scorekeeping adjustments include offsetting revenues from various sources.

Corps of Engineers

The U.S. Army Corps of Engineers is an agency in the Department of Defense with both military and civilian responsibilities. Under its civil works program, which is funded by the Energy and Water Appropriations bill, the Corps plans, builds, operates, and maintains a wide range of water resources facilities. Corps appropriations are generally authorized in water resources development acts. Most recently, Congress enacted a new water resources development act in June of 2014, the Water Resources Reform and Development Act of 2014 (WRRDA, P.L. 113-121). This bill authorized new Corps projects and studies and altered numerous Corps policies and procedures.[2]

Corps funding is part of the debate over congressionally directed spending, or "earmarks." Unlike highways and municipal water infrastructure programs, federal funds for the Corps are not distributed to states or projects based on a formula or delivered via competitive grants. Generally about 85% of the appropriations for Corps civil works activities are directed to specific projects.

In addition to specific projects identified for funding in the President's budget, for decades Congress annually identified during the discretionary appropriations process many additional Corps projects to receive funding.[3] In the 112th Congress, site-specific project line items added by Congress (i.e., earmarks) became subject to House and Senate earmark moratorium policies. As a result, Congress generally has not added funding at the project level since FY2010. In lieu of the traditional project-based increases, Congress has included "additional funding" for select categories of Corps projects (e.g., "ongoing navigation work"), and provided direction and limitations on the use of these funds.[4]

[2] For detailed background on the Corps, see CRS Report R43298, *Water Resources Reform and Development Act of 2014: Comparison of Select Provisions*, by Nicole T. Carter et al.

[3] While congressional earmarks make up a relatively small percentage of most agency budgets, a significant number of Corps projects historically received additional funding from Congress for construction or operational expenditures.

[4] Congress provided additional funding and guidance for several broad categories of projects in the FY2015 consolidated appropriations Explanatory Statement. The FY2014 statement instructed the Corps to make additional project level allocations in a "work plan" and report back to Congress. Some of the categories to be funded in the work plan were designated by Congress as only being available for projects which were not included in the Administration's budget request. Recent Work Plan allocations through FY2015 are available at http://www.usace.army.mil/Missions/CivilWorks/Budget.aspx.

Table 4. Army Corps of Engineers

(budget authority in millions of current dollars)

Program	FY2013 Approp.	FY2013 Supplement	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
Investigations and Planning	118.5	50.0	125.0	122.0	97.0		
Construction	1,586.6	3,461.0	1,656.0	1,639.5	1,172.0		
Mississippi River and Tributaries (MR&T)	238.0	0.0	307.0	302.0	225.0		
Operation and Maintenance (O&M)	2,286.0	821.0	2,861.0	2,908.5	2,710.6		
Regulatory	182.9	0.0	200.0	200.0	205.0		
General Expenses	175.3	0.0	182.0	178.0	180.0		
FUSRAP[a]	99.9	0.0	103.5	101.5	104.0		
Flood Control and Coastal Emergencies (FC&CE)	25.6	1,008.0	28.0	28.0	34.0		
Office of the Asst. Secretary of the Army	4.6	10.0	5.0	3.0	5.0		
Rescission				-28.0			
Total Title I	**4,717.4**	**5,350.0**	**5,467.5**	**5,454.5**	**4,732.6**		

Source: FY2016 budget request and Work Plans for FY2013, FY2014, and FY2015; supplemental appropriations based on funding provided in P.L. 113-2.

a. Formerly Utilized Sites Remedial Action Program.

Bureau of Reclamation

Most of the large dams and water diversion structures in the West were built by, or with the assistance of, the Bureau of Reclamation. While the Army Corps of Engineers built hundreds of flood control and navigation projects, Reclamation's mission was to develop water supplies, primarily for irrigation to reclaim arid lands in the West.

Today, Reclamation manages hundreds of dams and diversion projects, including more than 300 storage reservoirs in 17 western states. These projects provide water to approximately 10 million acres of farmland and a population of 31 million. Reclamation is the largest wholesale supplier of water in the 17 western states and the second-largest hydroelectric power producer in the nation. Reclamation facilities also provide substantial flood control, recreation, and fish and wildlife benefits. Operations of Reclamation facilities are often controversial, particularly for their effect on fish and wildlife species and conflicts among competing water users.

As with the Corps of Engineers, the Reclamation budget is made up largely of individual project funding lines and relatively few "programs." Also similar to the Corps, previously these Reclamation projects have often been subject to earmark disclosure rules. The current

moratorium on earmarks restricts congressional steering of money directly toward specific Reclamation projects as had been done in the past.

Reclamation's single largest account, Water and Related Resources, encompasses the agency's traditional programs and projects, including construction, operations and maintenance, dam safety, and ecosystem restoration, among others.[5] Reclamation also typically requests funds in a number of smaller accounts, and has proposed additional accounts in recent years. Congress has provided Reclamation additional appropriations in recent years to address drought conditions in the West, including $50 million in additional funding for Western Drought Response in FY2015.

