

DOE/CF-0170



AGENCY FINANCIAL REPORT

FISCAL YEAR 2020

United States Department of Energy



About This Report

The mission of the Department of Energy (DOE or Department) is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. DOE's *Fiscal Year (FY) 2020 Agency*

Financial Report (AFR) presents key financial and performance information in support of DOE's mission, and demonstrates DOE's accountability to the American people.

Agency Financial Report (AFR)

The AFR is presented in three major sections:

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

The AFR meets the following reporting requirements:

- [Payment Integrity Information Act of 2019 \(PIIA\)](#)
- [Foundations for Evidence-Based Policymaking Act of 2018 \(Evidence Act\)](#)
- [Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015](#)
- [Fraud Reduction and Data Analytics Act \(FRDAA\) of 2015](#)
- [Digital Accountability and Transparency \(DATA\) Act of 2014](#)
- [Federal Information Security Modernization Act \(FISMA\) of 2014](#)
- [Government Performance and Results Act Modernization Act \(GPRAMA\) of 2010](#)
- [Reports Consolidation Act of 2000](#)
- [Federal Financial Management Improvement Act \(FFMIA\) of 1996](#)
- [Government Management Reform Act \(GMRA\) of 1994](#)
- [Government Performance and Results Act \(GPRA\) of 1993](#)
- [Federal Managers' Financial Integrity Act \(FMFIA\) of 1982](#)
- [Prompt Payment Act of 1982](#)

Annual Performance Report/Annual Performance Plan (APPR)

The APPR provides detailed performance information and descriptions of results for each performance measure, and performance targets for the current and upcoming fiscal years, including performance measures related to the DOE Management Priorities as required by the GPRA Modernization Act of 2010.

View DOE's AFR and APPR Reports at <https://www.energy.gov/budget-performance>

Photo Captions – see inside back cover



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Message from the Secretary



I am pleased to present the United States Department of Energy's (DOE) Fiscal Year (FY) 2020 Agency Financial Report. The report provides key performance and financial information that demonstrates the commitment to promoting energy independence, progressing scientific research and innovation, and protecting the Nation with a strong nuclear deterrent.

The DOE Strategic Plan is a roadmap for the Department's priorities for the Administration through five strategic goals: 1) Promote American Energy Dominance; 2) Advance Science Discovery and National Laboratory Innovation; 3) Ensure

America's Nuclear Security; 4) Advance National Nuclear Waste Management; and, 5) Enhance Cybersecurity Across U.S. Energy Sector and DOE Infrastructure. DOE continued to progress in achieving each of these goals in FY 2020. The Department's efforts focus on a comprehensive energy strategy from nuclear energy to fossil energy to renewables to energy storage. DOE continues the modernization and recapitalization of the nuclear security enterprise while advancing non-proliferation efforts and supporting the U.S. Navy nuclear fleet. The Department is in the midst of challenging times, continuing to address strategic management priorities including contract and project management, environmental cleanup, nuclear waste storage, and cybersecurity, all while facing an ongoing global pandemic. DOE continues to focus on improving the efficiency and effectiveness of programs and operations. In particular the Department's contributions play a major role in fighting against COVID-19. U.S. computing leaders at federal agencies and the National Lab complex, and partnerships with leading computing universities and the top technology firms in the world, have formed an unprecedented high-performance computing consortium to aid in research of the virus.

In FY 2020, the Department supported the development of affordable renewable energy and sustainable transportation, reducing the modeled electric vehicle battery pack cost to \$169 per kilowatt-hour, the modeled cost of energy from land-based wind power to 3.4 cents per kilowatt-hour, and the cost of electric drive systems to \$8 per kilowatt. DOE efforts reduced regulatory burdens, including issuance of a policy to extend long-term liquefied natural gas export authorizations to 2050 and including Canada in the Regulatory and Permitting Information Desktop (RAPID) toolkit, which makes regulatory and permitting information rapidly accessible. DOE played an important role in responses to a number of hurricanes, tropical storms, a cyclone, tropical depressions, a derecho, several wildfires, and an earthquake. In response to the severe disruption in crude oil prices caused by the COVID-19 pandemic, the Department made available storage for 21.1 million barrels of crude oil through emergency exchange agreements with U.S. producers. These efforts reduced the growing glut of crude oil that led to significant risks to the U.S. economy.

DOE user facilities continued to support scientific and technological discovery. For example, the installation of the Dark Energy Spectroscopic Instrument (DESI) at Kitt Peak Observatory has significantly increased the ability to explore dark energy, which is speeding up the expansion of the universe. In response to COVID-19, the Office of Technology Transitions developed the COVID-19 Technical Assistance Program (CTAP) to support the National Laboratories' ability to share expertise with small businesses, tribes, and state and local governments for COVID-related technical queries.

Environmental cleanup achievements include verification of readiness, start-up, and initial operations of the Salt Waste Processing Facility (SWPF), delivery and acceptance testing of the Tank-Side Cesium Removal system at Hanford, and completing the cleanup of the East Tennessee Technology Park, including the demolition of 13.6 million square feet of building space and disposal of 1.7 million cubic yards of waste.

DOE further bolstered cybersecurity across the energy sector and within the DOE enterprise. As of August 2020, EAGLE-I, an interactive geographic information system (GIS) for users to view and map the Nation's energy infrastructure and obtain near real-time informational updates concerning the electric, petroleum and natural gas sectors within one visualization platform, provides power outage information for over 90 percent of electricity customers across the United States. Within the DOE Information Technology environment, the Office of the Chief Information Officer implemented an Artificial Intelligence/Machine Learning, behavior-based threat hunting capability to assist with the analysis and detection of malicious activities.

DOE's critical national nuclear security responsibilities include annual certification of the nuclear weapons stockpile, successful implementation of the Department's strategy for extending the life of the nuclear weapons, and modernizing the supporting infrastructure. Through global nonproliferation initiatives, DOE has disposed or confirmed the disposition of over 507 metric tons of highly enriched uranium and plutonium.

The independent public accounting firm KPMG LLP conducted an audit of the FY 2020 DOE financial statements contained in this report and issued an unmodified audit opinion for the 14th consecutive year. Based on internal evaluations, I can provide reasonable assurance that the financial and performance information contained in this report is complete and reliable, and accurately describes the results achieved by the Department in FY 2020.



Dan Brouillette
Secretary of Energy
November 16, 2020

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Management's Discussion and Analysis



Photo 2



Photo 3



Photo 4



Photo 1

Agency Highlights

(Unaudited)

MISSION

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

History

The Department of Energy's lineage can be traced back to the Manhattan Project and the race to develop the atomic bomb during World War II. Following the war, Congress created the Atomic Energy Commission (Commission) in 1946 to oversee the sprawling nuclear scientific and industrial complex supporting the Manhattan Project and to maintain civilian Government control over atomic research and development (R&D). During the early Cold War years, the Commission focused on designing and producing nuclear weapons and developing nuclear reactors for naval propulsion. The creation of the Commission ended the exclusive Government use of the atom and began the growth of the commercial nuclear power industry, with the Commission having authority to regulate the new industry.

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

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



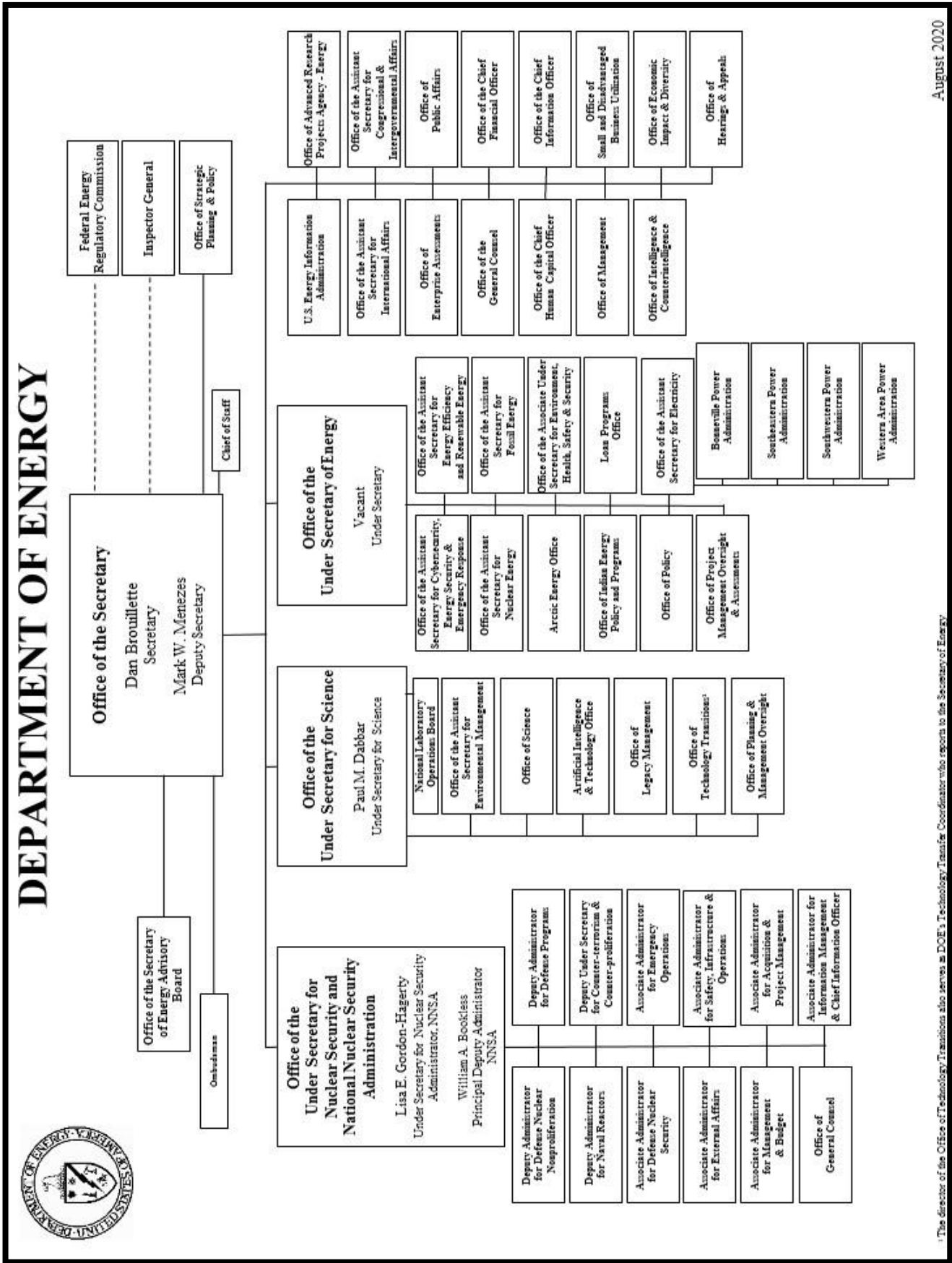
Historical photo of the Lawrence Berkeley Laboratory's scientific and technical staff arranged within and on top of the magnet of the 60-inch cyclotron. Photo taken September 1939.



Historical photo of an alpha racetrack under construction, Y-12, Oak Ridge. Photo taken 1943.

Organizational Structure

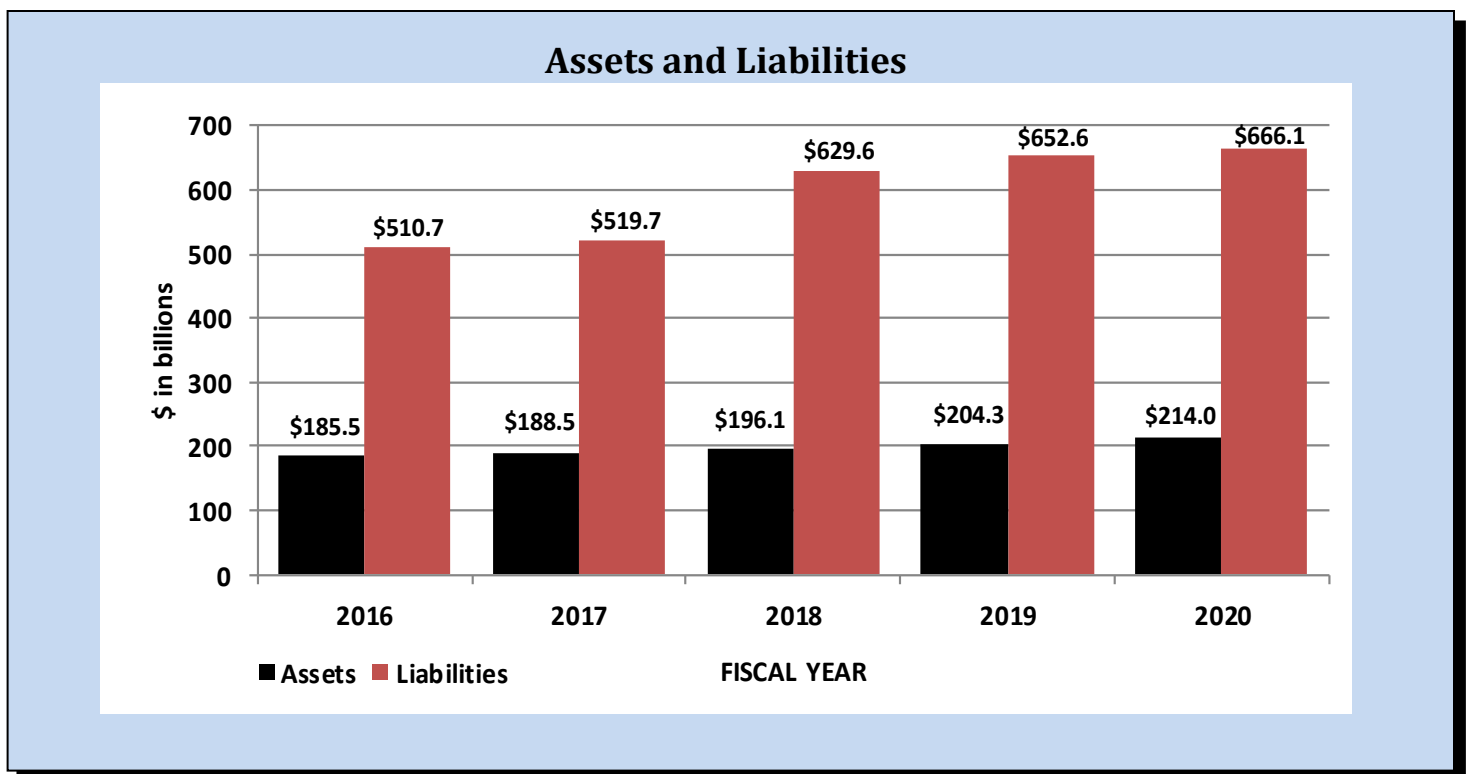
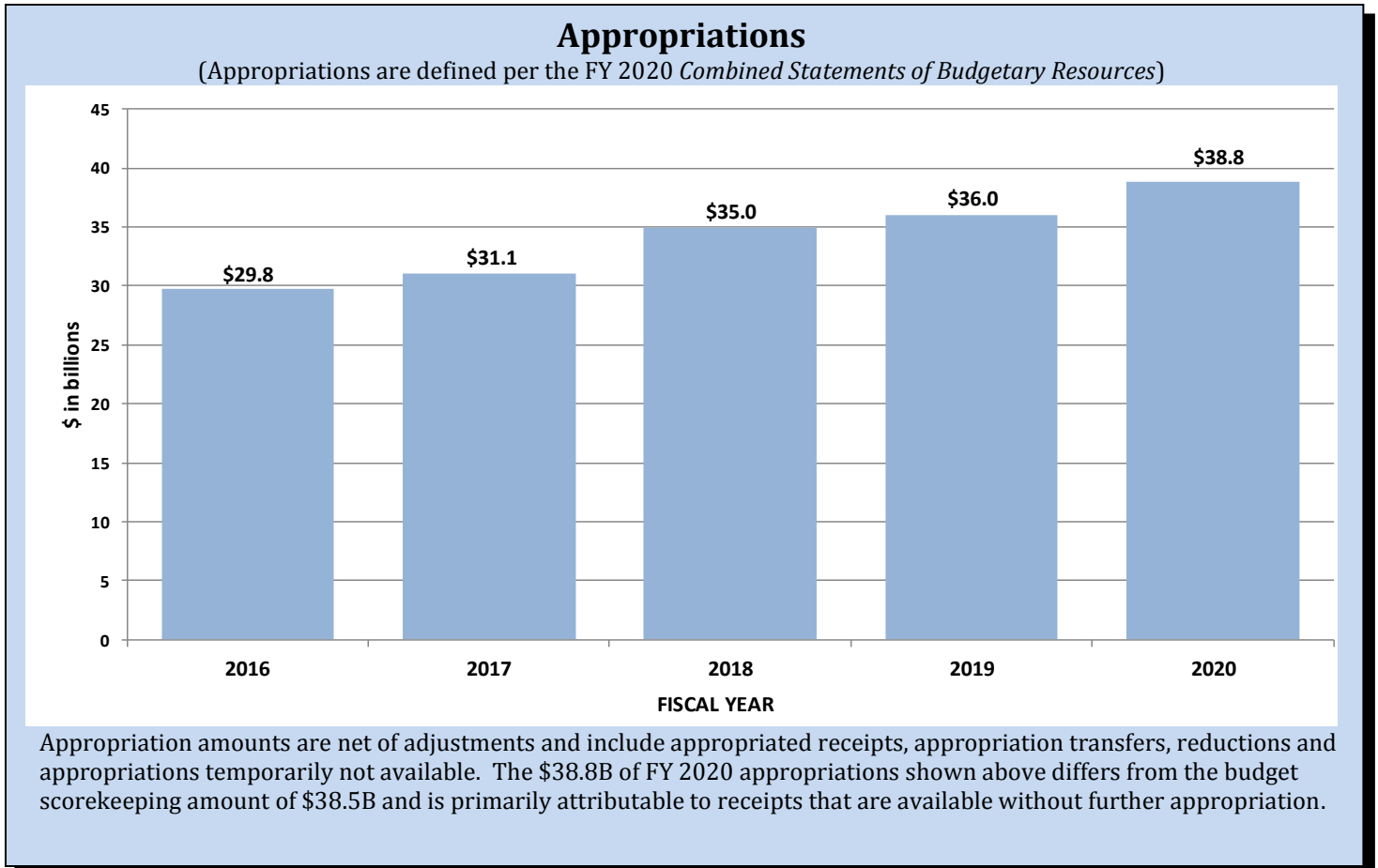
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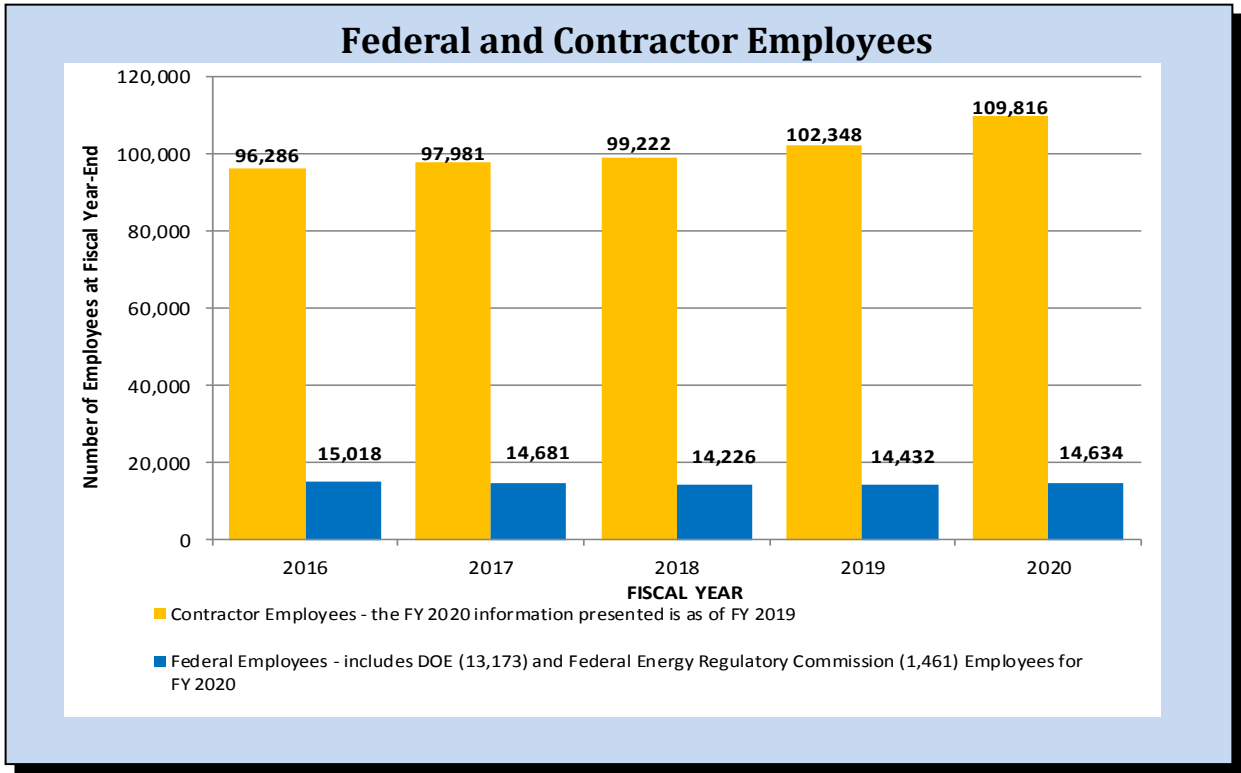
August 2020

¹ The director of the Office of Technology Transitions also serves as DOE's Technology Transfer Coordinator who reports to the Secretary of Energy.

Financial Resources



Human Capital Resources



FY 2020 Financial Management Report Card

COMPLIANCE		REQUIREMENT OR INITIATIVE	SUPPORTING INDICATORS (see page references for more detail)
YES	NO		
✓		Government Management Reform Act (GMRA) of 1994 – Financial Statement Audit	Unmodified Audit Opinion (see pages 118-127)
✓		Federal Managers’ Financial Integrity Act (FMFIA) of 1982 – Internal Controls (Section II) – Financial Systems (Section IV)	No Material Weaknesses (Section II) (see pages 32-33 and 138) Financial Systems generally conform to (Section IV) requirements and no FISMA significant deficiencies identified (see pages 32-33 and 138)
✓		Appendix A to OMB Circular No. A-123, <i>Management of Reporting and Data Integrity Risk</i> (2018)	No Material Weaknesses (see pages 32-33 and 138)
✓		Federal Financial Management Improvement Act (FMIA) of 1996	Substantially comply with Federal financial management system requirements (see pages 32-33 and 138)
✓		Federal Information Security Modernization Act (FISMA) of 2014	Substantially comply with FISMA requirements as evidenced by annual FISMA reporting data (see pages 32-33 and 138)
✓		Payment Integrity Information Act of 2019 (PIIA)	<1% overall Erroneous Payment Rate and not susceptible to significant improper payments (see pages 141-142)

Performance Summary

Additional performance results can be obtained at <http://energy.gov/budget-performance>.

	Target	Fiscal Year 2019 Performance	Fiscal Year 2018 Performance	Fiscal Year 2017 Performance	Fiscal Year 2016 Performance	Fiscal Year 2015 Performance
Nuclear Security and NNSA	Met	36	35	33	32	37
	Not Met	4	5	6	8	6
	Data Not Available	0	0	0	1	1
Science	Met	21	23	25	24	24
	Not Met	9	7	6	8	9
	Data Not Available	0	0	0	0	0
Energy	Met	54	47	48	47	60
	Not Met	11	4	5	5	6
	Data Not Available	1	0	0	0	0
Other Programs	Met	12	13	17	11	10
	Not Met	6	7	8	12	15
	Data Not Available	0	7	0	0	0
DOE TOTAL	Met	123	118	123	114	131
	Not Met	30	23	25	33	36
	Data Not Available	1	7	0	1	1
Share of Targets (in Percent)	Met	80%	80%	83%	77%	78%
	Not Met	19%	16%	17%	22%	21%
	Data Not Available	1%	5%	0%	1%	1%

Major Laboratories and Field Facilities



Strategic Plan and Program Performance (Unaudited)

FY 2020 results and outcomes for Department of Energy (DOE) programs, as aligned with the strategic goals, are presented and summarized within this report. A detailed discussion of results for the Department's FY 2020 performance goals, assessment methodologies, metrics, external reviews, and documentation of performance data are presented in the *FY 2020 DOE Annual Performance Report*, which is scheduled for publication in February 2021. Additional performance information is available at <http://energy.gov/about-us/budget-performance>.

Goal 1: Promote American Energy Dominance

Objective 1	Develop energy technologies that increase the affordability of domestic energy resources
Objective 2	Reduce regulatory burdens on domestic energy resources
Objective 3	Revitalize U.S. nuclear energy sector
Objective 4	Improve electric grid reliability and resilience
Objective 5	Increase domestic and international accessibility to American energy resources
Objective 6	Protect the U.S. economy from severe petroleum supply disruptions
Contributing Programs	Cybersecurity, Energy Security, and Emergency Response; Electricity; Energy Efficiency and Renewable Energy; Fossil Energy Research and Development; Indian Energy; Nuclear Energy; Strategic Petroleum Reserve

In support of an energy dominance strategy, DOE, through the work of the contributing programs for Goal 1, is a national leader in cutting-edge research and development (R&D) on an extensive range of energy technologies, identifying and promoting technological advances to increase energy affordability and efficiency. DOE also leads national efforts to research and develop technologies to modernize the electric grid through improving reliability and resilience; enhance the security, reliability, and resilience of energy infrastructure; improve domestic fossil energy production and use; and expedite recovery from energy supply disruptions. DOE identified noteworthy progress toward strategic objectives 1, 2, and 3 in FY 2020. DOE assessed strategic objectives 4, 5, and 6 as focus areas for improvement. Examples of FY 2020 program accomplishments supporting achievement of the strategic objectives under Goal 1 include:

Objective 1	Develop energy technologies that increase the affordability of domestic energy resources
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Energy Efficiency and Renewable Energy

Developing Affordable Renewable Energy and Energy Efficiency Technologies:

In FY 2020, the Office of Energy Efficiency and Renewable Energy (EERE) was successful in meeting the annual performance targets for reducing the modeled cost of electric vehicle battery packs to \$169/kWh and electric drive systems to \$8/kWh. EERE met the targets of contributing to reductions in the energy intensity of the manufacturing sector by an estimated 2.5 percent and lowering the levelized cost of energy to 3.4 cents/kWh for land-based wind.

Fossil Energy Research and Development

Economic Extraction, Recovery, and Upgrading of Rare Earth Elements from Coal-Based Resources:

Researchers from the University of Utah and Virginia Tech, in coordination with the Office of Fossil Energy (FE)/National Energy Technology Laboratory (NETL), have evaluated a new, low-cost technology to extract and recover an enriched, mixed rare earth element (REE) oxide (REO) product from REE-bearing, coal-based resources. The project successfully obtained from industry sources six different coal waste samples with enriched REE content greater than 300 parts per million on a dry weight basis. The technology evaluation began with selective separation of coal waste resources, followed by heap leaching using bio-oxidized and conditioned solution, with the resulting extracted REEs concentrated by solvent extraction and ultimately recovered by precipitation. The project goal of achieving a 2-8 percent by weight mixed REOs product was far exceeded with the successful production of 36.7 percent mixed REOs equivalent by weight.

Negative Emissions Technologies: In FY 2020, the Carbon Capture Program leveraged past research in materials for expanding and accelerating the development of negative emission technologies such as direct air capture (DAC) and biomass energy with carbon capture and sequestration. As part of this initiative, the program issued a Funding Opportunity Announcement (FOA) for (i) novel DAC materials and processes, and (ii) testing of existing DAC materials in integrated field units that capture CO₂. Twelve awards totaling \$13.5 million were made.

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

Onshore Unconventional Technologies: DOE's 17 Field Laboratories, along with fundamental shale research and associated data analytics, are focused on increasing ultimate recovery and operational efficiency based on geologic basin, and a few have or are moving into follow-on phases including advanced data analytics of the various data streams that are being captured. New projects were awarded and DOE launched four projects for advanced subsea system technologies to improve efficiency and capabilities for enhanced oil recovery offshore, and three for low-cost, efficient treatment technologies for produced water, including techno-economic analyses.

Objective 2	Reduce regulatory burdens on domestic energy resources
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Energy Efficiency and Renewable Energy

Reducing Regulatory Burdens: In FY 2020, EERE published scientific data and analysis to support Federal Energy Regulatory Commission development of consistent best practices for licensing studies and requirements that reduce the licensing timeframe for non-powered dams and closed-loop pumped storage projects to two years or less, as mandated by Title III of S. 3021 (America's Water Infrastructure Act of 2018).

Fossil Energy Research and Development

Natural Gas Infrastructure Modernization Partnership Cooperative Agreement:

In FY 2020, in cooperation with and support from DOE, the National Association of Regulatory Utility Commissioners published *Artificial Intelligence (AI) for Natural Gas Utilities: A Primer* and *The Sampling of Methane Emissions Detection Technologies and Practices for Natural Gas Distribution Infrastructure Handbook*. The *AI Primer* is designed to assist pipeline operators, utility systems, and state regulators to use AI to improve natural gas utility service and suggest areas in which AI applications can further the safe, reliable, and affordable operation of natural gas infrastructure and enhance the reliability of natural gas pipeline delivery. The *Methane Emissions Detection Technologies and Practices Handbook* summarizes why methane leaks occur in the context of the natural gas distribution network. The handbook identifies existing and emerging leak detection technologies and practices, outlines partnerships to further the development of novel tools, and helps facilitate the exchange of information on these new and emerging technologies. Pipeline operators, methane leak detection vendors, and state regulators can use the handbook to stay up to date on innovations associated with methane emissions detection technologies and best practices for natural gas distribution infrastructure.

Crude by Rail Research for Safe Energy Transport: In FY 2020, the DOE/FE, the U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, and Transport Canada, Transport of Dangerous Goods Directorate published a Report to Congress on a research study by Sandia National Laboratories that investigated physical, chemical, and

combustion properties of crude oils, and in particular the so-called "tight oils," like Bakken crude, in response to high-profile accidents involving movement of crude by rail. Based on the results of the study, which assessed vapor pressure as it affects the thermal hazards from the combustion events studied, DOE and DOT found that no further regulations by the Secretary of Transportation or the Secretary of Energy or further legislation is necessary to improve the safe transport of crude oil with specific regard to vapor pressure.

Natural Gas Regulation: DOE has undertaken many supportive and deregulatory measures in FY 2020 to assure the long-term benefits of United States (U.S.) liquefied natural gas (LNG) exports and America's global energy leadership in LNG. These actions include the efficient review of LNG export applications; in FY 2020, DOE/FE issued approvals for LNG exports to non-free trade agreement countries to seven new large-scale projects, including two proposed for the West Coast. Also in FY 2020, to lock in the long-term benefits of U.S. LNG exports, DOE proposed and finalized a policy to extend long-term LNG export authorizations to 2050.

Electricity

Regulatory and Permitting Information Desktop (RAPID) Toolkit Expands to Canada:

The Office of Electricity (OE), with the assistance of staff at Natural Resources Canada, expanded the RAPID Toolkit to include bulk electric transmission line permitting regulations at the Canadian federal and provincial levels. The expanded toolkit streamlines coordination with Canada, a crucial energy trading partner, increasing transparency and collaboration among electricity stakeholders and further prioritizing electricity resilience and reliability across the United States and Canada.

Bulk Power System Executive Order: On May 1, 2020 President Trump signed Executive Order (EO) 13920, "Securing the United States Bulk-Power System," which authorizes the Secretary of Energy to work with Federal partners and the energy industry to secure America's Bulk-Power System. OE issued a Request for Information (RFI) on July 8 seeking stakeholder input and recommendations, including from industry and the public, regarding the supply chain and economic analysis related to the EO. The comment period closed on August 28 and responses will inform an anticipated notice of proposed rulemaking to implement the EO.

Objective 3	Revitalize U.S. nuclear energy sector
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Nuclear Energy

Accident Tolerant Fuel (ATF): The ATF program achieved major milestones in February and August 2020 when the first ATF fuel samples were discharged from two different commercial U.S. reactors after operating successfully for a complete cycle in the reactor cores. This

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

is a major achievement towards installing full core reloads of ATF in commercial reactors in the mid-2020s. ATF promises to offer significant improvements in performance compared to existing commercial nuclear fuel.

National Reactor Innovation Center (NRIC): DOE established the NRIC in FY 2020 to accelerate demonstration of advanced reactors by providing technology developers with access to the physical infrastructure, materials, sites, and expertise to test and demonstrate reactor concepts, assess performance, and accelerate the licensing and commercialization of these new nuclear energy systems. Industry has fully interacted with NRIC in the first year. NRIC has initiated site and regulatory preparations and has commenced design of demonstration test beds at Idaho National Laboratory (INL) to support a variety of advanced reactor testing needs. NRIC has launched an advanced construction technology initiative to execute an industry cost-shared demonstration of construction technology over the next three years that could have major impacts on cost and schedule performance of advanced nuclear energy systems. While NRIC is based at INL, resources at other national laboratories and potential nuclear reactor sites will play an important role in achieving NRIC's objectives.

Tri-structural Isotropic (TRISO) Fuel Qualification: In July 2020, irradiation of the advanced gas reactor - 5/6/7 experiment was completed at the INL Advanced Test Reactor. This experiment supports industry efforts to license reactors using TRISO fuel and is the culmination of 15+ years of DOE investment in this area. The use of TRISO fuel supports operation of high temperature reactors at average temperatures of 650 degrees Celsius, which is hotter than current light water reactors by a factor of two. This opens the door to developing reactors with higher energy efficiency and providing a source of clean energy for sectors that have typically depended on fossil fuels.

Objective 4	Improve electric grid reliability and resilience
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Multi-Program

Improving Grid Reliability and Resilience: In 2020, the Grid Modernization Initiative announced the results of the latest Grid Modernization Lab Call with funding of approximately \$80 million over three years. This investment, in the first year of a three-year effort, will strengthen, transform, and improve the resilience of energy infrastructure to support the Nation's access to reliable and secure sources of energy now and in the future. The portfolio of 25 projects were funded across five applied offices including EERE, OE, FE, Nuclear Energy (NE) and Cybersecurity, Energy Security, and Emergency Response (CESER). This solicitation is focused on developing projects in resilience modeling, energy storage and system flexibility, advanced sensors

and data analytics, institutional support and analysis, cyber-physical security, and generation.

Energy Storage Grand Challenge: DOE initiated a cross-cutting effort to create and sustain America's global leadership in energy storage use, production, and exports, while using a secure, domestic manufacturing supply chain not dependent on foreign sources of critical materials. To initiate the Challenge a number of virtual workshops put forth the goals of the challenge to over 1,800 participants. In July, DOE released the Energy Storage Grand Challenge Draft roadmap outlining the Department-wide strategy to accelerate innovation across a range of storage technologies based on three concepts: Innovate Here, Make Here, and Deploy Everywhere.

Energy Efficiency and Renewable Energy

Advanced Research on Integrated Energy Systems (ARIES): DOE launched a new capability at the National Renewable Energy Laboratory called the Advanced Research on Integrated Energy Systems (ARIES). ARIES is a unique research platform, designed to de-risk, optimize, and secure current energy systems and to provide insight into the design and operation of future energy systems. It will address the fundamental challenges of variability in the physical size of new energy technologies being added to energy systems; controlling large numbers (millions to tens of millions) of interconnected devices; and integrating multiple diverse technologies that have not previously worked together.

Fossil Energy Research and Development

Hydrogen Technologies: DOE continued progress towards commercializing hydrogen technologies by issuing a RFI focused on R&D that supports commercial approaches for a hydrogen-based energy economy while achieving net-negative carbon dioxide emissions through gasification of coal, biomass, and carbonaceous mixed wastes, such as plastics. The result will be increasingly efficient and fuel-flexible gasification-based plants able to use coal, biomass, and waste plastics for valuable hydrogen and fuels production, which are intended to be integrated with pre-combustion carbon capture to achieve negative carbon emissions.

Coal FIRST Concepts Advance Toward FEED Studies:

Thirteen concept designs and seven pre-FEED (Front End Engineering Design) studies were completed under NETL's Coal FIRST (Flexible, Innovative, Resilient, Small, Transformative) plant concepts Request For Proposals. Plant concepts were solicited to help DOE understand the configurations, equipment features, performance characteristics, and cost implications for a future commercial coal plant. After the concept designs were completed, seven of the concepts were selected to proceed with a pre-FEED study. The studies were used to identify three Coal FIRST plant concepts that are

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

nearly ready for a full FEED study, and four additional promising plant concepts. Two FOAs with a combined value of over \$100 million were issued to solicit cooperative agreements to meet the needs of the Coal FIRST program.

Electricity

Rural Battery Storage Projects: OE launched four projects in partnership with five electric cooperatives and the National Rural Electric Cooperative Association. The projects will examine the ways in which energy storage systems can improve the resilience of critical infrastructure in rural areas. Two of the projects simultaneously will support military installations served by electric cooperatives and will assist and contribute to Department of Defense energy assurance goals.

Bonneville Power Administration:

Multi-Year Project Completion: BPA completed two multi-year projects in 2020. BPA completed the McNary 4160V/480V Station Service Upgrade, a \$51 million project to replace and upgrade the station service distribution system at McNary dam located on the Columbia River near Umatilla, Oregon. BPA completed the Morrow Flat customer interconnection – an \$18 million project that added 450 megawatts (MW) of transmission capacity in the Northeast Oregon area to serve increasing load demand for an existing database customer.

Cybersecurity, Energy Security, and Emergency Response

2020 Emergency Response: As the lead for DOE's responsibilities as the Sector Specific Agency for energy, and the coordinating agency for Emergency Support Function (ESF) #12, CESER spent 190 days activated responding to five hurricanes, one tropical storm, one cyclone, one tropical depression, one derecho, two wildfires, one earthquake and the COVID-19 pandemic.

Counteracting Cyber-physical Attacks: The Lawrence Berkeley National Laboratory (LBNL)-led Adaptive Control of Electric Grid Components for Cyber-Resiliency project is developing supervisory control algorithms to counteract cyber-physical attacks that have compromised multiple independent systems in the electric grid. The project team will analyze the stability of various feedback control systems (e.g., distributed energy resources (DER) and voltage regulation and protection systems) in the electric grid to determine what parameters an attacker is likely to change if DER and utility voltage regulation and protection systems were compromised. Analysis of derived attack and defensive strategies will identify specific system vulnerabilities as well as determine recommended upgrades to strengthen system cyber security.

On March 5th, 2020, CESER assembled a group of research teams working on Cybersecurity for Energy Delivery Systems (CEDs)-supported quantum information science

projects at Electric Power Board (EPB) in Chattanooga, TN for reviews and cybersecurity demonstrations. EPB, because of the citywide fiber optic network, is the only utility in the nation that is field testing quantum technology with national researchers to protect America's electric grid from cyber-attacks. Severe distance limitations previously prevented quantum key distribution from becoming a viable addition to existing grid management techniques, but this test proved that three distinct systems can complete a real-world relay of quantum keys across the city.

EAGLE-I: In support of DOE's responsibilities as the coordinating agency for Emergency Support Function #12 and as the Sector Specific Agency for Energy, DOE worked with state partners in FY 2020 to expand the coverage and capabilities of EAGLE-I, incorporating new data feeds, layers, and capabilities. As of August 2020, EAGLE-I provides near real-time power outage information for over 90 percent of electricity customers across the U.S. An updated "communities" feature has been added for DOE to share predictive models and damage assessments with approved users.