Implementation and oversight of the Central Utah Project (CUP) is conducted by a separate office from Reclamation within the Department of the Interior. The Administration has proposed for several years to shift those responsibilities to Reclamation.

Table 5. Bureau of Reclamation

(budget authority in millions of current dollars)

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
Water and Related Resources	848.2	954.1	978.1	805.1		
Policy and Administration	56.9	60.0	58.5	59.5		
CVP Restoration Fund (CVPRF)	50.4	53.3	57.0	49.5		
Calif. Bay-Delta (CALFED)	37.6	37.0	37.0	37.0		
San Joaquin Restoration Fund[a]	-	-	-	35.0		
Indian Water Rights Settlement[a]	-	-	-	112.4		
Rescission			-.5			
Gross Current Reclamation Authority	**993.0**	**1,104.4**	**1,130.1**	**1,098.5**		
Central Utah Project (CUP) Completion	**21.0**	**8.7**	**9.9**	**7.3**		
Total, Title II Current Authority (CUP and Reclamation)	**1,014.0**	**1,113.1**	**1,140.0**	**1,105.8**		

Source: FY2016 budget request, H.R. 83 Explanatory Statement.

Notes: Totals may not add due to rounding. CVP: Central Valley Project.

a. As in previous requests, the Administration's request includes funding for these items, which have in the past been funded within the Water and Related Resources Account, as new accounts. For FY2015,

[5] The Water and Related Resources Account is largely funded by the Reclamation Fund, which receives and distributes receipts related to a number of federal activities (including royalties received from oil and gas leasing on federal lands). For more on this fund and financing of selected Reclamation Projects, see CRS Report R41844, *The Reclamation Fund: A Primer*, by Charles V. Stern.

the House and the Senate subcommittee again rejected the Administration's proposal for these new accounts. The FY2016 request shows FY2015 appropriations under these categories for comparability.

Department of Energy

The Energy and Water Development bill has funded all DOE's programs since FY2005. Major DOE activities include research and development (R&D) on renewable energy, energy efficiency, nuclear power, and fossil energy, the Strategic Petroleum Reserve, energy statistics, general science, environmental cleanup, and nuclear weapons programs. **Table 6** provides the recent funding history for DOE programs, which are briefly described further below. DOE's full budget justifications are available at http://energy.gov/cfo/reports/budget-justification-supporting-documents.

Table 6. Department of Energy

(budget authority in millions of current dollars)

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
ENERGY PROGRAMS						
Energy Efficiency and Renewable Energy	1,691.8	1,901.7	1,914.2	2,723.0		
Electricity Delivery and Energy Reliability	129.2	147.3	147.0	270.1		
Nuclear Energy	708.4	888.4	833.4	907.6		
Fossil Energy R&D	498.7	561.9	560.6	560.0		
Naval Petroleum and Oil Shale Reserves	14.1	20.0	20.0	17.5		
Elk Hills School Lands Fund	0.0	0.0	15.6	0.0		
Strategic Petroleum Reserve	182.6	189.4	200.0	257.0		
Northeast Home Heating Oil Reserve	3.6	8.0	1.6	7.6		
Energy Information Administration	99.5	117.0	117.0	131.0		
Non-Defense Environmental Cleanup	223.5	231.8	246.0	220.2		
Uranium Enrichment Decontamination and Decommissioning Fund	448.2	598.6	625.0	542.3		
Science	4,681.2	5,066.4	5,067.7	5,339.8		
Advanced Research Projects Agency-Energy (ARPA-E)	250.6	280.0	280.0	325.0		
Nuclear Waste Disposal	0.0	0.0	0.0	0.0		
Departmental Admin. (net)	119.2	126.4	125.1	153.5		
Office of Inspector General	39.8	42.1	40.5	46.4		
Office of Indian Energy	0.0	0.0	0.0	20.0		
Advanced Technology Vehicles	5.7	6.0	4.0	6.0		

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
Manufacturing Loans						
Sec. 1705 Loan Guarantee	0.0	20.0	17.0	0.0		
Tribal Indian Energy Loan Guarantee	0.0	0.0	0.0	11.0		
Rescission (Clean Coal Technology)	0.0	0.0	-6.6	0.0		
TOTAL, ENERGY PROGRAMS	**9,096.2**	**10,205.0**	**10,208.0**	**11,538.0**		
DEFENSE ACTIVITIES						
National Nuclear Security Administration (NNSA)						
Weapons Activities	6,966.9	7,781.0	8,180.4a	8,846.9		
Nuclear Nonproliferation	2,237.4	1,954.0	1,615.3	1,940.3		
Naval Reactors	994.1	1,095.0	1.233.8	1,375.5		
Office of Admin./Salaries and Expenses	377.5	377.0	369.6	402.7		
Total, NNSA	**10,575.8**	**11,207.0**	**11,399.0**	**12,565.4**		
Defense Environmental Cleanup	4,627.1	5,000.0	5,453.0	5,527.3		
Other Defense Activities	760.0	755.0	753.5	774.4		
Defense Nuclear Waste Disposal	-0.7	0.0	0.0	0.0		
TOTAL, DEFENSE ACTIVITIES	**15,962.1**	**16,962.0**	**17,605.5**	**18,867.2**		
POWER MARKETING ADMINISTRATION (PMAs)						
Southeastern	0.0	0.0	0.0	0.0		
Southwestern	11.2	11.9	11.4	11.4		
Western	90.9	95.9	91.7	93.4		
Falcon and Amistad O&M	0.2	0.4	0.2	0.2		
Colorado River Basins Fund	0.0	-23.0	-23.0	-23.0		
TOTAL, PMAs	**102.0**	**85.2**	**80.4**	**82.0**		
Offsets		**-26.2**	**-491.5**	**-563.4**		
Total, DOE	**25,160.7**	**27,224.8**	**27,402.4**	**29,923.8**		