Energy Sector Specific Agency Support: As the Sector Specific Agency for energy, DOE leads Federal government actions through the Energy Government Coordinating Council for the electricity and oil and natural gas subsectors. In FY 2020, DOE worked with the Electricity Sector Coordinating Council to advance the electricity subsector's grid reliability and resilience efforts focused on three priorities of collective defense, collective response, and preparedness. DOE met with the Oil and Natural Gas Sector Coordinating Council throughout the year to assess and discuss security and threats to pipeline infrastructure, efforts to improve information sharing on cybersecurity and regulation, and greater cooperation on emergency response. CESER held monthly threat information sharing meetings between DOE and the Information Sharing and Analysis Centers for electricity, oil, and natural gas sectors to understand threats and collectively develop mitigation measures for the energy sector with industry. In addition to coordinating response efforts, CESER was a leader in drafting recovery and return-to-work guidance with the subsectors. The "Oil and Natural Gas Responsible Recovery Compendium" and the "ESCC Resource Guide – Assessing and Mitigating the Novel Coronavirus (COVID-19)" were updated as the COVID situation evolved and both have been extolled as a resource for other critical infrastructure sectors. DOE supported the Department of Homeland Security essential critical infrastructure workers guidance, as well, with letters to State Governors.

Managing the Risk of Geomagnetic Disturbance (GMD) & Electromagnetic Pulse (EMP): DOE both directly enhanced efforts on EMP and GMD and increased collaboration with industry and government partners to best leverage resources for assessments, testing, and pilot programs. DOE made progress on a number of the actions under the Executive Order on Coordinating National

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

Resilience to Electromagnetic Pulses and the 2020 National Defense Authorization Act, including: identifying critical equipment and systems; preparing unclassified waveforms for partner use; working so that DOE's response plans, programs, and procedures and operational plans all account for the effects of EMP and GMD; testing equipment to identify vulnerabilities; and implementing pilot programs. Pilot programs underway collectively: cover generation, transmission, and distribution; address EMP and GMD; and include electricity and natural gas infrastructure and resources.

Nuclear Energy

Electric Grid Resiliency and Reliability: As the most reliable source of electricity, nuclear energy is vital to the Nation's energy security. Through the Light Water Reactor Sustainability program, DOE is working to enhance the long-term viability of the existing fleet of nuclear power plants, supporting the reliability and resiliency of the electric grid. The Department is developing advanced nuclear reactors that are more flexible and scalable to offer additional options that will enhance the reliability and resiliency of the electric grid as it evolves in the future. NE is actively participating in the Department's Grid Modernization Initiative with emphasis on how the existing fleet of nuclear power plants can support the reliability, resiliency, and security of the grid and how current and future nuclear power plants can better integrate with variable generators.

Objective 5	Increase domestic and international accessibility to American energy resources
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Fossil Energy Research and Development

Gas Hydrates - Alaska North Slope: In 2020, in collaboration with the Japan Oil, Gas and Metals National Corporation, DOE developed the well design, pressure-core acquisition, and surface facility plans for the next phase on the Alaska North Slope long-term reservoir response experiment. In FY 2021, three wells will be drilled, a Science-Data Well and two Production Test Wells, for a long-term (18 to 24 month) reservoir response test experiment. This long-term reservoir response experiment in Alaska utilizing depressurization production technology is the next critical step in advancing the production technology to a point where industry could further develop this potential resource. The success of the three test wells is critical to DOE initiating the long-term production experiment and moving closer to characterizing, evaluating, and confirming the potential for gas hydrates production on the North Slope of Alaska and in similar settings throughout the U.S.

NETL Creates "Market Analysis of Carbon Products from Coal" Report: NETL's Energy Markets Analysis Team developed a comprehensive report that contains quantitative estimates of market size and growth for carbon products, and information on producers, importers, exporters, and the potential for coal-derived carbon products to satisfy this demand, as well as barriers to market entry. This report has informed programmatic decisions about future research directions and has highlighted markets that can consume significant amounts of coal exclusive of traditional thermal and metallurgical applications.

Indian Energy Policy and Programs

Tribal Energy: The Office of Indian Energy (IE) selected nine applications for negotiation of award in FY 2020, building on the 27 awards made in FY 2019, and issued a FOA for up to \$15 million in energy technology deployment on tribal lands. The nine awards selected in May 2020 combined represent over 3.7 MW of new generation that will power over 180 tribal buildings, with combined lifetime savings of over \$24 million—significant investments that will yield tangible results to improve the quality of life for these communities. Through these projects, IE will continue efforts to maximize the development and deployment of energy solutions in consultation with Indian tribes. The projects will install energy systems in tribal buildings and on a community scale across Indian Country, and in some cases, provide systems for autonomous operation, thereby increasing community resilience.

Objective 6	Protect the U.S. economy from severe petroleum supply disruptions
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Petroleum Reserves

SPR Petroleum Account: In response to the severe disruption in crude oil prices caused by the COVID-19 pandemic, the Department provided storage for 21.1 million barrels of crude oil through emergency exchange agreements with U.S. producers. These efforts reduced the growing glut of crude oil that led to significant risks to the U.S. economy. Additional FY 2020 activity included sales of 9.85 million barrels of SPR crude oil to meet the requirements of Section 501 of the Consolidated Appropriations Act of 2018 (P. L. 115-141) and Section 403 of the Bipartisan Budget Act of 2015 (P.L. 114-74), raising a total of \$566.6 million in revenue for the U.S. Treasury. These sales were conducted in October and November 2019, before the disruption in global oil prices caused by the COVID-19 pandemic.

Goal 2: Advance Science Discovery and National Laboratory Innovation

Objective 7	Conduct discovery-focused research to increase our understanding of matter, materials, and their properties
Objective 8	Provide the Nation’s researchers with world-class scientific user facilities that enable research and advance scientific discovery
Objective 9	Advance high-performance and future computing technologies and the potential of Artificial Intelligence technologies to ensure American primacy in computing and to meet national research, security, and economic objectives
Objective 10	Enable commercialization of national laboratory innovation
Contributing Programs	Artificial Intelligence & Technology, Science, National Nuclear Security Administration, Technology Transitions

DOE’s Office of Science (SC) is the largest Federal sponsor of basic research in the physical sciences. DOE’s world-leading research in the physical, chemical, biological, and computational sciences contributes fundamental scientific discoveries and technological solutions that support American pre-eminence in science and innovation. DOE’s SC and the National Nuclear Security Administration (NNSA) lead the national effort to maintain primacy in high-performance computing. DOE identified noteworthy progress toward strategic objective 10 in FY 2020. Examples of FY 2020 program accomplishments supporting achievement of the strategic objectives under Goal 2 include:

Objective 7	Conduct discovery-focused research to increase our understanding of matter, materials, and their properties
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Science

Increasing the Arsenal of Radioisotopes in the Fight Against Cancer: Pharmaceuticals that incorporate radioactivity can help tailor treatments to a patient’s individual response. Copper-67 combines the ability to visualize and treat tumors in a single agent, which reduces the number of patient injections and hospital visits, and ultimately reduces health care costs. Routine production of high purity copper-67 has been established, providing clinically relevant quantities for medical research and clinical trials to treat cancer. Researchers increased the availability of copper-67 by increasing production quantities per batch by a factor of 10. Copper-67 is produced by transmuting a portion of the zinc target using a high-power electron beam. The novel process developed to isolate the copper-67 from the zinc target supports the production of large quantities of very pure copper-67, and also the reuse of the bulk zinc left over after irradiation for future copper-67 production, further reducing costs.

Soil Viruses: A Rich Reservoir of Diversity: Viruses are the largest genetic reservoir on Earth. These viruses have important implications for agriculture and public health, and scientists believe viruses to be major drivers of biogeochemical processes in the soil environment. Despite widespread distribution and the profound importance of soils to human activities, virtually nothing

is known about ribonucleic acid (RNA) viruses in soils. In the first example of a sequencing-based analysis of RNA viruses in soil, scientists sampled controlled soil samples over a time series and analyzed what genes the microbes actively used. The aim was to understand the diversity of soil viruses and how the virus communities change over time. The analysis indicates that the most abundant viruses were part of the family Narnaviridae, which likely infect fungi. The study also identified a second major group of viruses, the Leviviridae, which may infect Proteobacteria. Researchers found that viral and host community structure was dynamic and responded to experimental treatments with root litter, suggesting that viral communities were actively replicating and responding to environmental change. These findings have expanded our understanding of the importance of RNA viruses in the environment and will have important implications for carbon cycling in soils.

Watching Electrons Harvest Light at the Nanoscale: To make fuel from sunlight and water the light needs to be absorbed by a material that releases electrons. The process leaves behind holes in the material. The overall scheme only works well if many pairs of electrons and holes are created and if these pairs last for a long time. Otherwise, the chemical reaction that makes the fuel cannot happen. Gold nanoparticles, which absorb sunlight well, can be used for this transformation when attached to a substrate made of titanium dioxide. When irradiated, the electrons in the gold are excited, creating holes in the gold. When transferred to the titanium dioxide, the electrons stay away from the holes much longer than if each remained on the gold. Researchers previously thought that almost half of the photons would generate an electron-hole pair, which is not always true. Using time-resolved X-ray photoelectron spectroscopy at the Advanced Light Source, researchers developed a technique to count the numbers of transferred electrons. The researchers found that only one in 1,000 photons generates an electron-hole pair in a gold nanoparticle. It then takes less than a billionth of a second for the electron to come back from the titanium dioxide and recombine with the hole. The study may explain why some solar fuels devices don't work as well as hoped and provide benchmarks for better future designs.

Demonstrating unprecedented coherence times in quantum systems: Viable quantum computing technology relies on the development of quantum bits, or qubits, which can maintain quantum information for periods of time longer than one second. The coherence time is a function of the system’s quality (Q) factor. SC/High Energy Physics’s Quantum Information Science Enabled Discovery funded research at Fermi National Accelerator Laboratory (FNAL) for the transformation of superconducting radiofrequency cavities to full quantum regimes of ultralow temperatures and single photon field levels. Drawing on the laboratory’s decades of world-leading expertise in superconducting technology and exploiting existing infrastructure, FNAL scientists and engineers designed superconducting resonators that routinely achieve a Q more than 1,000 times better than existing resonators used in quantum computing.

A Landmark Advance on the Road to Quantum Computing: Classical computers work by solving complex logic using electronic “bits” that can be in a logical state of 0 or 1. It is also possible to prepare a quantum mechanical two-state system, or qubit, such as an electron with spin up or down. The difference is, for the probabilistic quantum mechanical case, it is also possible for the electron to be in a coherent superposition of both states simultaneously. That difference is key to Quantum Computing (QC) – a revolutionary new paradigm for future computers that will be capable of solving problems intractable with today’s capabilities. The viability of QC depends in part on how long such coherent superpositions can be sustained. Over the past 20 years, superconducting qubit coherence times have increased more than five orders of magnitude, from less than one nanosecond to more than 100 microseconds. Nonetheless, far longer coherence times are needed. Nuclear physicists from the Massachusetts Institute of Technology and Pacific Northwest National Laboratory recently made a landmark discovery that ionizing radiation from environmental radioactive materials, contaminants, and cosmic rays can limit superconducting qubits to coherence times in the millisecond regime – far too short for practical QC. This finding has implications for the design of future QC facilities where radiation shielding may be needed to reduce the flux of ionizing radiation and increase superconducting qubit coherence times.

Objective 8	Provide the Nation’s researchers with world-class scientific user facilities that enable research and advance scientific discovery
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Science
Scientists Solve Key Challenge for Controlling “Runaway” Electrons in Fusion Plasmas: Sudden loss of plasma confinement in large tokamaks can lead to the formation of electrons moving close to the speed of light. These “runaway electron beams” (REs) can severely damage the wall of a tokamak and must be mitigated in

future reactors and power plants. For the first time, the research team at DIII-D created an RE beam to analyze constituent electrons. The researchers studied the internal structure of the RE beam and the results suggest that REs with a certain energy can excite kinetic instabilities in the fusion plasma, which in turn can weaken the RE beam before it causes damage. The study also showed that other types of instabilities driven by RE current are possible, and that these different instabilities could cause an uncontrolled release of REs. Researchers do not yet know whether this uncontrolled release of REs would be a problem or benefit for future devices. The results, therefore, point to future research on the mitigation and control of disruptions in tokamaks.

New Instrument Begins Study of the Expansion of the Universe and Dark Energy: The Dark Energy Spectroscopic Instrument (DESI) was installed on the Mayall Telescope at Kitt Peak Observatory in Arizona. The new instrument has a robotic array of 5,000 fiber-optic “eyes” to capture the spectra produced by individual galaxies and understand the motion by measuring the redshifts of light. The long-awaited instrument is designed to explore the mystery of dark energy, which makes up about 68 percent of the universe and is speeding up expansion. DESI’s components are designed to automatically point at preselected sets of galaxies, gather the light, and then split that light into narrow bands of color to precisely map the distance from Earth and gauge how much the universe expanded as this light traveled to Earth. In ideal conditions, DESI can cycle through a new set of 5,000 galaxies every 20 minutes. DESI has significantly increased sensitivity to dark energy and is considered to be a Stage-4 dark energy experiment by the community. It is the first Stage-4 instrument to be brought online.

Keeping Cool with an Innovative Bunched Beam Accelerator: To study the basic properties of matter, researchers at the Relativistic Heavy Ion Collider (RHIC) collide beams of gold atoms. By tightly bunching the ions in the beams, scientists can increase the number of collisions, and therefore the amount of data collected. To obtain more tightly bunched beams, “heat” needs to be removed from the ion beam. The recently demonstrated Low Energy RHIC electron cooling system uses a beam of electrons to extract this heat from a beam of ions. The lightweight electrons are inherently cooler than the larger ions moving at the same speed, so mixing “cool” electrons with ions in RHIC can extract “heat” that would normally cause the ions to spread out. To make this system a reality, the team built and commissioned a new state-of-the-art electron accelerator that would fit inside the RHIC tunnel. This new accelerator required the use of compact radiofrequency (RF) acceleration technology in place of the standard direct-current method used in all previous electron-cooling accelerator setups. Because RHIC’s ions circulate as bunches, not a continuous stream, the electrons had to be produced in pulses that matched in timing, energy, and trajectory – all while maintaining intrinsic coolness. Because RHIC is really two accelerators,

with ion beams moving in opposite directions in two beampipes, the team had to figure out how to cool both beams with the same stream of electrons. To generate and rapidly accelerate these precision electron bunches, the team shot a high-power beam of green light from a pulsed laser directed at high voltage onto a surface that easily emits electrons to produce a photocathode electron gun. Precision alignment and trimming of the laser pulses controls the frequency of the electron bunches, while beam-monitoring instruments and precisely placed RF acceleration cavities support adjustments that keep the ions' energy spread as low as possible. Once these finely tuned electron bunches enter one of RHIC's two accelerator beampipes, the bunches propagate with the ions and extract heat through a 100-meter section, then make a 180-degree turn into the twin accelerator to cool the ions moving in the opposite direction. The system is in use for the second year of a three-year program to conduct RHIC collisions over a range of energies that span the phases of nuclear matter. The advances made with this system open the door to applying the same principles at higher energies and at other facilities.

Artificial Intelligence Joins the Team for Smarter and Faster Experiments: Scientific instruments are increasingly powerful, able to quickly acquire data and produce huge data sets. To make full use of these tools, researchers need ways to speed experiments and data analysis. The new SMART (Surrogate Model Autonomous expeRiment) method is an autonomous decision-making algorithm for scientific instruments to autonomously explore scientific problems without human intervention. The SMART method, which is based on the statistical technique called Kriging, selects what measurement to perform by calculating uncertainty, and thus the gain in knowledge expected with future measurements. In other words, it estimates what follow-up experiment will generate the most information about a scientific problem, then automatically launches that experiment. With each new experiment and each new measurement, the SMART method focuses on ever-smaller areas of remaining uncertainty with a scientific question. After developing the SMART method, the research team, which included scientists from the Center for Advanced Mathematics for Energy Research Applications, deployed the method for X-ray scattering experiments at the Complex Materials Scattering beamline operated in partnership by two DOE user facilities, the National Synchrotron Light Source II and the Center for Functional Nanomaterials. The tests found that the SMART method was quickly able to focus on the area of interest in an image instead of the background, leading to improved accuracy and results up to six times faster than conventional methods.

Objective 9	Advance high-performance and future computing technologies and the potential of Artificial Intelligence technologies to ensure American primacy in computing and to meet national research, security, and economic objectives
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Science
“Multitasking” AI Tool Extracts Cancer Data in Record Time: Population-level cancer surveillance is critical for monitoring the effectiveness of public health initiatives aimed at preventing, detecting, and treating cancer. Digital cancer registries collect, manage, and store data on cancer patients. These registries assist scientists identify trends in cancer diagnoses and treatment responses, which can help guide research funds and other resources. Cancer pathology reports are complex, and human researchers must analyze these reports to interpret variations in the method of recording information. To better leverage cancer data for research, a team of researchers from DOE and the National Institutes of Health developed a first-of-a-kind multitasking convolutional neural network (CNN) to extract information from textual pathology reports. To train and test multitask CNNs with real health data, researchers used a secure data environment, more than 95,000 pathology reports from the Louisiana Tumor Registry, and the capabilities of the Oak Ridge Leadership Computing Facility. The researchers compared multitask CNNs to three established AI models, including a single-task CNN. The researchers concluded that the multitask CNN offers superior classification accuracy for automated coding of cancer pathology documents. This finding was true across a wide range of cancers and across multiple information extraction tasks. The multitask CNN achieved this performance while needing training and inference time similar to that needed for a single task-specific model.

AI Helps Scientists Quantify Irradiation Effects: Scientists who are working to understand how defects induced by neutron irradiation govern the changes in reactor alloy properties must characterize and quantify radiation-induced defects. The lack of automated defect analysis has hindered scientists' ability to produce statistically meaningful quantification of radiation-induced defects. This has created an increasing bottleneck for the design of alloys for nuclear reactors. Drawing on expertise in both microscopy and computer vision, a team of researchers has paved the way for reliable defect detection using computer vision AI. The team first resolved well-known contrast issues in conventional defect images by establishing an alternative advanced imaging mode able to record defect contrast with better clarity and feature homogeneity. Trained on these “good data,” the team developed a new hybrid deep CNN architecture called *DefectSegNet*. Compared to human experts, defect quantification assisted by this AI was more accurate, more reproducible, and at least two orders of

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magnitude more efficient. These encouraging results demonstrated the potential for deep learning to accelerate scientific understanding of radiation damage. This approach supports faster development of next generation high-performance structural alloys for nuclear fusion reactors.

Award-winning Tool Dramatically Accelerates Software Development and Deployment for High-Performance Computers: Spack, part of the Exascale Computing Project, is an easy-to-use, versatile, and scalable software package management tool for high-performance computing (HPC) applications that won a 2019 R&D 100 award and a special recognition medal in the “market disruptor” category. Spack simplifies and accelerates building and customizing software by automating the software build workflow, thus reducing deployment time for large software stacks from weeks to hours. Spack’s original 100 or so packages have grown into a library of more than 3,500, with a large and active community of more than 450 contributors regularly adding features and improvements of this open source software. Spack is part of DOE’s exascale computing ecosystem and is currently used for software deployment on six of the world’s top 10 supercomputers and many other HPC centers and software development communities including the high-energy physics community at Femilab and the European Organization for Nuclear Research (CERN).