Source: H.R. 83 Explanatory Statement, FY2015 budget request, H.Rept. 113-486, Congressional Budget Office, Senate Appropriations Committee. Totals may not add due to rounding.

a. This is the level as enacted in the FY2015 appropriations bill. NNSA proposes to change its budget structure for FY2016, such as transferring Nuclear Counterterrorism Incident Response from Weapons Activities to Defense Nuclear Nonproliferation. The FY2015 Weapons Activities figure comparable to the FY2016 figure is $8,007.7 million.

Energy Efficiency and Renewable Energy

President Obama has declared energy efficiency and renewable energy (EERE) to be a high priority, stressing their importance to jobs, economic growth, and U.S. manufacturing competitiveness. For example, the 2013 *Economic Report of the President* noted that "President

Obama has set a goal of once again doubling generation from wind, solar, and geothermal sources by 2020." But Congress has not supported most of his proposed annual funding increases.

The Sustainable Transportation program area includes hydrogen and fuel cell technologies, bioenergy, and vehicle technology. DOE's electric vehicle program is driven by the 10-year EV-Everywhere Challenge (launched in 2012), which aims to achieve parity for plug-in electric vehicle (EV) affordability and convenience by 2022. A key supporting technology goal is to cut 2008 battery production cost 70% by 2015 and 88% by 2022. The fuel cell program targets a cost below $40 per kilowatt (kw) and a durability of 5,000 hours (equivalent to 150,000 miles) by 2020. For hydrogen produced from renewable resources, the target is to bring the cost (dispensed and untaxed) below $4.00 per gasoline gallon-equivalent (gge) by 2020. Bioenergy goals include the development of "drop-in" liquid fuels that would be largely compatible with existing energy infrastructure. The program aims to help the non-food "drop-in" biofuels reach a wholesale finished-fuel cost under $3 per gge by 2017 and $3/gge for algal biomass productivity by 2020.

Renewable energy programs focus on electricity generation from solar, wind, water, and geothermal sources. DOE's SunShot Initiative is aimed at halving the cost of solar power to 6 cents per kilowatt-hour (kwh) to make solar power cost-competitive without subsidies by 2020. There are three key goals for the wind program. First, for land-based windfarms, there is a goal for the energy cost of utility-scale turbines to drop from 8 cents to 5.7 cents/kwh by 2020 and 4.2 cents/kwh by 2030. Second, for offshore settings, the goal is to cut energy costs from 21 cents/kwh in 2010 to 17 cents/kwh (unsubsidized) by 2020. Third, there is an overall goal to increase installed windfarm capacity from 60 billion watts (gigawatts, gw) in 2012 to 125 gw by 2020 and 300 gw by 2030. The geothermal program aims to lower the risk of resource exploration and cut power production costs to 6 cents/kwh for hydrothermal power by 2020 and for newly developed technologies by 2030.

In the energy efficiency program area, the advanced manufacturing program has a general goal of reducing the energy use of manufactured goods across targeted product life-cycles by 50% over 10 years. More specific objectives include (1) 50% energy savings through advanced materials and industrial processes, (2) helping leading companies cut energy intensity by 25% over 10 years, and (3) facilitating installation of 40 gigawatts (gw, a million kilowatts) of combined heat and power equipment by 2020.[6] The building technologies program has a goal of reducing building energy use 50% by 2030. The program strategy is designed with three linked paths: Improve building components (envelope/windows, heating/ventilation/air conditioning, lighting, and sensors/controls), strengthen market demand (through cooperation with private industry), and raise energy efficiency levels for new equipment (via standards) and new buildings (via model codes).

The EERE program also provides grants to fund energy efficiency improvements and energy planning. Weatherization grants support state and local governments in providing home energy services to low-income families that help them reduce energy costs and save money. State energy grants support both administrative and program activities at many state energy offices.

[6] DOE, EERE-Advanced Manufacturing Office, *FY14 Budget At-a-Glance*, http://www1.eere.energy.gov/office_eere/pdfs/budget/manufacturing_ataglance_2014.pdf.

Nuclear Energy

DOE's nuclear energy program has four major stated goals:

- Improve the safety, reliability, and economics of nuclear power plants;
- Implement a "consent based" strategy for developing nuclear waste storage and disposal facilities;
- Develop improved waste management and fuel cycle technologies; and
- Understand and minimize the risks of nuclear proliferation and terrorism.

The Reactor Concepts program area includes research on advanced reactors, including advanced small modular reactors, and research to enhance the "sustainability" of existing commercial light water reactors. Advanced reactor research focuses on "Generation IV" reactors, as opposed to the existing fleet of commercial light water reactors, which are generally classified as generations II and III. Nuclear technology development under this program focuses on "fast reactors," using high-energy neutrons, fluoride salt-cooled high-temperature reactors, and high temperature gas-cooled reactors. Cost-shared research with the nuclear industry is also conducted on extending the life of existing commercial light water reactors beyond 60 years, the maximum operating period currently licensed by the Nuclear Regulatory Commission (NRC). This subprogram is also conducting research to understand the Fukushima disaster and to develop accident prevention and mitigation measures.

The nuclear energy program also provides design and licensing funding for small modular reactors (SMRs), which range from about 40 to 300 megawatts of electrical capacity. Support under this subprogram is currently being provided to the NuScale Power SMR, which has a generating capacity of 45 megawatts. Under the company's current concept, up to 12 reactors would be housed in a single pool of water, which would provide emergency cooling. The NuScale SMR is intended to be ready for commercial operation by around 2025, according to DOE.[7]

The Fuel Cycle Research and Development program conducts "long-term, science-based" research on a wide variety of technologies for improving the management of spent nuclear fuel, according to DOE. In general, the program is investigating ways to separate radioactive constituents of spent fuel for re-use or to be bonded into stable waste forms. Within this subprogram, DOE is also conducting work toward establishing a new spent fuel management system, consistent with the Administration's moves to terminate the previously authorized waste repository program at Yucca Mountain in Nevada. Other major research areas in the Fuel Cycle R&D program include the development of accident-tolerant fuels for existing commercial reactors, evaluation of fuel cycle options, development of improved technologies to prevent diversion of nuclear materials for weapons, and technology to increase nuclear fuel resources, such as uranium extraction from seawater.

Fossil Energy Research and Development

DOE's Fossil Energy R&D Program focuses primarily on carbon capture and storage for coal-fired power systems. Major activities include:

[7] DOE Office of Nuclear Energy, "Small Modular Nuclear Reactors," http://www.energy.gov/ne/nuclear-reactor-technologies/small-modular-nuclear-reactors.

- Carbon Capture subprogram for separating CO_2 in both pre-combustion and post-combustion systems;
- Carbon Storage subprogram on long-term geologic storage of CO_2, including small- and large-scale CO_2 injection tests;
- Advanced Energy Systems subprogram on improving availability and efficiency of fossil energy systems integrated with CO_2 capture. The sub-program focuses on gasification, oxy-combustion, advanced turbines, and other energy systems.
- Cross-Cutting Research on innovative systems;
- Supercritical Transformational Electric Power (STEP) Generation Program, developing technology to replace the conventional steam cycle in electric turbine-generators with supercritical carbon dioxide; and
- Natural Gas Technologies R&D, with a focus on environmentally sound technologies for shale gas development.

Strategic Petroleum Reserve

The Strategic Petroleum Reserve (SPR), authorized by the Energy Policy and Conservation Act (P.L. 94-163) in 1975, consists of caverns formed out of naturally occurring salt domes in Louisiana and Texas. The SPR provides strategic and economic security against foreign and domestic disruptions in U.S. oil supplies via an emergency stockpile of crude oil. The program fulfills U.S. obligations under the International Energy Program, which avails the United States of International Energy Agency (IEA) assistance through its coordinated energy emergency response plans, and provides a deterrent against energy supply disruptions.

By early 2010, the SPR's maximum capacity reached 727 million barrels.[8] The federal government has not purchased oil for the SPR since 1994. Beginning in 2000, additions to the SPR were made with royalty-in-kind (RIK) oil acquired by the Department of Energy in lieu of cash royalties paid on production from federal offshore leases. In September 2009, the Secretary of the Interior announced a transitional phasing out of the RIK Program. DOE has been conducting a major maintenance program to address aging infrastructure and a deferred maintenance backlog at SPR facilities.

In the summer of 2011, the President ordered an SPR sale in coordination with an International Energy Administration sale under treaty obligation because of Libya's supply curtailment. The U.S. sale of 30.6 million barrels reduced the SPR inventory to 695.9 million barrels.

In March 2014, DOE's Office of Petroleum Reserves conducted a test sale that delivered 5.0 million barrels of crude oil over a 47-day period that netted $468.6 million in cash receipts to the U.S. government (SPR Petroleum Account). The SPR Petroleum Account current balance is $250.8 million.

[8] For details on the SPR see CRS Report R41687, *The Strategic Petroleum Reserve and Refined Product Reserves: Authorization and Drawdown Policy*, by Anthony Andrews and Robert Pirog.

Science

The DOE Office of Science conducts basic research in six program areas: advanced scientific computing research, basic energy sciences, biological and environmental research, fusion energy sciences, high-energy physics, and nuclear physics. Through (primarily) these programs, DOE was the third-largest federal funder of basic research and the largest federal funder of research in the physical sciences in FY2014.