National Nuclear Security Administration Exascale Supercomputer, El Capitan: NNSA signed a \$600 million contract for the exascale supercomputer, El Capitan, slated to be delivered in 2022 and operating in 2023 at Lawrence Livermore National Laboratory to support NNSA’s nuclear weapons program. As a world leader in supercomputing, NNSA’s acquisition of El Capitan is a critical addition to the next generation of supercomputing systems

Artificial Intelligence & Technology Development of the Artificial Intelligence Exchange (AIX) Database: The Artificial Intelligence and Technology Office (AITO), in collaboration with the Office of the Chief Information Officer (OCIO), developed and then expanded the AIX database, a digital platform that identifies and tracks AI activities across the DOE enterprise. AIX provides valuable insight and information about DOE’s AI portfolio, including ways to categorize and evaluate gaps or overlap by technology type, alignment with the Department’s and Administration’s goals and priorities, and identification of cross-cutting areas to accelerate the research, development, delivery, and adoption of AI to advance the agency’s core missions.

Established Public Private Partnership using AI-Tools: In September 2020, AITO announced the formation of the First Five Consortium (First Five), a public-private partnership co-chaired by AITO and

Microsoft, focused on the use of AI to improve first responders’ situational awareness and response to natural disasters, such as wildfires, severe weather, and floods, with near real-time information. First Five continues to expand and is bringing in new leaders from government, the tech industry, academia, DOE National Laboratories, and the emergency response community.

Established the COVID-19 Insights Partnership: This interagency partnership brings together the Departments of Energy, Health and Human Services, and Veterans Affairs (VA) to coordinate and share data, tools, and expertise to aid in the fight against the COVID-19 pandemic. Leveraging the VA’s information rich and longitudinal health data and the secure data enclaves, HPC capabilities, and explainable-AI tools of DOE’s Oak Ridge National Laboratory (ORNL), the partnership will focus on accelerating research of SARS-CoV-2 virology, pathogenesis, and complex systems biology and pathophysiology underlying COVID-19 disease to identify and/or evaluate treatment interventions, risk and protective factors, and enhance outcomes for COVID-19 patients.

Objective 10	Enable commercialization of national laboratory innovation
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Technology Transitions COVID-19 Technical Assistance Program (CTAP): The Office of Technology Transitions (OTT) developed the CTAP in consultation with the National Laboratories to address a lack of funding to support short-term interactions with external parties looking to tackle specific technical or scientific hurdles related to COVID-19. This funding facilitates Lab scientists to share expertise with entities such as small businesses, tribes, and state and local governments for short-term, COVID-related technical queries. OTT committed over \$500,000 for this purpose and structured the program as a pilot with the potential for expansion into other areas. As of September 23, 2020, 12 projects have been awarded under CTAP.

InnovationXLab: OTT designed the InnovationXLab series in collaboration with the National Laboratories to expand the commercial impact of DOE’s substantial investment in the National Labs by facilitating a two-way exchange of information and ideas among industry, universities, manufacturers, investors, and end-use customers, on the one hand, and innovators and experts from across the National Labs and broader DOE R&D complex, on the other. OTT extended the InnovationXLab Summit series in FY 2020, hosting the AI Summit (October 2-3, 2019 with Argonne National Laboratory) and Biomanufacturing Summit (January 28-29, 2020 with LBNL). The AI Summit welcomed 320 participants from across government and industry, and featured keynote speakers John Kelly of IBM and Colin Parris of General Electric. The Biomanufacturing Summit hosted 223 participants and included Twist

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Bioscience CEO Emily Leproust and Impossible Foods Vice President Smita Shankar.

Technology Commercialization Fund: OTT issued selections for the 2020 Technology Commercialization Fund (TCF) on June 11, 2020. These projects will advance the commercialization of promising energy technologies and strengthen partnerships between DOE's National Laboratories and private sector companies to deploy these

technologies to the marketplace. 82 projects were selected, the largest cohort in program history, supported by \$33 million in DOE funding and private matching funds exceeding \$36 million.

Goal 3: Ensure America’s Nuclear Security

Objective 11	Maintain the safety, security, and effectiveness of the Nation’s nuclear deterrent
Objective 12	Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure
Objective 13	Reduce global nuclear and radiological security threats and strengthen the nuclear enterprise
Objective 14	Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy
Contributing Programs	National Nuclear Security Administration

DOE enhances the security and safety of the Nation through national security endeavors: maintaining a safe, secure, and effective nuclear weapons stockpile that will deter any adversary and guarantee the defense of the Nation and allies; managing the research, development, and production activities and associated infrastructure needed to meet national nuclear 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. DOE identified noteworthy progress toward strategic objective 14 in FY 2020. Examples of FY 2020 program accomplishments supporting achievement of the strategic objectives under Goal 3 include:

Objective 11	Maintain the safety, security, and effectiveness of the Nation’s nuclear deterrent
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National Nuclear Security Administration

Stockpile Stewardship: The NNSA’s science-based Stockpile Stewardship Program supported DOE and the Department of Defense (DoD) to report to the President for the 24th consecutive year that the U.S. nuclear weapons stockpile remains safe, secure, and effective, without the use of nuclear explosive testing.

W76-2 Modification Program: The W76-2 is the Nation’s response to the low-yield ballistic missile requirement called for in the 2018 Nuclear Posture Review. In FY 2020, assembly of the W76-2 was completed, with the full quantity produced and delivered to the Navy.

W88 Alteration (Alt) 370 Program: The W88 Alt 370 modernizes the arming, fuzing, and firing subsystem; improves surety; replaces the conventional high explosive and associated materials; and incorporates a lightning arrestor connector, trainers, flight test assemblies, and associated handling gear. The W88 Alt 370 conversion is scheduled to run concurrently with limited life component exchanges of gas transfer systems and neutron generators. In June 2020, NNSA completed the W88 Alt 370 First Production Capability Unit (FPCU) disassembly and inspection. The W88 Alt 370 is now in Phase 6.4, Production Engineering, with planned component production rates to work toward

the original baseline schedule for components not affected by the base metal electrode capacitor issue.

B61-12 Life Extension Program (LEP): With the addition of an Air Force procured tail-kit assembly, the B61-12 LEP will consolidate and replace the B61-3, -4, -7, and -10 bomb variants. The B61-12 LEP is in Phase 6.4, Production Engineering. In August 2020, the B61-12 LEP’s FPCU was completed, the results of which will be analyzed and incorporated prior to the start of the first production unit (FPU). Similar to the W88 Alt 370, the base metal electrode capacitor issue affected delivery of key components that required the Nuclear Weapons Council to change the FPU delivery date to FY 2022. The B61-12 will maintain the initial operational capability and the adjusted plan received concurrence by the Air Force and Nuclear Weapons Council. Certification and system qualification activities are ongoing.

W87-1 Modification Program: The W87-1 Modification Program will meet DoD and DOE/NNSA requirements for performance, safety, and security and is slated to deploy as part of the Ground-Based Strategic Deterrent (GBSD) by 2030, as specified in the 2018 Nuclear Posture Review. The Nuclear Weapons Council selected a single surety architecture for the W87-1, and DOE/NNSA continues to evaluate component features through feasibility and trade studies. In FY 2020, NNSA continued Phase 6.2, Feasibility Study and Design Options, activities.

Objective 12	Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure
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National Nuclear Security Administration

Production Modernization: In FY 2020, NNSA successfully produced three pit builds, four engineering evaluations, and installed all equipment necessary to produce the first war reserve pit during 2023 in Plutonium Facility 4. NNSA produced the first high explosive part at the new High Explosives Pressing Facility at the Pantex Plant near Amarillo, TX after DOE/NNSA authorized full-scale operations. The modern 45,000 square-foot facility replaces infrastructure that is over 50 years old, improving worker safety. NNSA completed the award and

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construction of a first new-construction, net-zero energy facility, Mercury Building 1, powered from the Mercury solar field at the Nevada National Security Site near Las Vegas, Nevada.

High Energy Density Science: National Ignition Facility (NIF) operations supported the completion of several high-energy-density science campaigns for stockpile stewardship, including radiation-transport studies in support of the W80-4 LEP and the first plutonium equation of state experiment on the NIF, a culmination of platform development for plutonium experiments to inform issues associated with plutonium pit lifetimes.

Infrastructure Modernization: NNSA has 30 post-Analysis-of-Alternatives infrastructure projects underway valued at \$22 billion. These are necessary to maintain and execute the Stockpile Stewardship Program by providing modern, responsive infrastructure.

- Completed four projects (UPF Substation subproject, Exascale Class Computer Cooling Equipment, Device Assembly Facility Argus Interior Protection, Expand Electrical Distribution System) with a combined Total Project Cost (TPC) of \$174 million, which were delivered under budget by \$38 million and ahead of schedule by an average of six months.
- Began construction for Exascale Computing Facility Modernization and procurement of equipment for the Calcliner project. These have a combined TPC of \$219 million.
- Began conceptual design on two projects (Electrical Power Capacity Upgrade, Power Sources Capability), worth \$600 million and Preliminary/Final Design on three projects (Surplus Plutonium Disposition, Tritium Finishing Facility) worth \$2.9 billion.
- Performed \$400 million of design and \$1.0 billion of construction.

**Objective
13**

Reduce global nuclear and radiological security threats and strengthen the nuclear enterprise

National Nuclear Security Administration

Defense Nuclear Nonproliferation Research and Development (DNN R&D): In FY 2020, NNSA successfully executed several field experiments at testbeds at the Nevada National Security Site and ORNL. The testbeds continue to provide a unique operational model for the whole of Government to develop and exercise capabilities for detecting and identifying signatures of interest from processes a proliferator might undertake in the pursuit of a nuclear weapon. NNSA provided technical support to the U.S. Air Force for the launch and early on-orbit testing of two nuclear detonation detection sensor suites integrated on Global Positioning System III navigation satellites.

Material Management and Minimization (M3): As of 2020, NNSA converted or verified the shutdown of 106 highly enriched uranium (HEU) facilities worldwide.

In May 2020, after several years of financial and technical assistance from M3 to convert from HEU to low enriched uranium (LEU) targets, the National Institute of Radioactive Elements in Belgium shipped the first LEU produced molybdenum-99 (Mo-99) to the U.S. for patient use. In July 2020, M3 published a FOA to solicit proposals for one or more cooperative agreement awards that would support accelerating domestic non-HEU Mo-99 production by 2023. Since 1996, NNSA has removed or confirmed the disposition of 7,216 kilograms of weapons-usable nuclear material (HEU and plutonium), and 33 countries and Taiwan are now HEU-free. In FY 2020, removal efforts included the downblending of fresh HEU graphite fuel from Kazakhstan's IGR reactor, advance development of the Mobile Melt-Consolidate system to address materials with no disposition pathway, and removals from North America and Asia. NNSA completed the disposition of a cumulative total of 163.7 metric tons (MT) of surplus weapon-grade uranium, and met a notable milestone by converting a cumulative total of more than 1 MT of plutonium to an oxide in preparation for final disposition. During FY 2020, the Surplus Plutonium Disposition project at Savannah River Site (SRS) received CD-1 and CD-3A approval and the minor construction project to optimize the plutonium downblend process in the existing K-Area Interim Surveillance glovebox at SRS was completed.

Global Material Security (GMS): In FY 2020, NNSA partnered with hospitals, universities, and industry to provide voluntary security enhancements for high-activity radioactive sources in the United States. NNSA has secured nearly 2,400 buildings containing radiological materials and has recovered more than 93,000 radioactive sources worldwide. NNSA is prioritizing securing Cesium-137 through accelerated domestic and global efforts. To date, NNSA has replaced 150 cesium devices in the United States and eight cesium devices internationally (in Europe and Latin America) with x-ray devices that do not use cesium. In FY 2020, NNSA also led high-priority international nuclear security initiatives to improve cybersecurity for nuclear facilities, mitigate insider threats, and improve transportation security practices with over 40 countries. NNSA provided security upgrades to nuclear facilities in five priority partner countries, based on thorough assessments of threats and vulnerabilities. NNSA continued to partner with the International Atomic Energy Agency (IAEA) to strengthen and support the Nuclear Security Support Centers through advisory missions, educational programs, and subject matter expert assistance to build sustainable, effective global nuclear security. NNSA equipped 21 official crossing points with radiation detection systems in nine countries and provided 18 mobile detection systems for use by foreign law enforcement partners. NNSA completed three projects and initiated six projects to strengthen radiation detection and interdiction capabilities of partners responsible for security along green borders and administrative lines. NNSA transitioned 51 radiation detection systems to indigenous sustainment and maintained interactions with

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over 70 international partner countries to lead global efforts to prevent radioactive and nuclear smuggling.

Nonproliferation and Arms Control (NPAC): In FY 2020, NNSA partnered with the IAEA to strengthen the international nuclear safeguards regime and the IAEA's ability to verify peaceful uses of nuclear materials and facilities and detect non-compliance by enhancing the IAEA's technology base. During 2020, NNSA transferred nine safeguard tools and technologies, seven of which were transferred to the IAEA, including: two testing algorithms using deep learning to improve review of surveillance camera images; uranium particle reference standards and uranium-233 spike standards for the IAEA Network of Analytical Laboratories; a prototype radiation shield for surveillance cameras; a time domain reflectometry technique to detect cable tampering; and a single channel analyzer for unattended monitoring. The remaining two tools were transferred to partners: an Identifinder R400 handheld gamma spectrometer to measure and analyze nuclear material, and Deming software to analyze multiplicity counter measurements. These technology and tool transfers are of great importance to the IAEA and partner countries' efforts to more effectively and efficiently account for and control nuclear materials, and help facilitate complete and correct reporting to the IAEA.

Nuclear Incident Response: NNSA provided preventative radiological/nuclear detection and analytical support to multiple national-level security events, including six National Special Security Events, and over 20 regional events. NNSA also deployed capability in support of 10 radiological/nuclear emergency responses. NNSA continued execution of the Capability Forward initiative to enhance the Federal Bureau of Investigation's regional capabilities to defeat weapons of mass destruction (WMD) devices. NNSA also took possession of

three new fixed-wing Aerial Measuring System aircraft, replacing aircraft with an average age of 36 years.

Nuclear Counterterrorism Assessment: NNSA achieved increased confidence and accuracy in predictive modeling capabilities through the completion of Tier Threat Modeling Archive-Validation Campaign 1 and the ongoing characterization of the new energetic disablement tools in support of the counter-WMD device mission.

National Technical Nuclear Forensics: In FY 2020, NNSA participated in two interagency exercises for pre- and post-detonation nuclear forensics. NNSA developed a Bulk Special Nuclear Materials Analysis Program laboratory capability, maintenance, and enhancement strategy covering the next 10 years in support of nuclear forensics. NNSA completed identification of first-year items for the National Nuclear Materials Archive, preserving valuable materials for the nuclear forensics mission.

Objective 14	Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy
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National Nuclear Security Administration

COLUMBIA Class Core Manufacturing: Manufacture of the first S1B core in support of COLUMBIA Class submarines continued. This is a life-of-ship core that supports over 40 years of operation, for the Navy with the COLUMBIA Class to fulfill the strategic deterrence mission with fewer submarines than the OHIO Class. Reactor plant design efforts are being finalized and individual and integration testing of pre-production electric drive components continued, to support full scale integration testing. Testing to date has validated component and system level performance. Lead ship reactor plant component manufacture continues as planned in support of FY 2021 construction start.

Goal 4: Advance National Nuclear Waste Management

Objective 15	Develop and implement a robust interim storage program
Objective 16	Continue environmental remediation of DOE legacy and active nuclear waste sites
Contributing Programs	Nuclear Energy, Environmental Management, Legacy Management

DOE’s Office of Nuclear Energy leads the effort to address the Federal Government’s nuclear waste management responsibility through implementation of a robust interim storage program and prioritizing the research, development, and evaluation of alternative technologies and pathways for storage, transportation, and disposal. DOE’s Office of Environmental Management continues the largest cleanup effort in the world to remediate the environmental legacy of six decades of nuclear weapons development and production and Government-sponsored nuclear energy research. The Office of Legacy Management protects human health and the environment through long-term surveillance and maintenance. DOE identified noteworthy progress toward strategic objective 16 in FY 2020. Examples of FY 2020 program accomplishments supporting achievement of the strategic objectives under Goal 4 include:

Objective 15	Develop and implement a robust interim storage program
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Nuclear Energy

Spent Nuclear Fuel Storage: The High Burnup Storage Demonstration, a project jointly funded by the Electric Power Research Institute and DOE, is a critically important project related to the relicensing of the long-term storage of spent nuclear fuel, needed to support continued nuclear power generation. The demonstration consists of a standard spent fuel storage container that was modified to permit data acquisition while in operation, and is the only one of a type in the world. The cask was loaded with spent nuclear fuel in 2017 and the internal temperature is measured multiple times during the day. The initial results show that the measured internal cask temperatures are much cooler than thought, which indicates lower internal rod temperatures, which indicates stronger fuel behavior. This information will continue to be measured for the next few years because it has far reaching impacts across the industry. As of 2020, the data indicate that the more than 3,000 loaded high and low burnup spent fuel casks that have been loaded into dry storage can be safely stored and transported and that long-term dry storage continues to be a viable solution for spent nuclear fuel.

Atlas Railcar Project: The Atlas Railcar Project is supporting development of three new railcar designs for transportation of spent nuclear fuel to any interim storage facility. In FY 2020, the Atlas and buffer full-scale prototype railcars both finished the early stages of testing programs, while the security escort railcar finished

assembly and preliminary outfitting. These three newly-designed prototype railcars will be thoroughly tested.

Nuclear Waste Management Cloud Platform: DOE has developed an integrated software platform hosted in a cloud environment that is capable of supporting a future nuclear waste management program with multi-organizational project structures, document management, and communications for Nuclear Regulatory Commission licensing processes, and with a library of engineering and scientific data alongside legacy documentation in a readily searchable database. The Nuclear Waste Management Cloud Platform currently provides DOE with a modern software solution for legacy document and records management accessibility.

Objective 16	Continue environmental remediation of DOE legacy and active nuclear waste sites
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Environmental Management

Hanford: Successfully completed design of the Effluent Management Facility (EMF) to support the Direct-Feed Low Activity Waste program. Construction of the EMF is anticipated to be completed in FY 2021. Hanford also demolished the Plutonium Finishing Plant and expects final disposal of the remaining waste in FY 2021. The Tank-Side Cesium Removal (TSCR) system was delivered and completed Factory Acceptance Testing. Hanford is on target to complete TSCR installation in FY 2021. Construction of the Low-Activity Waste Facility will be completed by the end of calendar year 2020. Hanford received three immobilized low-activity waste (ILAW) trailers and the ILAW Transporter fabrication is on target to be complete in FY 2021.

Savannah River Site (SRS): Completed verification of operational readiness, obtained CD-4 and Authorization to Operate Salt Waste Processing Facility in August 2020, and began initial radiological operations. SRS will begin processing at a rate of up to six million gallons of salt solution during FY 2021.

Waste Isolation Pilot Project (WIPP): Continues to receive and emplace transuranic waste at the rate of 5-to-10 shipments per week in Panel 7. WIPP anticipates completion of mining Panel 8 in late FY 2021. WIPP has begun sinking the new Utility Shaft for the WIPP underground, which is on schedule to support waste emplacements after Panel 8 is full.

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

East Tennessee Technology Park (ETTP): Completed cleanup, including the demolition of 13.6 million square feet of building space and disposal of 1.7 million cubic yards of waste.

Legacy Management

Environmental Remedies: Conducted long-term surveillance and maintenance (LTS&M) activities at 101 sites to monitor the effectiveness of cleanup remedies in accordance with legal agreements or to identify sites subject to additional remedial action. LTS&M activities were completed by employing sound project management, engineering, and science-based solutions. The sites within Legacy Management's (LM) responsibility include those remedied under the Formerly Utilized Sites Remedial Action Program, Defense Decontamination and Decommissioning Program, Comprehensive Environmental Response, Compensation, and Liability Act of 1978, Resource Conservation and Recovery Act, and Uranium Mill Tailings Radiation Control Act of 1978.

Surveillance and Maintenance Cost Savings: Reduced the cost of performing LTS&M activities by two percent compared to an estimated cost baseline while meeting all regulatory requirements to protect human health and the environment. LM achieved the cost reduction by utilizing sound project management, engineering, and science-based solutions.

Goal 5: Enhance Cybersecurity Across U.S. Energy Sector and DOE Infrastructure

Objective 17	Enhance energy infrastructure situational awareness, strengthen cyber incident response capabilities, and leverage the National Laboratories to drive cybersecurity innovation
Objective 18	Modernize DOE IT infrastructure to deliver effective services supporting smart, efficient cybersecurity, and enhance DOE's cybersecurity risk management structure to create transparency across the enterprise
Contributing Programs	Cybersecurity, Energy Security, and Emergency Response; Chief Information Office; National Nuclear Security Administration

DOE's Office of Cybersecurity, Energy Security, and Emergency Response supports the Government's effort to assist energy infrastructure owners and to enhance the resilience and security of the U.S. energy infrastructure. DOE's OCIO and the NNSA OCIO are responsible for the cybersecurity and resilience of the DOE enterprise infrastructure. Examples of FY 2020 program accomplishments supporting achievement of the strategic objectives under Goal 5 include:

Objective 17	Enhance energy infrastructure situational awareness, strengthen cyber incident response capabilities, and leverage the National Laboratories to drive cybersecurity innovation
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Cybersecurity, Energy Security, and Emergency Response

Cybersecurity Capability Maturity Model (C2M2):

The C2M2 is a voluntary self-evaluation program that aids energy sector organizations regardless of size, type, or industry to evaluate, prioritize, and improve cybersecurity capabilities. During 2020, the C2M2 Program has interacted with the energy sector to update and validate the C2M2 model, so that the model reflects today's threat and technology landscape and meets the emerging security needs of the sector. As part of this effort, CESER has formed a C2M2 Working Group comprising cybersecurity experts representing over 60+ electricity, oil, and gas sector owners and operators. DOE and industry are collaborating with DOE, the Department of Defense, the National Institute of Standards and Technology, and National Labs to perform technical sweeps of the model and pilot the Version 2.0 draft before it is published for public comments.

Objective 18	Modernize DOE IT infrastructure to deliver effective services supporting smart, efficient, cybersecurity and enhance DOE's cybersecurity risk management structure to create transparency across the enterprise
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Chief Information Office

Big Data Platform: In April 2020, the OCIO achieved full operational capability for the Big Data Platform (BDP), resulting in a repository for storing large data sets across

the DOE enterprise. BDP increases DOE's ability to perform data analytics on large data-sets and improves visualization of information. BDP provides an ability to rapidly ingest and analyze anomalies and events to develop threat-informed cyber information. BDP data supports Indicators of Compromise detection and reporting, security incident impact analysis, cyber threat information development, data call activities, and situational awareness. Data collected by BDP is mapped to the MITRE ATT&CK Framework to better classify attacks and assess the Department's risk. Using this framework, DOE can gauge the level of visibility against targeted attacks.

Crowdsourced Penetration Testing: The Integrated Joint Cybersecurity Coordination Center manages the Crowdsourced Penetration Testing program to support DOE's security posture and enhance enterprise operational visibility. In collaboration with DOE leadership, 38 Program Office, site, lab-specific, or enterprise-wide assessments have been conducted throughout FY 2020. Continued expansion of assessments is anticipated as usage/demand for the program increases.

Data Center Migration: The OCIO completed the initial planned migration of 92 applications and 316 servers from the legacy Germantown and Albuquerque on-premises data centers to the Amazon Web Services environment. Twelve of 65 applications and 39 of 279 servers of the workloads targeted for the Microsoft Azure cloud environment have been successfully migrated from the Germantown and Albuquerque data centers.

Threat Hunting: The OCIO implemented an Artificial Intelligence/Machine Learning, behavior-based "threat hunting" capability to assist with the analysis and detection of malicious activities within the OCIO Energy Information Technology System environment.

NNSA

Secret-Level Classified Infrastructure Improvement Project:

The NNSA Office of the Associate Administrator for Information Management and Chief Information Office (NNSA OCIO) completed Phase I of the Secret-Level Classified Infrastructure Improvement Project. NNSA upgraded components of the Enterprise Secure Computing environment, aligning the Nuclear Security Enterprise

STRATEGIC PLAN AND PROGRAM PERFORMANCE (Unaudited)

classified infrastructure in support of DOE's infrastructure improvement effort.

NNSA IT Modernization Project: The NNSA OCIO implemented Phase I requirements for the IT Modernization Project, and rapidly developed necessary services and solutions to provide operational connectivity during the COVID-19 maximum telework status. In conjunction with the Department CIO, NNSA OCIO launched Phase I of IT infrastructure upgrades. The NNSA OCIO improved application development to leverage updated

tools and technologies across the enterprise. NNSA OCIO provided support to DOE's Secure Cloud Connectivity Network Modernization effort, and collaborated to address risks related to software and supply chain management. NNSA expanded work in developing a methodology to secure operational technology used in weapons activities to incorporate within the Department's Control System Working Group (CSWG). The CSWG has a shared goal of reducing the risks posed to NNSA's weapon activities, the Nation's energy sector, and the critical infrastructure.

Management's Analysis, Assurances and Priorities

Analysis of Financial Statements

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

The statements have been prepared from the Department's books and records in accordance with generally accepted accounting principles promulgated by

the Federal Accounting Standards Advisory Board (FASAB) and the formats prescribed by the OMB. The financial statements are prepared in addition to the financial reports used to monitor and control budgetary resources which are prepared from the same books and records. The statements should be read with the realization that they are for a component of the U.S. Government, a sovereign entity.

Balance Sheet

As shown in **Chart 1**, the Department's total liabilities exceed total assets with the Unfunded Environmental Liabilities being the largest component of the liabilities. Significant balance changes are detailed in **Charts 2 and 3**. **Chart 4** provides a detailed trend analysis of the changes in the Department's environmental liabilities balances over the past five years. Most of DOE's environmental liabilities are managed by the Environmental Management (EM) program which addresses the legacy of contamination from the nuclear weapons complex and includes managing thousands of contaminated facilities formerly used in the nuclear weapons program, overseeing the safe management of large quantities of radioactive waste and nuclear materials, and cleanup of large volumes of contaminated soil and water. The active facilities portion of the environmental liability includes anticipated remediation costs for active and surplus facilities managed by DOE's ongoing program operations which will ultimately require stabilization, deactivation, and decommissioning. Other legacy liabilities are divided between environmental liabilities for active sites, including estimated cleanup; and the Office of Legacy Management (LM) for post-closure responsibilities, including surveillance and monitoring activities; soil and groundwater remediation; and disposition of excess material from sites after the EM program activities have been completed. The other legacy liabilities also include the Department's share of the estimated future costs of dispositioning its inventory of high-level waste and spent nuclear fuel (SNF). The Department's FY 2020 net costs

and unfunded liability estimates increased by \$1.5 billion for contractor pension plans and decreased by \$0.3 billion for contractor postretirement benefits other than pensions (PRB) plans. The major components of these estimate changes are shown in **Chart 5**. The most significant components of the change in the contractor pension plan net costs and liabilities resulted from changes to valuation assumptions, including a decrease in the rate used to discount the liabilities to present value and a change in the rate of mortality improvements, partially offset by moderate asset returns. The asset returns decreased the unfunded pension liability estimate by \$4.6 billion, which was \$2.1 billion more than the expected \$2.5 billion asset return during FY 2020; the actual pension asset return was approximately 10.9% versus a 6.2% expected return. The discount rate is based on the yields of high-quality fixed income securities as of September 30, 2020 and September 30, 2019. The most significant components of the change in contractor PRB net costs and liabilities resulted from continued employer contributions made to satisfy the employer portion of annual claims and changes to the valuation assumptions, including a decrease in the rate used to discount the liability to present value and changes in the rate of mortality improvements. The change in the unfunded PRB liability due to assumption changes included an increase of \$0.7 billion due to a decrease in the rate used to discount the liabilities to present value, but was offset by decreases in liability due to changes in per capita claims, medical trend assumptions, and mortality improvement scale.

MANAGEMENT ANALYSIS, ASSURANCES, AND PRIORITIES

Chart 1: Total Assets and Liabilities with Breakdown of FY 2020 Liabilities

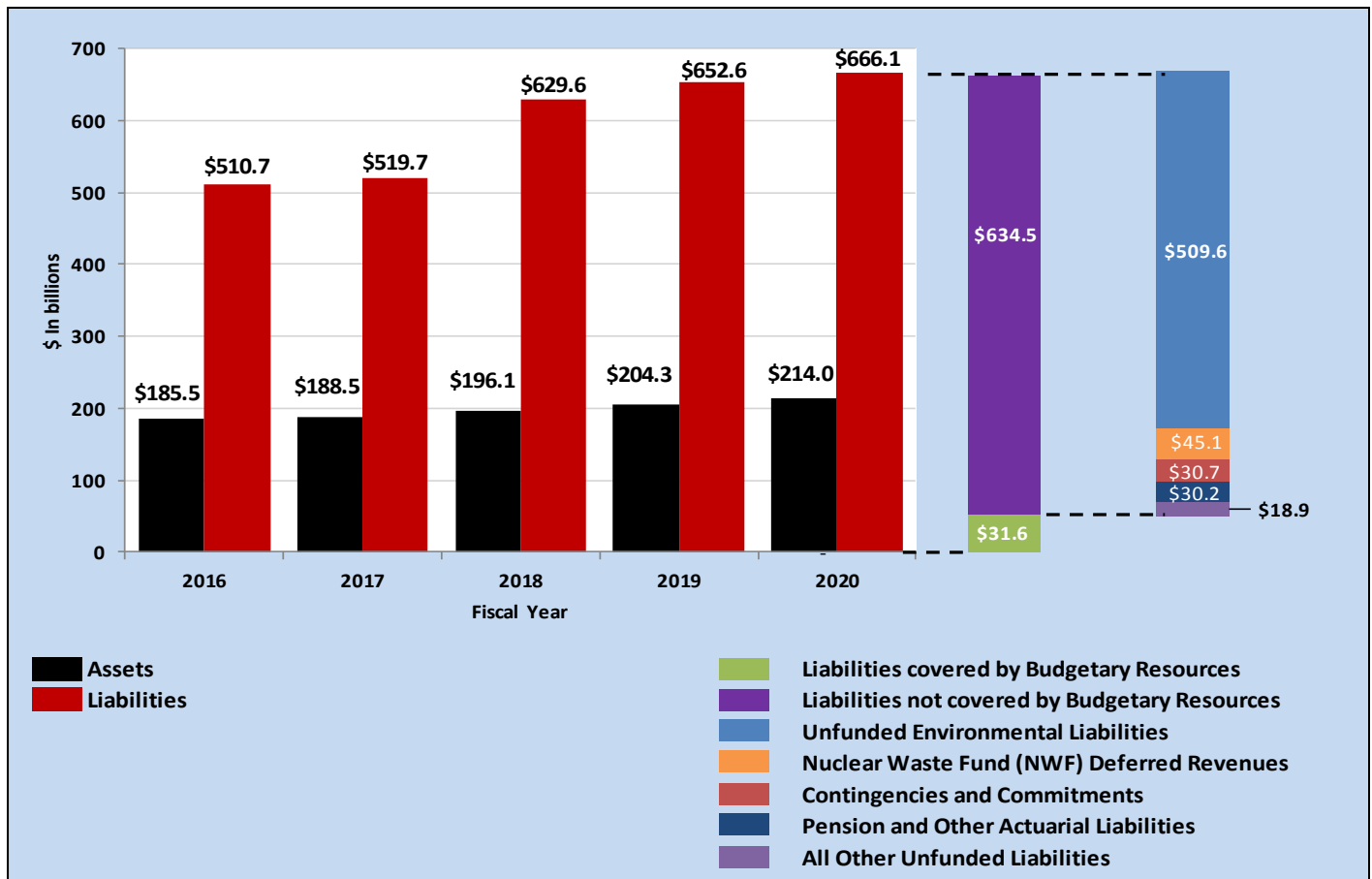
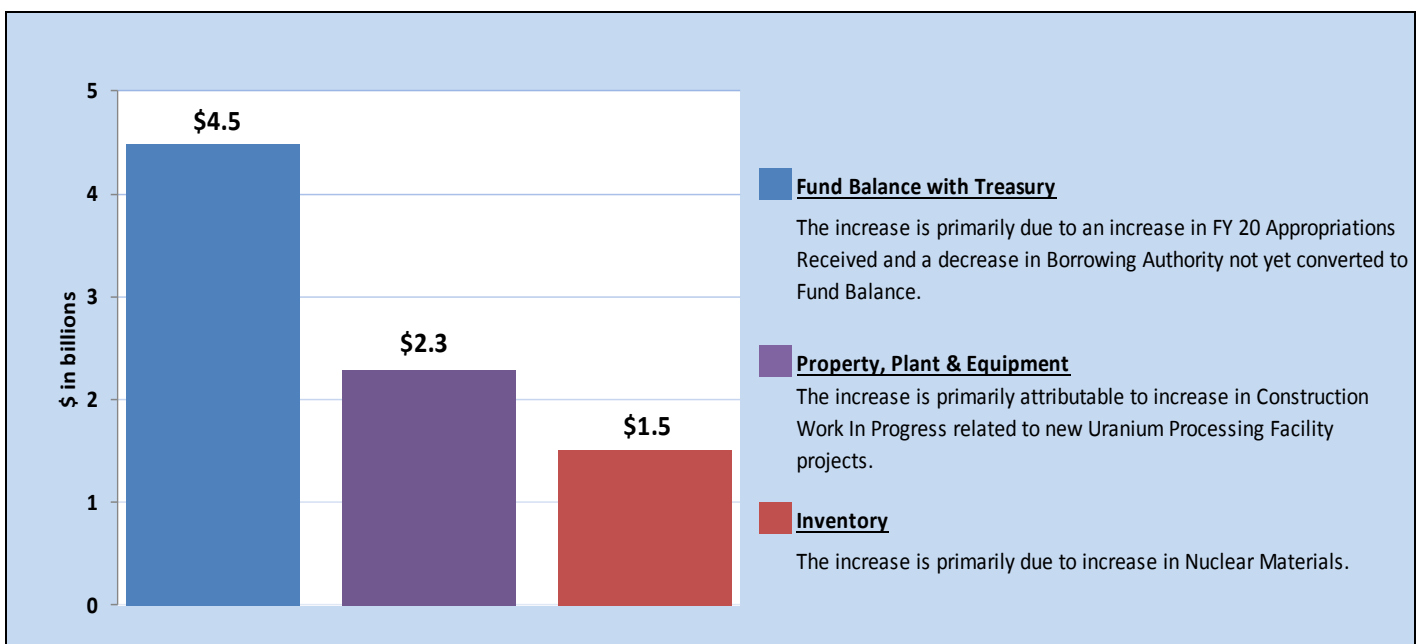