DOE's Advanced Scientific Computing Research (ASCR) program focuses on developing and maintaining computing and networking capabilities for science and research in applied mathematics, computer science, and advanced networking. The program plays a key role in the DOE-wide effort to advance the development of exascale computing, which seeks to build a computer that can solve scientific problems a thousand times faster than today's best machines. DOE leadership asserts that the department is on a path to have a capable exascale machine by the early 2020s.

Basic Energy Sciences (BES), the largest program area in the Office of Science, focuses on understanding, predicting, and ultimately controlling matter and energy at the electronic, atomic, and molecular level. The program supports research in disciplines such as condensed matter and materials physics, chemistry, and geosciences. BES also provides funding for scientific user facilities (e.g., the National Synchrotron Light Source II, which is to transition from construction to operation in FY2015, and the Linac Coherent Light Source-II), and certain DOE research centers and hubs (e.g., Energy Frontier Research Centers, as well as the Batteries and Energy Storage and Fuels from Sunlight Innovation Hubs).

Biological and Environmental Research (BER) seeks a predictive understanding of complex biological, climate, and environmental systems across a continuum from the small scale (e.g., genomic research) to the large (e.g., Earth systems and climate). Within BER, Biological Systems Science focuses on plant and microbial systems, while Biological and Environmental Research supports climate-relevant atmospheric and ecosystem modeling and research. BER facilities and centers include three Bioenergy Research Centers and the Environmental Molecular Science Laboratory at Pacific Northwest National Laboratory.

Fusion Energy Sciences (FES) seeks to increase understanding of matter at very high temperatures and to establish the science needed to develop a fusion energy source. FES provides funding for the ITER project, a multi-national effort to design and build an experimental fusion reactor. According to DOE, ITER "aims to generate fusion power 30 times the levels produced to date and to exceed the external power applied … by at least a factor of ten." However, many U.S. analysts have expressed concern about ITER's cost, schedule, and management, as well as the budgetary impact on domestic fusion research.

The High Energy Physics (HEP) program conducts research on the fundamental constituents of matter and energy, including studies of dark energy and the search for dark matter. The FY2016 HEP budget request seeks to align the program with the recommendations of the Particle Physics Project Prioritization Panel (P5) report. Nuclear Physics supports research on the nature of matter, including its basic constituents and their interactions. A major project in the Nuclear Physics

program is the construction of the Facility for Rare Isotope Beams at Michigan State University. Nearing completion is the Continuous Electron Beam Accelerator Facility Upgrade project.[9]

For more details, see CRS Report R43963, *DOE's Office of Science and the FY2016 Budget Request*, by Heather B. Gonzalez.

ARPA-E

The Advanced Research Projects Agency–Energy (ARPA-E) was authorized by the America COMPETES Act (P.L. 110-69) to support transformational energy technology research projects. DOE budget documents describe ARPA-E's mission as overcoming long-term, high-risk technological barriers to the development of energy technologies.

Loan Guarantees and Direct Loans

DOE's Loan Programs Office provides loan guarantees for projects that deploy specified energy technologies, as authorized by Title XVII of the Energy Policy Act of 2005 (EPACT05, P.L. 109-58), and direct loans for advanced vehicle manufacturing technologies. Section 1703 of the act authorizes loan guarantees for advanced energy technologies that reduce greenhouse gas releases, and Section 1705 established a temporary program for renewable energy and energy efficiency projects.

Title XVII allows DOE to provide loan guarantees for up to 80% of construction costs for eligible energy projects. Successful applicants must pay an up-front fee, or "subsidy cost," to cover potential losses under the loan guarantee program. Under the loan guarantee agreements, the federal government would repay all covered loans if the borrower defaulted. This would reduce the risk to lenders and allow them to provide financing at below-market interest rates. The following is a summary of loan guarantee amounts available for various technologies:

- $8.3 billion for non-nuclear technologies under Section 1703;
- $2 billion for unspecified projects from FY2007 under Section 1703;
- $18.5 billion ceiling for nuclear power plants ($6.5 billion finalized; $1.8 billion conditionally committed);
- $4 billion allocated for loan guarantees for uranium enrichment plants ($2 billion conditionally committed);
- $1.183 billion ceiling for renewable energy and energy efficiency projects under Section 1703, in addition to other ceiling amounts, which can include pending applications under Section 1705; and
- An appropriation of $170 million for subsidy costs for renewable energy and energy efficiency loan guarantees under Section 1703. If the subsidy costs averaged 10% of the loan guarantees, this funding could support loan guarantees totaling $1.7 billion.

[9] DOE, *FY 2016 Budget Justification*, Volume 4, http://www.energy.gov/cfo/downloads/fy-2016-budget-justification.

Nuclear Weapons Stockpile Stewardship

Congress established the Stockpile Stewardship Program in the FY1994 National Defense Authorization Act (P.L. 103-160). The goal of the program, as amended by the FY2010 National Defense Authorization Act (P.L. 111-84, §3111), is to ensure "that the nuclear weapons stockpile is safe, secure, and reliable without the use of underground nuclear weapons testing." The program is operated by the National Nuclear Security Administration (NNSA), a semiautonomous agency within DOE that Congress established in the FY2000 National Defense Authorization Act (P.L. 106-65, Title XXXII).