Chart 2: FY 2020 Significant Changes in Assets



MANAGEMENT'S ANALYSIS, ASSURANCES AND PRIORITIES

Chart 3: FY 2020 Significant Changes in Liabilities

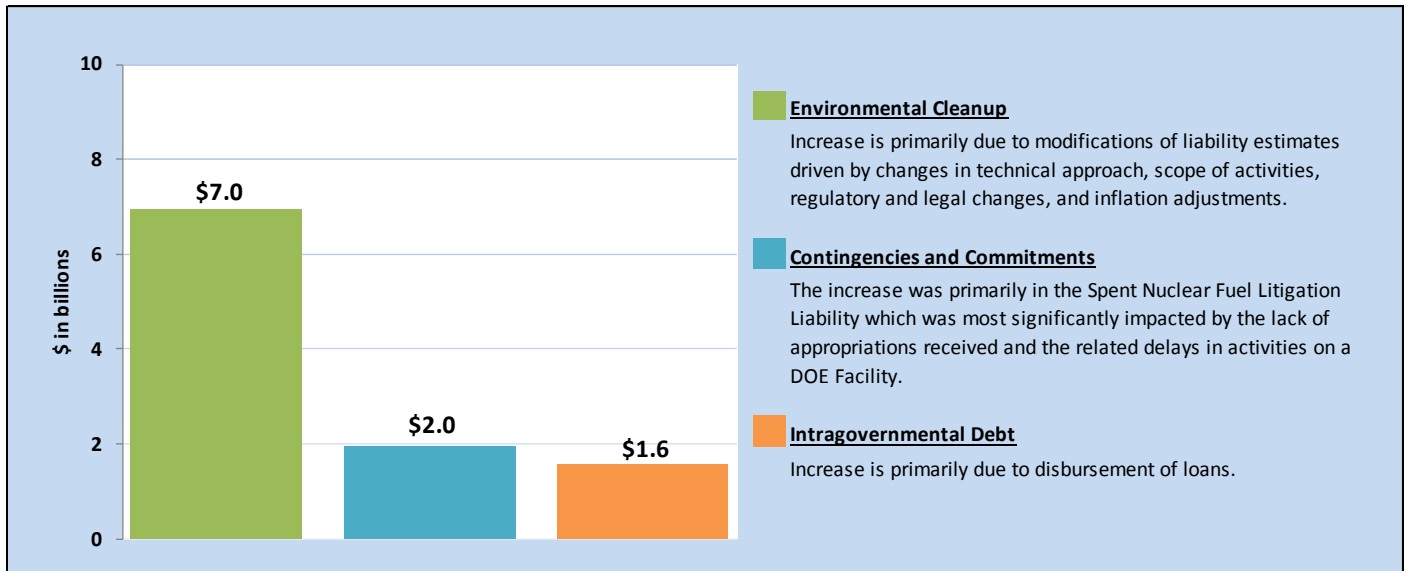


Chart 4: Composition of Environmental Cleanup and Disposal Liability

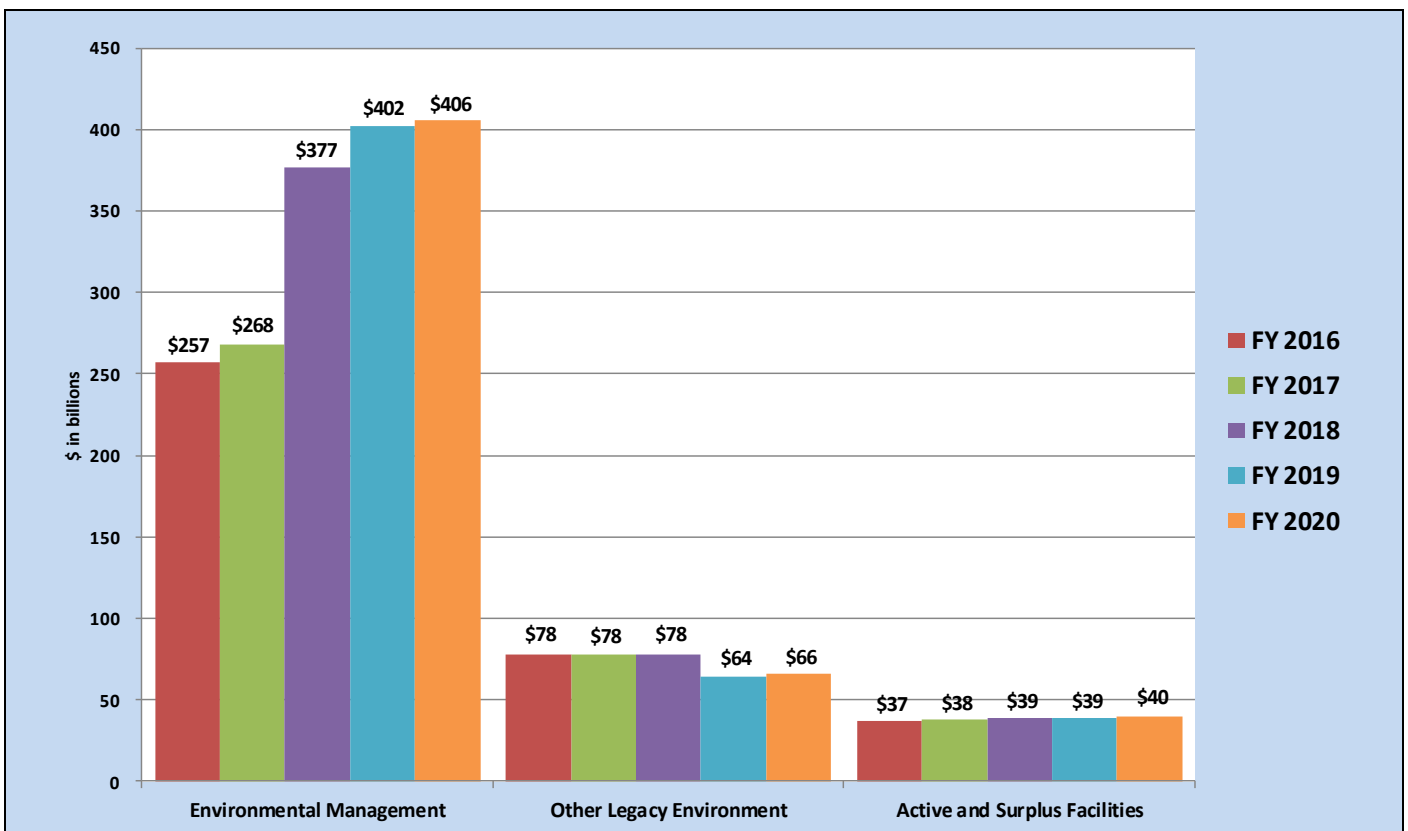
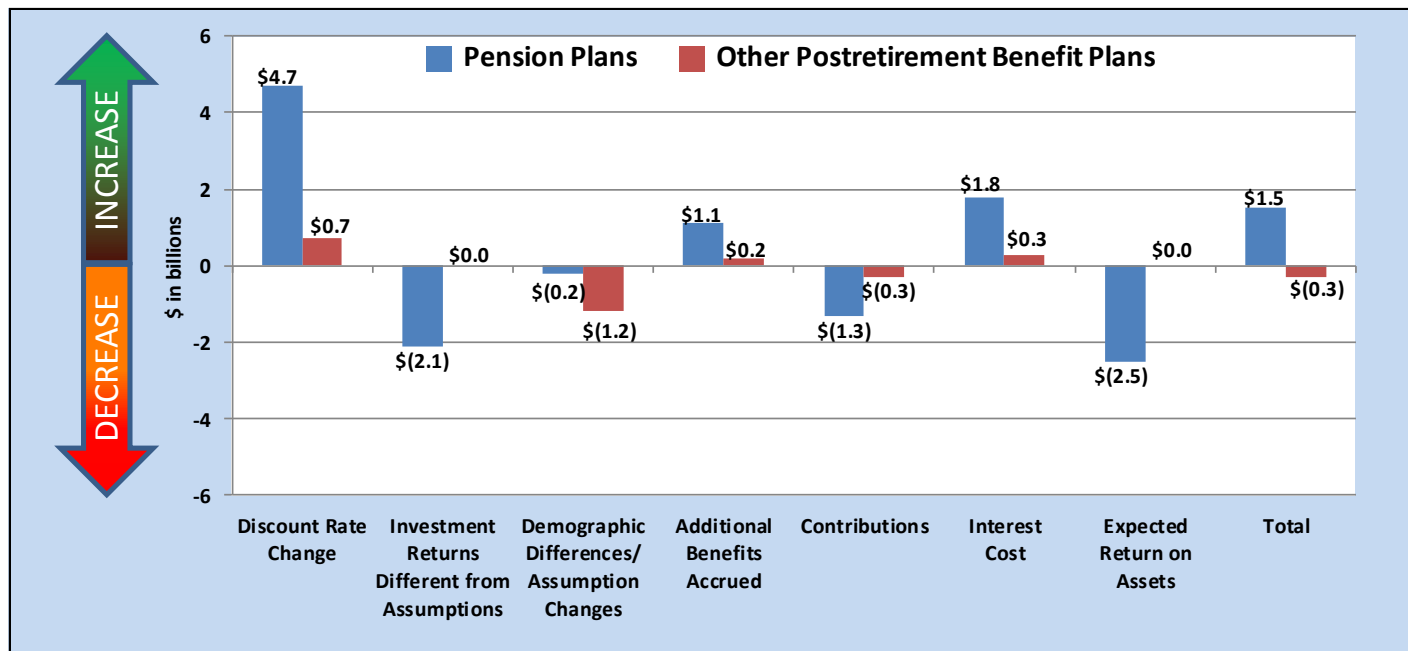


Chart 5: FY 2020 Contractor Employee Pension and Other Postretirement Benefit Plans



Net Cost of Operations

The major elements of net cost are shown in **Chart 6**. A breakdown of program costs (gross) by the Department's three programmatic goals, reimbursable work and other programs is provided in **Chart 7**. The predominant change in the program costs in FY 2020 is environmental liabilities estimates costs and is attributed to refined estimates.

The largest change within Costs Not Assigned is attributable to change in Occupational Illness Program in **Chart 8**.

The Department's Research & Development (R&D) expenses are shown in **Chart 9**. These R&D expenses facilitate the creation, advancement, and deployment of new technologies and support the Department's mission to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. Overall, Research & Development expenses increased by \$0.6 billion in FY 2020.

MANAGEMENT'S ANALYSIS, ASSURANCES AND PRIORITIES

Chart 6: Elements of Net Cost

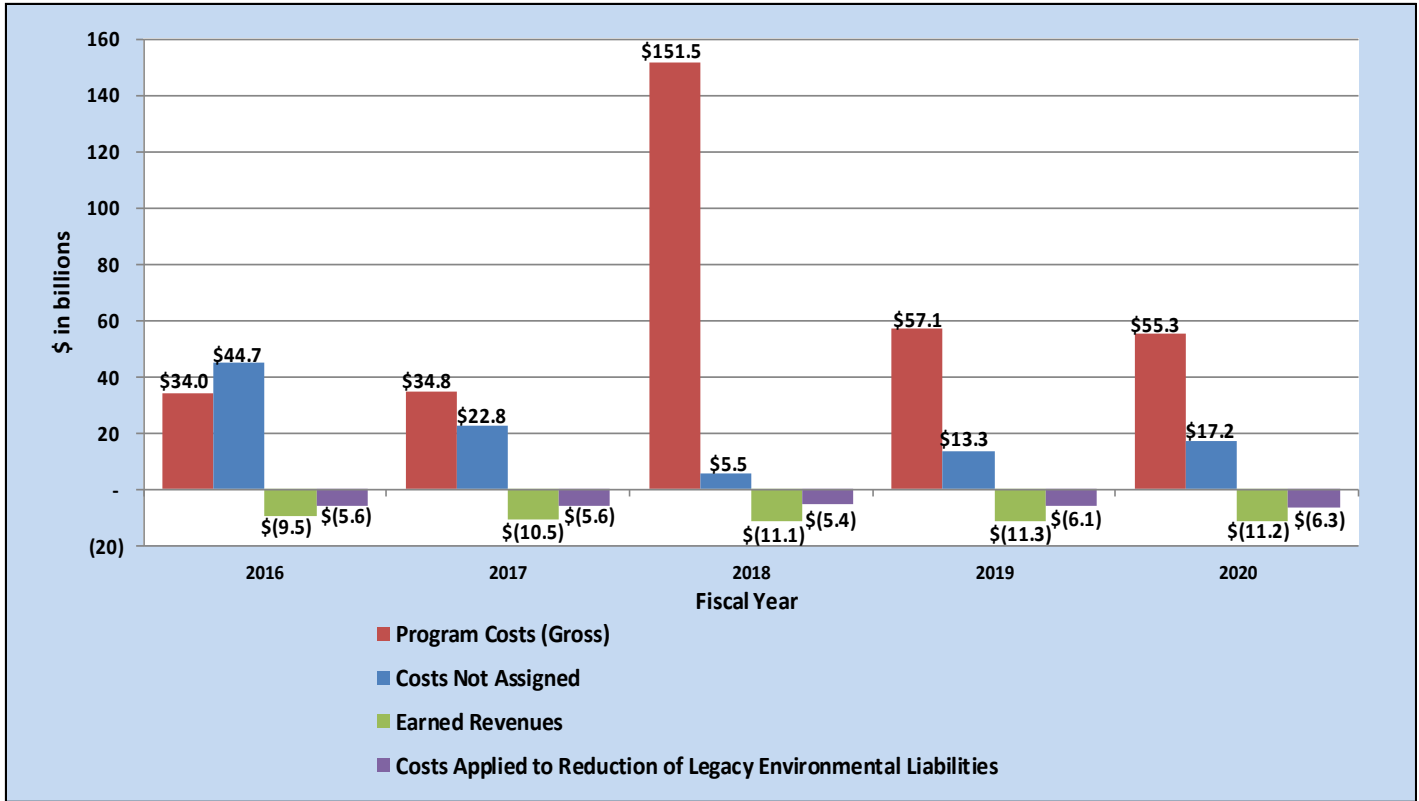


Chart 7: FY 2020 Program Costs (Gross)

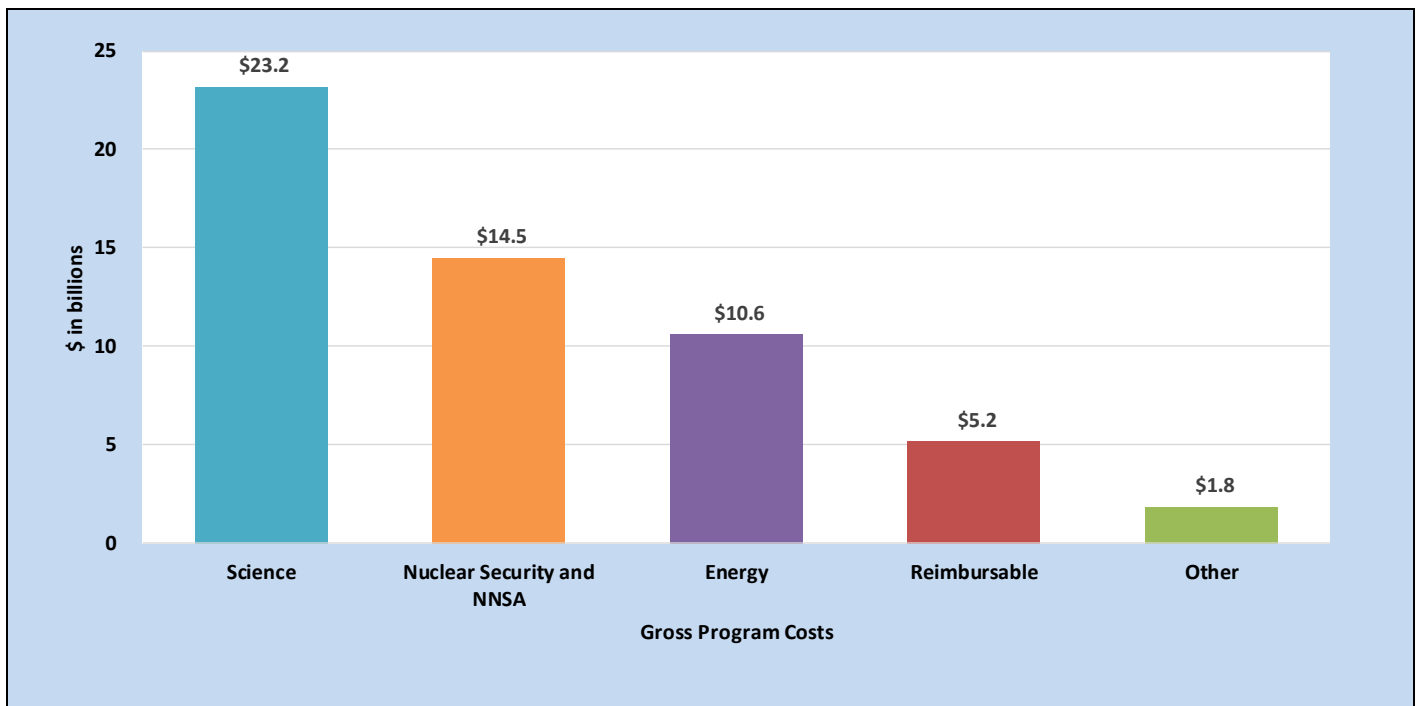


Chart 8: FY 2020 Major Elements of Costs Not Assigned

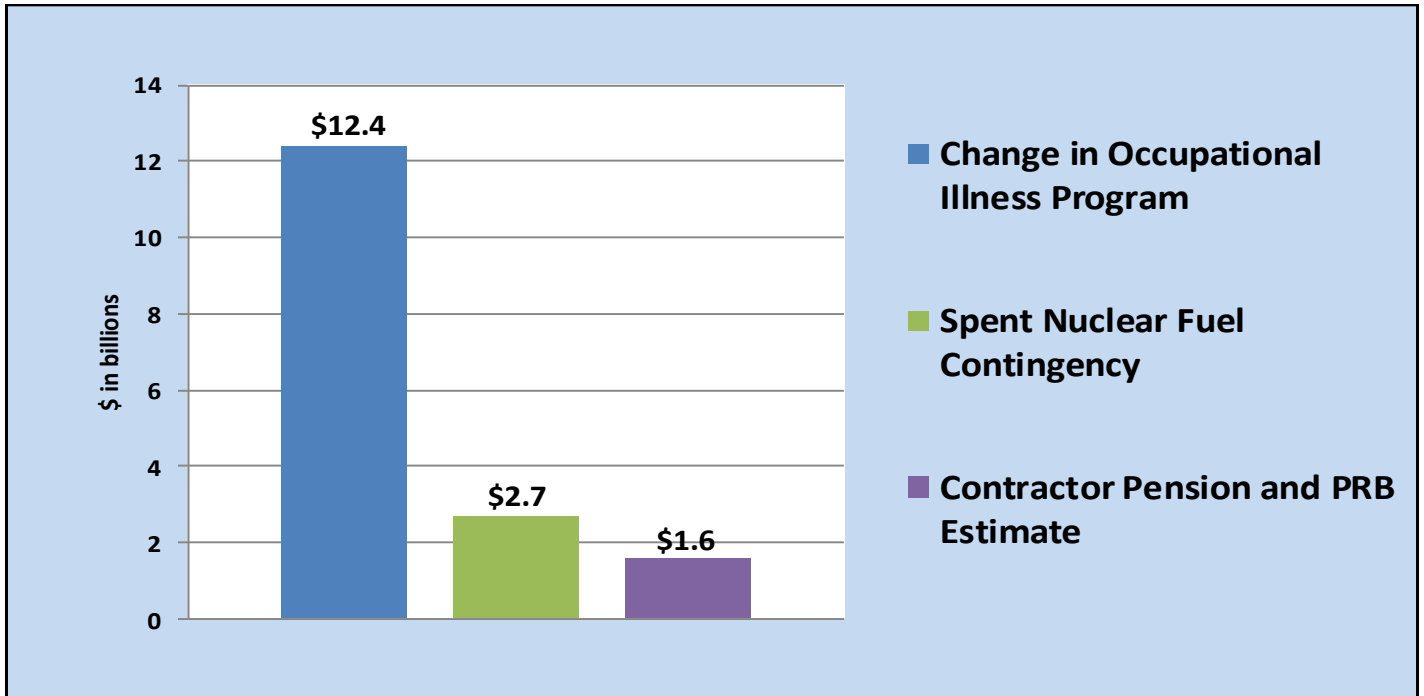
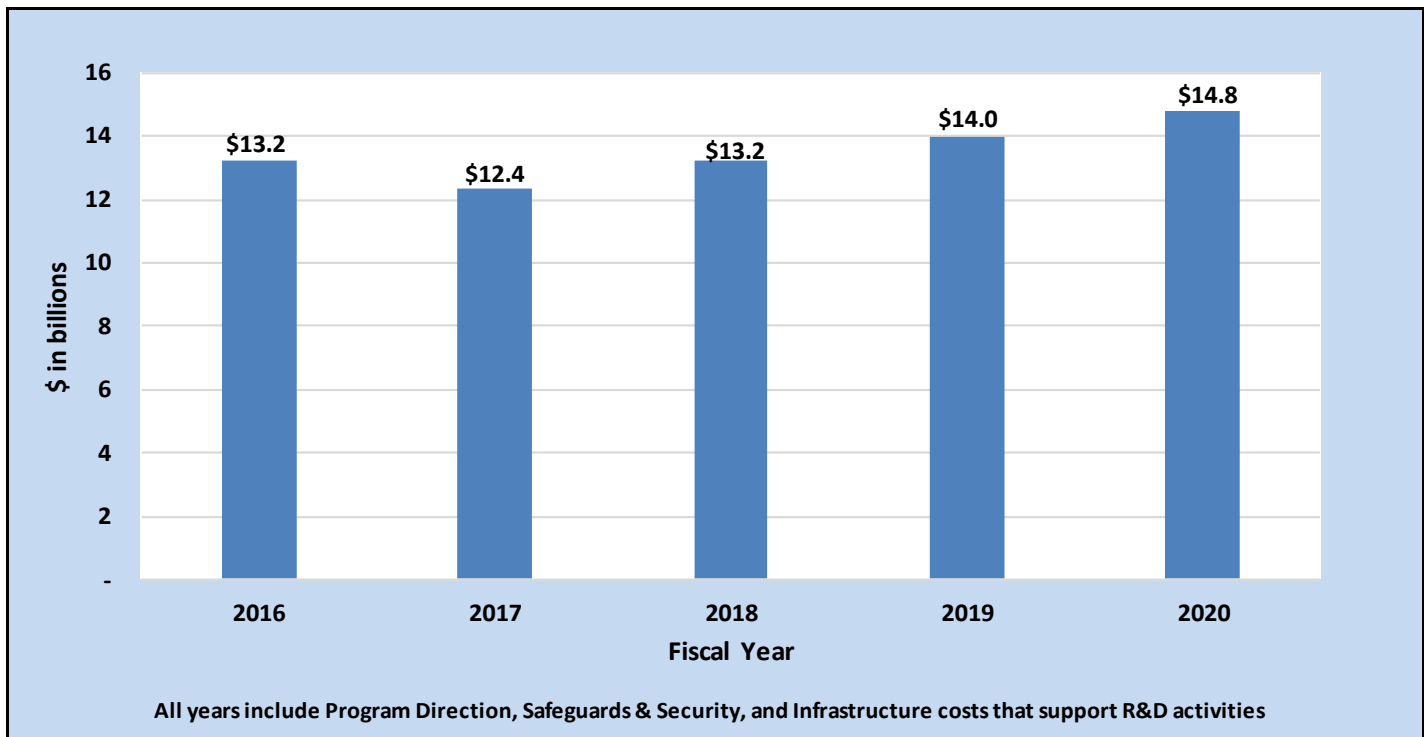


Chart 9: Research & Development



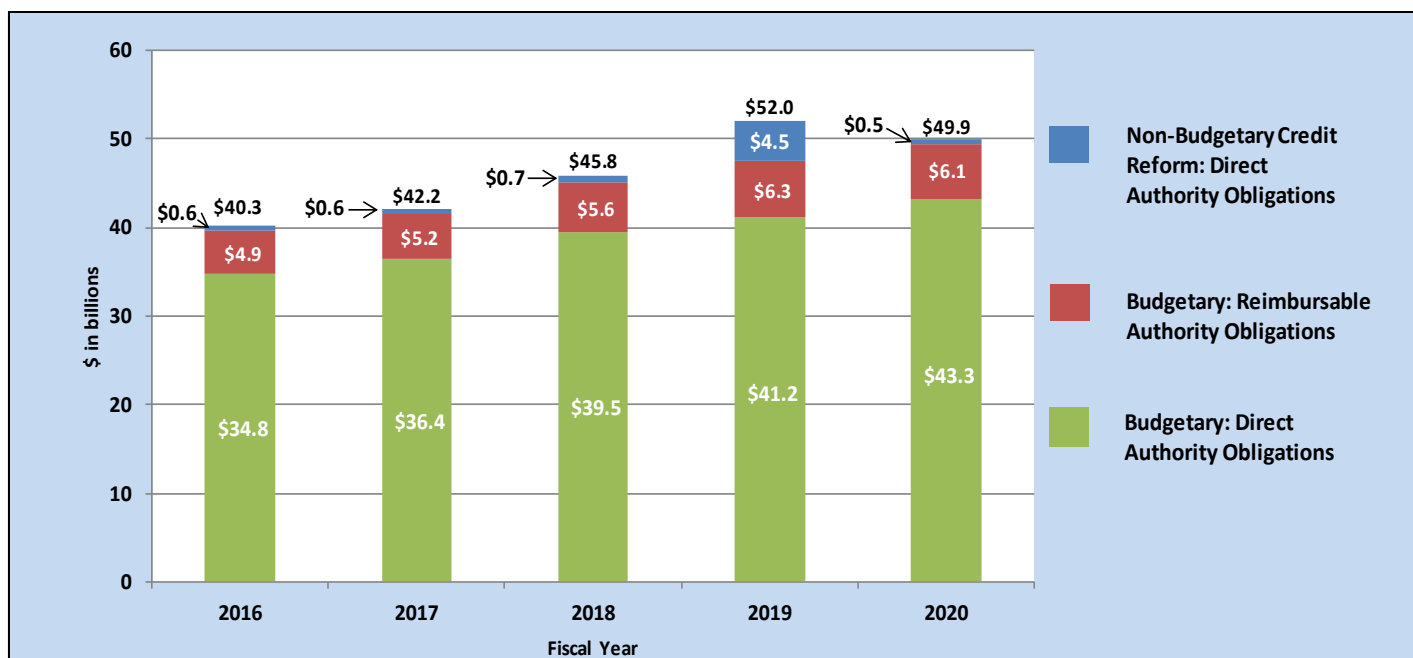
Budgetary Resources

The *Combined Statements of Budgetary Resources* provides information on the budgetary resources available to the Department for the year and the status of those resources at the end of the Fiscal Year. The Department receives most of its funding from general Government funds administered by the Department of the Treasury (Treasury) and appropriated for DOE’s use by Congress. Since budgetary accounting rules and financial accounting rules recognize certain transactions at different points in time, Appropriations Used on the *Consolidated Statements of Changes in Net Position* will not match costs for that

period. The primary difference results from recognition of costs related to changes in unfunded liability estimates. Budget authority from appropriations on the *Combined Statements of Budgetary Resources* increased in Fiscal Year 2020 by \$2.8 billion from Fiscal Year 2019.

As shown in **Chart 10**, the Department’s New Obligations and Upward Adjustments decreased by \$2.1 billion from FY 2019.

Chart 10: New Obligations and Upward Adjustments (Total)



Analysis of Systems, Controls, and Legal Compliance

(Unaudited)

Management Assurances



Department of Energy (Department) leadership and management is responsible for establishing and maintaining an effective system of internal controls to meet the objectives of the Federal Managers' Financial Integrity Act of 1982 (FMFIA). To support the responsibilities of the Department's management, an annual evaluation of management and financial system internal controls, is required by Sections II and IV of FMFIA, and the Office of Management and Budget (OMB) Circular No. A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control*. The annual assurances are made based on the results of these evaluations, which are reflected in reports and representations completed by senior accountable managers within the Department.

The Department completed an evaluation of management and financial system internal controls. As of September 30, 2020, the Department provides reasonable assurance that internal controls for the effectiveness and efficiency of operations, reliability of reporting for internal and external use, and compliance with applicable laws and regulations are operating effectively in design and operation. The evaluation of internal controls for reporting included processes supporting the Digital Accountability and Transparency Act of 2014 (DATA Act) and overall data quality contained in agency reports, as required by Appendix A of OMB Circular No. A-123 and Departmental requirements. The evaluation is an assessment of entity and process controls. The Department has reasonable assurance that processes are in place to identify risks and establish controls to mitigate identified risks. Evaluation results indicate that the Department's financial systems generally conform to governmental financial systems requirements, and substantially comply with requirements of the Federal Financial Management Improvement Act of 1996 (FFMIA).

The Department has no material weaknesses to report as a result of internal control evaluations. The Department continues to work to address Management Priorities, which represent important strategic management issues the Department has in fulfilling responsibilities and initiatives to support the Administration in securing a better future for the Nation.

A handwritten signature in black ink that reads "Dan Brouillette". The signature is fluid and cursive.

Dan Brouillette
Secretary of Energy
November 16, 2020

Federal Managers' Financial Integrity Act

The Federal Managers' Financial Integrity Act of 1982 (FMFIA) requires agencies to establish internal controls and financial systems to provide reasonable assurance that the integrity of Federal programs and operations remains protected. This Act requires the head of the agency to provide an annual assurance statement detailing if the agency met this requirement, and if material weaknesses exist.

In response to FMFIA, the Department has an internal control program that holds managers accountable for the performance, productivity, operations, and integrity of programs through the use of internal controls. Each year, senior Department managers evaluate the adequacy of the internal controls surrounding activities and determine whether the controls conform to the principles and standards established by the Office of Management and Budget (OMB) and the Government Accountability Office (GAO). The results of these evaluations and other senior management information determine if there are internal control matters resulting in material weaknesses. The Departmental Internal Control and Assessment Review Council (DICARC) provides review and oversight of the internal control program and advises the Secretary on the Statement of Assurance.

OMB Circular No. A-123, Appendix A

OMB Circular No. A-123, Appendix A, requires agencies to conduct management assessment and evaluation of internal controls over reporting, which includes processes supporting the Digital Accountability and Transparency Act of 2014 (DATA Act), and overall data quality contained in agency reports. The evaluation requires an annual assessment of entity and process controls.

The Department's evaluation for Fiscal Year (FY) 2020 provides reasonable assurance that processes are in place to identify risks and establish controls to manage these risks.

Federal Financial Management Improvement Act

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

The Department evaluated agency financial management systems and determined they substantially comply with Federal financial management systems requirements, applicable Federal accounting standards, and the USSGL at the transaction level.

Management Priorities

(Unaudited)

The Department of Energy (DOE or Department) conducts multiple complex and diverse missions. Although the Department continues to strive to improve the efficiency and effectiveness of programs and operations, specific areas merit a higher level of focus and attention. These areas often require short and long-term strategies for stable operations, and represent the most daunting management priorities the Department faces in accomplishing the mission.

The Reports Consolidation Act of 2000 requires the Inspector General (IG) to prepare an annual statement summarizing the most serious management and performance challenges facing the Department. These challenges are included in the Other Information section of this report. In FY 2019, GAO issued the biennial High Risk Series update, which includes DOE management of

contracts and major projects with costs of \$750 million or greater, and the U.S. Government’s environmental liability, for which DOE shares responsibility with other Federal agencies.

After considering critical activities within the agency and areas found by the IG and GAO, the Department identified eight management priorities representing the most important strategic management issues the Department has now and in the coming years. **Table 1** identifies the IG challenges, GAO high-risk issues, and DOE management priorities. In accordance with the Government Performance and Results Act Modernization Act of 2010 (GPRAMA), DOE includes performance measures related to the Management Priorities in DOE’s Annual Performance Report/Annual Performance Plan.

Table 1

DOE MANAGEMENT PRIORITIES	GAO HIGH RISK LIST - GAO-19-157SP (as of March 2019, updated every two years)	IG CHALLENGE AREAS FY 2021
Contract and Major Project Management	Contract Management for the NNSA and EM Management of major (\$750 million or greater) projects and programs	Cross-Cutting Challenge-Reducing Fraud, Waste & Abuse
Security		
Safety		
Cybersecurity		
Environmental Cleanup	U.S. Government’s Environmental Liability	Managing Tank Waste
Nuclear Waste Disposal		
Infrastructure		
Human Capital Management		
		Establishing DOE as a Federal Enterprise Leader in Developing & Deploying Artificial Intelligence
		Restoring Plutonium Pit Production Capability

CONTRACT AND MAJOR PROJECT MANAGEMENT

Key Challenges: The Department is the largest civilian contracting workforce agency in the Federal Government, and spends approximately 90 percent of the annual budget on contracts to operate scientific laboratories, engineering and production facilities, and environmental restoration sites, and to acquire capital assets. Contractors at DOE sites and laboratories perform critical missions, including maintaining nuclear weapons stockpiles, cleaning up radioactive and hazardous waste resulting from the legacy of the Manhattan Project, and conducting the world’s most

sophisticated basic and applied energy and scientific research activities. To conduct these missions, the Department manages large complex capital asset projects.

In 1990, GAO designated DOE’s Contract Management—which includes contract administration and project management—as a high-risk area because of historical challenges with contracts and project execution. Since then, DOE has made significant improvements in project management. For example, from 2018 through 2020, DOE completed 90 percent of construction projects, with no

more than a 10 percent increase over original cost baseline.

In March 2019, GAO published a High-Risk List Update. GAO continues to focus on DOE contracts and major projects—those with an estimated cost of \$750 million or greater—under the purview of the National Nuclear Security Administration (NNSA) and the Office of Environmental Management (EM). GAO highlighted steps taken by NNSA to monitor and address contract performance below expectations, re-establish a process for reviewing the effectiveness of field offices' contractor oversight, and manage contract documentation in a central recordkeeping system. EM continues to face challenges in identifying the root causes of contract and project management issues and problems. GAO acknowledged DOE's demonstrated progress criterion by improving the Department's rating from "not met" to "partially met." EM and NNSA continue to have a GAO rating of "not met" capacity based on FY 2019 levels.

DOE's IG continues to conduct annual audits and investigations of contractor performance. DOE evaluates issues and recommendations identified by the IG, and takes appropriate action to mitigate risks for specific contractor performance findings. DOE is taking steps to validate that contractors are implementing agreed-upon corrective actions.

Departmental Initiatives: In FY 2020, DOE continued to make progress in addressing contract and major project management.

- DOE continued efforts to address GAO criteria to improve contract and major project management, including:
 - Sustained leadership commitment to address contract and project management challenges;
 - Improved acquisition planning for Management and Operating (M&O) and other major contracts to verify DOE has maintained a firm understanding of contract requirements and the ability to hold contractors accountable for contract objectives;
 - Improved the quality of enterprise-wide cost information available to DOE managers and key partners;
 - Applied DOE's contract and project management practices to the Department's major legacy projects;
 - Continued implementation of requirements of the Program Management Improvement Accountability Act (PMIAA) and OMB's supplemental guidance, including appointment of a Program Management Improvement Officer (PMIO) and participation in Program Management Policy Council (PMPC); and,
 - Continued progress in implementing the President's Management Agenda Cross-Agency Priority Goal for Category Management. For FY 2019, OMB changed the manner in assessing

agency progress towards achieving goals pertaining to Spend Under Management (SUM) and the use of Best-in-Class (BIC) contracting vehicles. For FY 2018, OMB assessed the percentage of total contract obligations made to awards categorized as SUM and BIC. For FY 2019, OMB assessed an agency's achievement against a goal established at the beginning of the FY for increasing obligations to SUM and BIC contracts. For FY 2019, DOE achieved more than 97 percent of the \$20.6 billion SUM goal, and 56 percent of the \$0.4 billion BIC goal. Delays in the award of several high-dollar value contracts were a significant factor affecting a greater achievement towards the BIC goal. In FY 2020, DOE published the Category Management acquisition guide chapter and conducted training to facilitate the Department's progress towards achieving goals pertaining to SUM and the use of BIC contracting vehicles. For FY 2020, OMB assessed an agency's achievement against a goal established at the beginning of the FY for increasing obligations to SUM and BIC contracts. For FY 2020, based on preliminary results, DOE achieved 134 percent of the \$20 billion SUM goal, and 87 percent of the \$0.2 billion BIC goal.

- DOE's ongoing efforts to improve include:
 - Developing workforce by providing staffing with requisite skills, and resources to perform acquisition-related duties and responsibilities;
 - Adopting the best commercial practices using technological innovations, and obtaining best-value goods and services to achieve efficiencies and avoid unnecessary spending;
 - Defining requirements in measurable outcomes;
 - Making use of single or multiple-award Indefinite Delivery Indefinite Quantity (IDIQ) contracting vehicles, to define and task the contractor to perform discrete scopes of work at the point in time when actual requirements arise;
 - Using firm fixed-price contracts to define specific requirements, and provide industry with information for realistic price requirements;
 - Identifying and aligning applicable contract incentives to appropriate performance measures;
 - Using objective performance measures focusing on outcomes to balance considerations of cost control, schedule achievement, and technical performance;
 - Providing prompt, accurate, and objective contractor performance assessment information in the Government-wide Contractor Performance Assessment Reporting System to hold poor-performing contractors accountable for performance failures, and rewarding high-performing contractors for success; and,
 - Implementing a Risk Assessment Tool for Contracting Officers to oversee and assess the

effectiveness of a contractor's purchasing system at DOE/NNSA Laboratories and Facilities, in accordance with Federal Acquisition Regulation Subpart 44.3.

SECURITY

Key Challenges: Safeguarding and protecting national assets entrusted to DOE in an effective and efficient manner to support DOE mission success.

Departmental Initiatives: The Department completed FY 2019 actions in personnel security and unmanned aircraft systems and continues ongoing efforts to improve the safeguarding and protection of national assets in FY 2020, including:

- DOE issued the 2020 Design Basis Threat (DBT) to include emerging threats identified by the intelligence community. The DBT provides a performance metric for sites and programs to identify and mitigate vulnerabilities posed by the threats in the protection of special nuclear material, personnel, and assets.
- DOE is updating the Nuclear Material Control and Accountability, Protective Force Operations, and Physical Protection Programs security directives. The updates will address revised processes for nuclear material control and align physical security requirements with the protection levels established in the Design Basis Threat for the protection of Departmental assets.
- DOE is updating the Security Risk Analysis and DBT vulnerability assessment processes to improve the complex's security postures.
 - DOE is working to deploy cost-effective security measures to consolidate and improve nuclear material storage facilities, and reduce security risks.
 - DOE collaborates with the Defense Threat Reduction Agency, other Department of Defense (DoD) elements, and the Nuclear Regulatory Commission to develop a common basis for protection of nuclear weapons and special nuclear material at the national level, and to improve communication and transparency with decision makers in Congress and in the Executive Branch. The Department has placed an increased emphasis on development of security risk assessment processes for non-nuclear sites to address protection of critical infrastructure, high-value assets, and personnel.
- Progress on the Insider Threat Program during FY 2020 includes:
 - Expanded physical and technical capabilities for user activity monitoring;
 - ITP leadership is undertaking an examination of field locations with no Local Insider Threat Working Groups (LITWG) coverage to determine the best manner to further ITP implementation enterprise-wide. The Department has loaded Insider Threat training onto the training platform for cleared employees, and is completing efforts to track this training to make it compliant with National-level ITP minimum requirements;
 - The Department is providing Insider Threat training to Federal supervisors through a collaborative effort between the ITP Program Office and the Office of Human Capital; and,
 - DOE is queuing an integrated project team to initiate revision of DOE Order 470.5, Insider Threat Program.
- DOE's Human Reliability Program (HRP) improvement efforts include development of a SharePoint website for HRP management, consolidation of relevant HRP statistics that transcend those requested for the Monthly Activity Report, and establishment of an annual HRP workshop for HRP management professionals. DOE has made progress with Networked Employee Assurance Tool or NEAT (which streamlines, automates, and standardizes the HRP supervisory review process), which it is piloting at Y-12 and Pantex with the assistance of the Software Engineering Institute from Carnegie Mellon University. Except for temporary testing exemptions due to COVID-19, the Department continues to monitor HRP personnel under 10 C.F.R. § 712.11, general requirements for HRP. DOE's Office of Secure Transportation completed assessments determining the need to establish a separate reliability program, concluding that it is more cost effective and efficient to fit under the Department's unified HRP. The Department is evaluating the need for an internal Department directive on HRP or a technical standard relying on 10 C.F.R. Part 712, *Human Reliability Program*.
- As part of the Personnel Security initiative DOE works with other U.S. Departments and agencies to develop, implement, and evaluate improvements and efficiencies in personnel security, such as:
 - Implementation of the Clearance Action Tracking System (CATS) throughout DOE for case management and adjudication workflow;
 - Coordination with the Defense Counterintelligence Security Agency Enterprise Business Support office for development of a national Background Investigation System;
 - Enrollment of DOE personnel with access authorizations in the continuous evaluation system;
 - Participation in the Performance Accountability Council for implementation of the Trusted Workforce 2.0 personnel vetting initiative; and
 - Revision of DOE Order 472.2, Personnel Security, to implement the Security Executive Agent Directives.
- DOE's Effective Security Technology Solutions initiative started a comprehensive update to the suite of Security System Design References based on DOE and other government agency testing. The DOE design references, classified and unclassified, are used throughout the complex and by other government

agencies to make informed security technology procurement decisions based on effectiveness against the Design Basis Threat. Updates to the Alarms, Communication, and Display, as well as the Intrusion Detection Design References, were completed in FY 2020, and will be followed by Entry Control and Contraband Detection, and Blast Protection in FY 2021. The remaining Design References will be completed in FY 2022 – 2023.

- DOE has initiated development of a Counter Unmanned Aircraft System (CUAS) Design Reference for complex-wide use to educate programs and sites on the regulations, threats, risk assessment methodology, and implementation process for employing a CUAS capability, with a completion date set for FY 2021. DOE is developing a searchable database of U.S. Government-sponsored CUAS performance test results providing sites to procure the best-fit CUAS systems based on operational requirements, performance, collateral effects, environmental considerations, safety, and cost. The CUAS selection tool is scheduled for completion in FY 2021.
- In order to foster Enterprise-Wide Security Solutions, the Security Committee, including the Department's Chief Security Officers, continues to provide oversight and direction in a collaborative manner on aspects of the Security Management Priorities. Continuous guidance is provided on policies and security initiatives, as well as the Department's implementation of the Administration's initiatives.
- DOE continues to improve efforts in the Classification and Protection of Information and Material. DOE is responsible for implementation of the U.S. Government-wide program to classify and declassify nuclear weapons-related matter, i.e., information and material supporting the Nation's nuclear nonproliferation programs. DOE continued to improve training, communication, and computerized tools to improve the accuracy and productivity of classification determinations. DOE continued to support the National Declassification Center at the National Archives in the safe release of other agencies' historical government documents no longer meeting criteria for classification, for the benefit of an informed public, and in coordination with other open government initiatives. This effort has prevented the inadvertent release of classified nuclear weapons-related information at the National Archives.
- DOE's Security Oversight efforts include security surveys, performance testing/evaluations, and self-assessments by implementing independent security performance oversight and enforcement programs to maintain partnerships and public confidence.
- DOE identified security requirements, programs, and practices affected by the COVID-19 pandemic. The Department generated the requisite Secretarial direction memorandums establishing the framework for critical assets and missions to maintain protection and enacting risk management strategies for the safety

and health of employees. The reinstatement of deferred compliance-based requirements will leverage the same risk management strategies.

ENVIRONMENTAL CLEANUP

Key Challenges: For more than 30 years, EM has cleaned up the environmental legacy of decades of nuclear weapons production and government-sponsored energy research. While progress has been made, the remaining work is technically complex, with associated high risks.

Technical and programmatic risks and uncertainties are inherent in DOE's cleanup projects. The legacy of the Manhattan Project, Cold War, and other nuclear fuels programs includes thousands of remaining excess contaminated facilities within the EM Program portfolio, and facilities identified in other DOE programs. The duration and diversity of past nuclear weapons research and development, testing, and production create a level of uncertainty regarding the amount and composition of waste, and the nature and extent of environmental contamination. As a result, characterization of legacy waste sites is performed in conjunction with planning and execution of cleanup activities, such as deactivating and decommissioning facilities, removing hazardous materials, stabilizing waste streams to prevent the release of such material to the environment and remediating in accordance with cleanup objectives and applicable legal agreements and regulations. Cleanup activities can continue for decades, and often require first-of-a-kind solutions and / or facilities.