Stockpile stewardship consists of all activities in NNSA's Weapons Activities account. Most stewardship activities take place at the nuclear weapons complex (the "complex"), which consists of three laboratories (Los Alamos National Laboratory, NM; Lawrence Livermore National Laboratory, CA; and Sandia National Laboratories, NM and CA); four production sites (Kansas City Plant, MO; Pantex Plant, TX; Savannah River Site, SC; and Y-12 National Security Complex, TN); and the Nevada National Security Site (formerly Nevada Test Site). NNSA manages and sets policy for the complex; contractors to NNSA operate the eight sites.

Directed Stockpile Work involves work directly on nuclear weapons in the stockpile, such as monitoring their condition; maintaining them through repairs, refurbishment, life extension, and modifications; conducting R&D in support of specific warheads; and dismantlement. The number of warheads has fallen sharply since the end of the Cold War, and continues to decline. As a result, a major activity of Directed Stockpile Work is interim storage of warheads to be dismantled; dismantlement; and disposition (i.e., storing or eliminating warhead components and materials).

Campaigns are "multi-year, multi-functional efforts" that "provide specialized scientific knowledge and technical support to the directed stockpile work on the nuclear weapons stockpile." Many campaigns have significance for policy decisions. For example, the Science Campaign's goals include improving the ability to assess warhead performance without nuclear testing, improving readiness to conduct nuclear tests should the need arise, and maintaining the scientific infrastructure of the nuclear weapons laboratories. Campaigns also fund some large experimental facilities, such as the National Ignition Facility at Lawrence Livermore National Laboratory. Note that P.L. 113-235 renamed "Campaigns" as "Research, Development, Test, and Evaluation."

Readiness in Technical Base and Facilities funds infrastructure and operations at nuclear weapons complex sites. A modern nuclear weapon has two stages: Detonation of the "primary" provides the energy to detonate the "secondary." The core of the primary is the "pit," which uses plutonium; the secondary uses uranium and other materials. NNSA has encountered problems in building facilities to manufacture both components.

Weapons Activities also has several smaller programs, including:

- **Secure Transportation Asset,** providing for safe and secure transport of nuclear weapons, components, and materials.
- **Nuclear Counterterrorism Incident Response Program,** responding to and mitigating nuclear and radiological incidents worldwide (proposed for transfer to Defense Nuclear Nonproliferation).

- **Counterterrorism and Counterproliferation Program,** which "sustain[s] and exercise[s] the U.S. Government's ability to understand nuclear terrorism and to counter nuclear device proliferation" (proposed for transfer to Defense Nuclear Nonproliferation).
- **Site Stewardship** seeks to "bring focus on environmental compliance, nuclear materials disposition and developing the needed skills and talent for NNSA's enduring technical workforce at the laboratories and production plants."
- **Defense Nuclear Security** provides operations, maintenance, and construction funds for protective forces, physical security systems, personnel security, and related activities.
- **Information Technology and Cybersecurity** elements include cybersecurity, enterprise secure computing, and Federal Unclassified Information Technology.
- **Legacy Contractor Pensions** provides supplemental funding for former University of California employees who staffed the DOE weapons labs.
- **Domestic Uranium Enrichment** maintains advanced enrichment centrifuges in standby pending an analysis of U.S. enriched-uranium and tritium requirements.

For more information, see CRS Report R43948, *Energy and Water Development: FY2016 Appropriations for Nuclear Weapons Stockpile Stewardship*, by Jonathan E. Medalia.

Defense Nuclear Nonproliferation

DOE's nonproliferation and national security programs provide technical capabilities to support U.S. efforts to prevent, detect, and counter the spread of nuclear weapons worldwide. These nonproliferation and national security programs are administered by NNSA, which recently reorganized the Office of Defense Nuclear Nonproliferation.

Global Materials Security has two major program elements. The "First Line of Defense" focuses on increasing the security of vulnerable stockpiles of nuclear material in other countries. The "Second Line of Defense" is intended to "improve partner countries' abilities to deter, detect, and interdict illicit trafficking," according to DOE's FY2016 budget justification. Activities toward achieving those goals include the provision of equipment and training, workshops and exercises, and collaboration with international organizations.

Materials Management and Minimization conducts activities to minimize and, where possible, eliminate stockpiles of weapons-useable material around the world. Major activities include conversion of reactors that use highly enriched uranium (useable for weapons) to low enriched uranium, removal and consolidation of nuclear material stockpiles, and disposition of excess nuclear materials.

Nonproliferation and Arms Control works on "strengthening the nonproliferation and arms control regimes in order to reduce proliferation and terrorism risks," according to the FY2016 justification. This program conducts reviews of nuclear export applications and technology transfer authorizations, implements treaty obligations, and analyzes nonproliferation policies and proposals.

Other programs under Defense Nuclear Nonproliferation include research and development and construction. The Nonproliferation Construction program consists of the Mixed Oxide (MOX) Fuel Fabrication Facility (described under "Funding Issues" above), which is being built in South Carolina to convert surplus weapons plutonium into nuclear reactor fuel.

DOE is also proposing for FY2016 to transfer counterterrorism and counterproliferation programs from the Weapons Activities appropriations account to Defense Nuclear Nonproliferation. According to the budget justification, "These transfers align all NNSA funding to prevent, counter, and respond to nuclear proliferation and terrorism in one appropriation."

Cleanup of Former Nuclear Sites

The development and production of nuclear weapons for national defense purposes during half a century since the beginning of the Manhattan Project resulted in a legacy of wastes and contamination that continues to present substantial challenges today. In 1989, DOE established the Office of Environmental Management primarily to consolidate its responsibilities for the cleanup of former nuclear weapons production sites that had been administered under multiple offices.[10]

DOE's nuclear cleanup efforts are broad in scope and include the disposal of large quantities of radioactive and other hazardous wastes generated over decades; management and disposal of surplus nuclear materials; remediation of extensive contamination in soil and groundwater; decontamination and decommissioning of excess buildings and facilities; and safeguarding, securing, and maintaining facilities while cleanup is underway.[11] The Office of Environmental Management also is responsible for the cleanup of DOE sites that were involved in civilian nuclear energy research, which also generated wastes and contamination. These research sites add a non-defense component to the office's mission, albeit smaller in terms of the scope of their cleanup and associated funding.[12]

DOE has identified in excess of 100 "geographic" sites in over 30 states that historically were involved in the production of nuclear weapons and nuclear energy research for civilian purposes.[13] The geographic scope of these sites is substantial, collectively encompassing a land area of approximately 2 million acres. Cleanup remedies are in place and operational at the majority of these sites. The responsibility for the long-term stewardship of these sites has been transferred to the Office of Legacy Management and other offices within DOE for the operation and maintenance of cleanup remedies and monitoring.[14] Some of the smaller sites for which DOE

[10] In 1989, DOE created the Office of Environmental Restoration and Waste Management, which later was renamed the Office of Environmental Management.

[11] The term "cleanup" often is used in reference to the remediation of risks at a site. Cleanup may be accomplished through various means to prevent potentially harmful levels of exposure to wastes and contamination. Cleanup may not necessarily entail the removal of all hazards from a site, but in some instances may involve the permanent containment of wastes or contamination to address exposure risks. If residual wastes or contamination remains on-site after cleanup is complete, long-term stewardship may continue to monitor residual wastes or contamination and ensure that cleanup measures continue to operate effectively.

[12] For additional information on the history, mission, and scope of the Office of Environmental Management, see DOE's website: http://energy.gov/em/office-environmental-management.

[13] For an interactive map and listing of each site, see DOE's Office of Environmental Management website: http://energy.gov/em/cleanup-sites. There are links to separate maps for active and completed sites.

[14] The Office of Legacy Management administers the long-term stewardship of DOE sites that do not have a continuing (continued...)

initially was responsible were transferred to the Army Corps of Engineers in 1997 under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Once the Corps completes the cleanup of a FUSRAP site, it is transferred back to DOE for long-term stewardship under the Office of Legacy Management.

Much work remains to be done at the sites that are still administered by the Office of Environmental Management. DOE expects cleanup to continue for several years or even decades at some of these sites, and estimates additional cumulative funding needs ranging from $191.6 billion to $224.3 billion over the long-term to fulfill the cleanup liability of the United States.[15] The Office of Environmental Management has completed the cleanup of 91 sites in 30 states and the Commonwealth of Puerto Rico, and plans to continue the cleanup of 16 sites in 11 states in FY2016.[16]

Three appropriations accounts fund the Office of Environmental Management. The Defense Environmental Cleanup account is the largest in terms of funding, and it finances the cleanup of former nuclear weapons production sites. The Non-Defense Environmental Cleanup account funds the cleanup of federal nuclear energy research sites. Title XI of the Energy Policy Act of 1992 (P.L. 102-486) established the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund to pay for the cleanup of three federal facilities that were used to enrich uranium for national defense and civilian purposes.[17] Title X of P.L. 102-486 also authorized the reimbursement of uranium and thorium licensees for their costs of cleaning up contamination at sites that processed nuclear materials for national defense purposes at these federal facilities.[18] The three federal uranium enrichment facilities are located near Paducah, KY; Piketon, OH (Portsmouth plant); and Oak Ridge, TN.

The adequacy of funding for the Office of Environmental Management to attain cleanup milestones across the entire site inventory has been a recurring issue. Cleanup milestones are enforceable measures incorporated into compliance agreements negotiated among DOE, EPA, and the states. These milestones establish time frames for the completion of specific actions to satisfy applicable requirements at individual sites.[19]

Power Marketing Administrations

DOE's four Power Marketing Administrations (PMAs)—Bonneville Power Administration (BPA), Southeastern Power Administration (SEPA), Southwestern Power Administration

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(...continued)

mission once cleanup remedies are in place. Sites that have a continuing mission are transferred to the DOE offices that administer those missions, which are responsible for their long-term stewardship.

[15] Department of Energy, Office of Chief Financial Officer, *FY2016 Congressional Budget Request*, February 2015, Volume 5, Environmental Management, p. 89.

[16] Department of Energy, Office of Chief Financial Officer, *FY2015 Congressional Budget Request*, March 2014, Volume 5, Environmental Management, p. 5. See p. 84 for a list of the 16 sites where cleanup is planned to continue in FY2015. One of these 16 sites, the Waste Isolation Pilot Plant in New Mexico, is not a cleanup site itself, but is a permanent, geologic repository for "transuranic" wastes that are removed from other DOE sites for disposal.

[17] 42 U.S.C. §2297g.

[18] 42 U.S.C. §2296a.

[19] Compliance agreements for individual sites are available on DOE's Office of Environmental Management website: http://energy.gov/em/compliance-agreements.

(SWPA), and Western Area Power Administration (WAPA)—were established to sell the power generated by the dams operated by the Bureau of Reclamation and the Army Corps of Engineers.[20] The primary purpose of these projects in many cases was conservation and management of water resources—including irrigation, flood control, recreation, or other objectives. (For more information, see CRS Report RS22564, *Power Marketing Administrations: Background and Current Issues*, by Richard J. Campbell.)

Title IV: Independent Agencies

Independent agencies that receive funding from the Energy and Water Development bill include the Nuclear Regulatory Commission (NRC), the Appalachian Regional Commission (ARC), and the Denali Commission. Their recent appropriations and FY2016 requests are shown in **Table 7**.

Table 7. Independent Agencies Funded by Energy and Water Development Appropriations

(budget authority in millions of current dollars)

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.	FY2016 Request	FY2016 House	FY2016 Senate
Appalachian Regional Commission	$64.9	80.3	90.0	95.0		
Nuclear Regulatory Commission	*987.3*	*1,055.9*	*1,015.3*	*1,032.2*		
(Revenues)	*-860.8*	*-930.7*	*-895.5*	*-910.0*		
Net NRC (including Inspector General)	126.5	125.2	119.8	122.2		
Defense Nuclear Facilities Safety Board	26.8	28.0	28.5	29.2		
Nuclear Waste Technical Review Board	3.2	3.4	3.4	3.6		
Denali Commission	10.0	10.0	10.0	10.0		
Delta Regional Authority	11.0	12.0	12.0	15.0		
Northern Border Regional Commission	1.5	5.0	5.0	5.0		
Southeast Crescent Regional Commission	0.3	0.3	0.3	0.3		
Federal Coordinator of Alaska Gas Projects	1.0	1.0	0	1.0		
Total	**245.4**	**265.1**	**269.0**	**281.3**		

Source: H.R. 83 Explanatory Statement, agency budget requests, H.Rept. 113-486, CBO, Senate Appropriations Committee.

Notes: Figures may not add due to rounding.

Congressional Hearings

The following hearings have been held by the Energy and Water Development subcommittees of the House and Senate Appropriations Committees on the FY2016 budget request. Testimony and

[20] Net funding for the Western Area Power Administration includes the Colorado River Basins Power Marketing Fund.

opening statements are posted on most of the web pages cited for each hearing, along with webcasts in many cases.

House

- *Army Corps of Engineers, Civil Works*, February 11, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=393968.
- *Bureau of Reclamation*, February 12, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=393969.
- *Department of Energy*, February 26, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=393992.
- *Department of Energy, National Nuclear Security Administration, Weapons Activities*, March 4, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=394016.
- *Department of Energy, Applied Energy Programs*, March 17, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=394035.
- *Department of Energy, Office of Science*, March 17, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=394041.
- *Department of Energy, Environmental Management*, March 18, 2015, http://appropriations.house.gov/calendararchive/eventsingle.aspx?EventID=394044.
- *Nuclear Regulatory Commission*, March 24, 2015, http://appropriations.house.gov/calendar/eventsingle.aspx?EventID=394071.
- *National Nuclear Security Administration, Nuclear Nonproliferation and Naval Reactors*, March 25, 2015, http://appropriations.house.gov/calendar/eventsingle.aspx?EventID=394081.

Senate

- *Army Corps of Engineers and Bureau of Reclamation*, February 11, 2015, http://www.appropriations.senate.gov/hearings-and-testimony/energy-water-development-subcommittee-fy16-army-corps-engineers-bureau.
- *Nuclear Regulatory Commission*, March 4, 2015, http://www.appropriations.senate.gov/hearings-and-testimony/energy-water-development-subcommittee-fy16-nuclear-regulatory-commission.
- *National Nuclear Security Administration*, March 11, 2015, http://www.appropriations.senate.gov/hearings-and-testimony/energy-water-development-subcommittee-fy16-national-nuclear-security.

- *Department of Energy*, March 25, 2015, http://www.appropriations.senate.gov/event/energy-water-development-subcommittee-hearing-fy16-us-department-energy-budget.

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