EM's site cleanup work is governed by statutes, regulatory agreements or court orders, and laws establishing the scope of work to be performed and the dates by which cleanup activities must be accomplished. Initial regulatory milestones were developed based on the best information available for a site, with the understanding that further characterization would be needed. As the scope of the potential cleanup work is better defined, EM shares updated characterization data with the U.S. Environmental Protection Agency (EPA) and state regulators, and with other stakeholders.

Departmental Initiatives: EM continued pursuing numerous initiatives in FY 2020 to improve performance, including:

- Continuing implementation of the Direct Feed Low-Activity Waste strategy at the Office of River Protection, including significant progress made toward installation of the Tank Side Cesium Removal (TSCR) system:
 - Received approval of Critical Decision 2/3 in February 2020, authorizing full construction;
 - The TSCR Process, Control and Auxiliary enclosures were delivered and anchored to a concrete pad; and,

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- Excavation in AP Farm to support conduit installation to facilitate electrical interfaces with the TSCR system continued.
- Initiating operations of the Salt Waste Processing Facility:
 - Achieved CD-4 and received Authority to Operate in August 2020; and
 - Commenced Hot Commissioning in early October and start the full first year of operations in December 2020.
- Continuing the processing of the inventory of depleted uranium hexafluoride (DUF6) to a more stable oxide form at the Paducah and Portsmouth Gaseous Diffusion Plants.
- Developing and deploying innovative technologies, approaches, and modeling capabilities, resulting in significant improvements in safety and cost and schedule estimates.
- Partnering with the National Nuclear Security Administration (NNSA) to complete stabilization activities at facilities at the Lawrence Livermore National Laboratory:
 - B175 characterization field activities were completed in June 2020 and deactivation activities are underway and scheduled to be completed by the end calendar year 2020;
 - B280 Reactor removal – Removal contract was awarded in May 2020. Characterization activities will begin in late 2020; and,
 - A request for proposal (RFP) to characterize Building 251 for deactivation and decommissioning (D&D) was issued in September 2020.
- Accomplishing significant decommissioning and demolition progress across the EM complex, including:
 - Completed the cleanup of the East Tennessee Technology Park. This project included the demolition of 13.6 million square feet of building space and disposal of 1.7 million cubic yards of waste;
 - Began removal of the remaining 18 DOE-owned buildings at the Energy Technology Engineering Center, achieving an important FY 2020 goal. To date, nine out of an initial set of 10 buildings have been demolished, with work initiated on the tenth building;
 - Continuing activities to demolish the Brookhaven National Laboratory High-Flux Beam Reactor Exhaust Stack. Contractor is mobilized for stack demolition and exterior asbestos coating abatement is 30 percent completed. Project completion is expected in FY 2021;
 - Continuing demolition and cleanup at the West Valley Demonstration Project, including incorporating the demolition and removal of the Main Plant Process Building into the current contract scope. Also, completed demolition of all remaining facilities surrounding the Main Plant Process Building;
- Continuing demolition at the Richland Operations Office's Plutonium Finishing Plant, including packaging and safe disposal of the rubble from the Plutonium Reclamation Facility, core sampling of soil beneath the building pads, and stabilization of the site with soil cover by the end of 2021; and,
- Continuing the shipment and relocation of uranium mill tailings at the Moab site. As a result, the project completed shipment of a cumulative 11 million tons of tailings shipped October 19, 2020.
- Enhancing the effectiveness of EM program management across the EM complex, and continuing to incorporate the concept of end-state contracting in major contracts and procurements at multiple sites to reinvigorate the sense of urgency and the completion mindset:
 - At the Nevada Nuclear Security Site, EM was successful in collaborating with the State of Nevada to incorporate a change in the end-state strategy for the Pahute Mesa, resulting in a reduced modeling effort and the number of remaining wells installations and acceleration of the closure schedule by two years. The change updated prior cost estimates, accelerated D&D work scope and incorporated an Environmental Program Services contracting strategy; and
 - Developing an EM-wide Program Management Protocol incorporating leading practices related to scope, cost, schedule, and independent reviews, as well as integrating program management with EM strategic planning activities.
- Seeking opportunities to increase efficiency and performance for maximum cleanup value for every dollar invested in the EM Program:
 - Issued the *EM Vision 2020-2030: A Time of Transition and Transformation* (EM Strategic Vision), outlining the planned accomplishments over the next decade, within EM's framework of regulatory compliance commitments and best business practices, and providing site-specific goals for the next decade. The EM Vision: identifies cross-cutting, complex-wide strategic initiatives for the next decade to address safety, project management, end-state contracting, innovative cleanup approaches, Federal recruitment for the next-generation workforce, aligning infrastructure needs with cleanup activities, strengthening regulatory partnerships and stakeholder engagement, and security and cybersecurity requirements to protect EM assets, operations, and mission essential functions; and,
 - Identifying opportunities to make strategic investments to reduce life-cycle costs, while accelerating project and program schedules.
- Evaluating Federal facility agreement cleanup milestones, permits, and decisions with regulators, in accordance with applicable statutes and regulations for protection of human health and the environment.

Working with regulators so commitments reflect attainable outcomes.

- Integrating HQ and site assessment plans for field offices to better prepare and support oversight activities and to maximize benefits for HQ and field assessments.
- Partnering with National Laboratories, industry, academia, and the U.S. Army Corps of Engineers to integrate the best scientific and engineering resources into decision-making, so the selected technologies, design, and construction approaches accelerate project completion.
- Strengthening the integration of acquisition, budget, and project management processes so contract statements of work and deliverables are based on clear project requirements, front-end planning, and risk analysis. Modifications to the contract and project baselines are managed through strict change-control processes.

NUCLEAR WASTE DISPOSAL

Key Challenges: The amended Nuclear Waste Policy Act of 1982 (NWPA) makes DOE responsible for the management and disposal of high-level waste (HLW) and spent nuclear fuel (SNF) to protect public health, safety, and the environment.

The NWPA authorizes the Secretary to enter into contracts with any person who holds title to or generates SNF or HLW of domestic origin. In return for the payment by contract holders of fees established by the NWPA into the Nuclear Waste Fund, the Government was to begin disposing of SNF and HLW starting in 1998.

- Contract holders filed breach of contract suits and the Department was found to be in partial breach of the contracts and to be liable for damages resulting from the delay.
- As of September 30, 2020, the Judgment Fund paid over \$8.6 billion in settlements and judgments to contract holders:
 - Contract holders will continue to provide annual claims for added costs under the settlement agreements; and
 - Annual payments pursuant to those agreements will continue until the Government has fulfilled SNF and HLW acceptance obligations.
- DOE reviews the claims and provides recommendations for approval to DOJ. DOE staff continues as the lead Government witness for the remaining unsettled cases as they are tried, and continues to manage the Nuclear Waste Fund balance of almost \$42.7 billion.
- In *National Association of Regulatory Utility Commissioners (NARUC) v. DOE*, the U.S. Court of Appeals for the D.C. Circuit ruled that the Department's 2010 fee adequacy determination was legally inadequate, and ordered the Department to issue a new fee adequacy evaluation in compliance with the court's opinion, by January 18, 2013. The

Department issued and provided the court with an updated fee adequacy report by the deadline.

- NARUC and the Nuclear Energy Institute moved to reopen the appeal to challenge the report.
 - On November 19, 2013, the court issued a decision finding that the Department's 2013 fee adequacy report was "arbitrary and capricious" and ordered the Secretary to provide "to Congress a proposal to change the fee to zero until such time as either the Secretary chooses to comply with the NWPA as it is written, or until Congress enacts an alternative waste management plan."
 - On December 20, 2013, the court issued a mandate directing the Department to comply with the court's decision to reduce the fee to zero.
 - On January 3, 2014, the Department provided the court-mandated proposal to Congress to adjust the 1 mill per kilowatt-hour fee to zero.

Departmental Initiatives: The Department's FY 2020 budget requested funding to develop interim storage capability to accelerate progress.

- In FY 2020, DOE/NE continued developing an integrated software platform hosted in a cloud environment capable of supporting the nuclear waste management program with a library of engineering and scientific data alongside legacy documentation in a searchable database. The Nuclear Waste Management Cloud Platform provides DOE with a modern software solution for legacy document and records management accessibility.
- DOE/NE completed the initial stages of the ATLAS railcar and buffer railcar testing programs.
- DOE's ongoing efforts to improve include continued development of the technical bases to help provide continued safe storage of SNF, and the eventual disposal of the SNF.

CYBERSECURITY

Key Challenges: Today's rapidly evolving cyber landscape presents unprecedented opportunities and challenges. Achieving a safe, secure, and resilient cyber environment requires DOE to continually pursue cost effective investments and activities to reduce cyber risk. Cyber is an enterprise-wide responsibility, and demands an expanded view to encompass the broad scope of information sharing and information safeguarding. The Cyber Council, which is the principal forum for collaboration and coordination of key cyber policies and DOE enterprise-wide activities, leads the information technology (IT) and cyber governance for DOE. The Cyber Council, chaired by the Deputy Secretary, reviews and evaluates significant enterprise IT and cyber-related policy issues before final decision by the Secretary.

In June 2018, OMB released a government reform plan to address the Federal cybersecurity workforce shortage. DOE recognizes the importance of attracting, developing, and retaining a highly skilled cybersecurity workforce. The Cybersecurity Workforce Working Group was established

in coordination with the Office of Human Capital to develop a DOE response and strategy to the OMB workforce initiative, which includes providing a cyber workforce gap analysis, streamlining the hiring of cyber talent, and standardizing training for cybersecurity employees. DOE is leveraging existing tools, such as the Department of Homeland Security's (DHS) Cybersecurity Workforce Toolkit and National Institute for Science and Technology's (NIST) National Initiative for Cybersecurity Education (NICE) Capability Maturity Model. The Department continues to implement workforce improvements to develop and maintain crucial skillsets in DOE employees, and attract talent to build a sustainable and diverse workforce.

Departmental Initiatives: In FY 2020, the Office of the Chief Information Officer (OCIO) continued pursuing numerous initiatives to improve performance, including:

- DOE's Integrated Joint Cybersecurity Coordination Center (iJC3) has continued to improve cybersecurity posture, increase operational visibility and reduce Departmental risk. The iJC3 addresses the current enterprise Security Operation Center (SOC) capabilities, providing recommendations on improvements, and initiating projects based on those recommendations to the DOE Information Management Governance Board.
- iJC3 managed the Crowdsourced Penetration Testing program to support DOE's security posture and enhance enterprise operational visibility. In collaboration with DOE leadership, at least 38 Program Office, site, lab-specific or enterprise-wide assessments have been conducted throughout FY 2020. Continued expansion of assessments is anticipated as usage/demand for the program increases.
- In July 2020, in response to the draft DHS CISA Binding Operational Directive (BOD) 20-01, *Develop and Publish a Vulnerability Disclosure Policy*, the OCIO began development of a Vulnerability Disclosure Program (VDP) policy. The DOE's VDP will establish a formal mechanism for the DOE to receive, triage, and take action regarding information from third parties about potential security vulnerabilities on internet facing systems. Once approved, the VDP policy will be added as an Appendix to 205.1C.
- OCIO continued to support Department-wide implementation of DOE Order (O) 205.1C, *Cybersecurity Program*. In FY 2020, DOE released amplification guidance including the Enterprise Cybersecurity Program Plan, Risk Management Methodology, and FISMA Inventory Methodology to support the policy implementation and assist programs tailor solutions to mission needs. OCIO will continue to update DOE cybersecurity policies and other directives to improve information sharing and reporting.
- DOE's Unified Credentialing Working Group met to develop criteria and provide guidance on meeting Federal requirements for Multifactor Authentication (MFA) based on OMB and Cross-Agency Priority (CAP) goals.
- The Department has full accounting of privileged and unprivileged user accounts, and is monitoring reported progress and completion dates of local MFA implementations and deployments. In FY 2020, DOE began transition from the Electronic Capital Planning and Investment Control (eCPIC) system to the Enterprise Cybersecurity Governance System (ECGS) and continues to maintain accounting for access to privileged and unprivileged accounts. As part of the transition, DOE is working to validate metrics for privileged and unprivileged user accounts through ECGS and identify and reduce or eliminate non-MFA for network accounts.
- DOE participates in the DHS Cybersecurity & Infrastructure Security Agency (CISA)-led High Value Asset (HVA) Program for assessing the cybersecurity of DOE's self-identified HVAs (the number of HVAs fluctuates, but has remained at approximately 24 over the last two years). The Department updated and proposed the latest HVA inventory to DHS on January 31, 2020, in compliance with DHS BOD 18-02.
 - The Department completed several HVA assessments in FY 2020, ahead of target to meet the key milestone of the new DOE Cyber Agency Priority Goal, which is to have assessed 100 percent of the Department's HVAs by Q4 FY 2021.
 - BOD 19-02, *Vulnerability Remediation Requirements for Internet Accessible Systems*, released in April 2019, directs Federal agencies to take immediate actions to mitigate critical and high vulnerabilities, identified in Cyber Hygiene reports, within 15 and 30 days, respectfully. BOD 19-02 requires that DHS have access to scan networks.
 - Vulnerabilities identified through Cyber Hygiene reports are tracked across the enterprise through the iJC3, and remediation of identified vulnerabilities is monitored for compliance with BOD 19-02's requirements.
- Beginning in FY 2020, OCIO initiated the Enterprise Cybersecurity Risk Management (eCRM) program to blend quantitative and qualitative risk management methods to enhance risk-based decision making. The program has completed assessments on behalf of DOE Sites and Laboratories, as well as internal OCIO risk and investment decisions.
- In FY 2020, OCIO maintained commitment to monitor, address, and prevent phishing, and increased efforts to defend against phishing attacks through the use of anti-phishing policy, awareness, training, and tools. Data on phishing incidents and anti-phishing awareness and exercise activities is collected through the iJC3 in collaboration with DOE Program Offices. In January 2020, the Department upgraded enterprise-wide anti-phishing security awareness training and simulated phishing platform tools to provide

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enhanced capabilities for sites to use when conducting simulated phishing exercises.

- In FY 2020, DOE continued leveraging DHS's Continuous Diagnostics and Mitigation (CDM) Dynamic and Evolving Federal Enterprise Network Defense (DEFEND) Task Order Request (TOR) to procure and deploy cybersecurity tools across the Department. In response to OMB Memoranda M-19-02, "Fiscal Year 2018-2019 Guidance on Federal Information Security and Privacy Management Requirements," the Department continues to collaborate with the DHS CDM Program to expand continuous diagnostic capabilities for the ".gov" and unclassified networks across the Department by increasing sensor capacity and automating sensor collections to prioritize cybersecurity risk alerts.
- In FY 2020, DOE completed seven training modules for over 70 Authorizing Officials across the DOE program offices to provide knowledge and skills to support a distributed risk management model for making informed decisions affecting the mission.
- DOE, in partnership with the National Security Council (NSC), brought together DOE National Laboratory/Power Marketing Administration (PMA) experts, ICS vendors, industry experts, and international partners to execute International Industrial Control Systems (ICS) Hackathon (team-based penetration testing). Over 40 participants, representing government cybersecurity/energy practitioners and leaders from Australia, Canada, Germany, Israel, the United Kingdom, and the United States participated in this inaugural event.
- The CyberStrike Workshop enhances the ability of energy sector owners and operators in the U.S. to prepare for a cyber incident impacting industrial control systems. The training is a critical tool for actively developing and supporting cybersecurity solutions to: Understand and manage the multifaceted interdependencies between the grid and other critical infrastructure; Detect and respond within compressed timelines to prevent highly impactful consequences; and Develop top-tier defenders to mitigate sophisticated threat actors.
 - The training offers attendees a hands-on, simulated demonstration of a cyberattack, drawing from elements of the 2015 and 2016 cyber incidents in Ukraine. These CyberStrike instruction platforms challenge course participants to defend against a cyberattack on the equipment they routinely encounter within their power generation systems, power distribution substations, and within the ONG subsector, the gas/oil separation process.
 - In FY 2020, and due to COVID-19, the program converted the training to a virtual environment. The program conducted a combined 13 sessions across the fiscal year, which included over 480 individuals trained. In just over three years of training, the CyberStrike program has trained over 2,000 energy sector and federal personnel.

DOE's ongoing efforts to improve include:

- OCIO's Big Data Platform (BDP) initiative achieved full operational capability (FOC) in April 2020. The solution provides for ingestion and storage of large data sets from across the DOE Enterprise into a cloud-based data lake.
 - BDP builds analytics to visualize results, and uses threat-informed cyber information to provide rapid analysis of, and response to, anomalies or suspected events.
 - BDP data supports Indicators of Compromise (IOC) detection and reporting, security incident effect analysis, cyber threat information development, data call activities, and situational awareness. Data collected by BDP is mapped to the MITRE ATT&CK Framework to better classify attacks and assess the Department's risk, and to gauge the level of visibility against targeted attacks.
- OCIO continues to develop and implement a comprehensive DOE Cybersecurity Data Stewardship Initiative to outline the sharing of critical cybersecurity sensor data for improved identification and response, and for mitigation of cyber security incidents. This effort facilitates the collection and safeguarding of data that feeds into the BDP from offices, sites, and National Laboratories. The initiative includes creation of a Cybersecurity Data Stewardship Team (CDST) to prioritize the different data elements based on evolving threats and changing Federal requirements.
 - Prioritized data elements will be placed in the Enterprise Cybersecurity Data Taxonomy (ECDT) to detail requested content and usages methods. With the data, iJC3 is developing capabilities to improve enterprise visibility, threat hunting, and incident management.
- To advance efforts to improve the Department's cybersecurity posture, increase operational visibility and reduce Departmental risk, iJC3 will collaborate with independent cyber centers to develop threat-driven cyber operations to protect the entire DOE enterprise, including the Office of Cybersecurity, Energy Security and Emergency Response (CESER), program offices, National Laboratories, plants, field offices, and Power Marketing Administrations (PMAs).
- DOE developed a plan to assess 100 percent of HVAs by Q4 FY 2021, as the key milestone to meet the Department's cybersecurity Agency Priority Goal (APG). DOE has implemented the initial version of the HVA Executive Dashboard, a Q3 FY 2020 APG milestone. DOE continues to collaborate with DHS CISA to monitor the security postures and risk profiles for the Department's high value assets, including participation in two inter-agency HVA working groups.
- OCIO continues to focus on improving Corrective Action Plan (CAP) goal scores in the areas of Information Security Continuous Monitoring (ISCM); Identity, Credential, and Access Management (ICAM);

and Advanced Network and Data Protections (ANDP). OCIO is working with Departmental Elements and sites to address reporting inconsistencies and refine data collection techniques to provide an accurate reflection of the security posture of DOE as a whole. As a result of these efforts, there was significant improvement in the quarterly OMB risk assessments. In FY 2020, the OCIO began exploring options for automating FISMA data collection through existing capabilities.

- OCIO organized an Integrated Project Team (IPT) to coordinate development of a Controlled Unclassified Information (CUI) Order by December 2020 and implement within the NARA timelines. IPT membership includes CUI and policy subject matter experts across the Department and the CUI Program Order is being developed in close coordination with the National Archives and Records Administration (NARA).
- Initiation of an internal Control Systems Working Group (CS-WG) bringing together experts and partners across DOE to establish a Control Systems strategy and guidance began in FY 2020. Efforts under the CS-WG will support DOE's participation in the CISA-led Industrial Control Systems Joint Working Group (ICSJWG) and Control Systems Interagency Working Group (CSI WG). Action items and recommendations from the *Report to the President of the United States on Strengthening the Nation's Cybersecurity Workforce for Cyber-Physical Systems & Control Systems*, based on Executive Order 13870, "America's Cybersecurity Workforce," transmitted by DOE in conjunction with DOD, DHS, and Department of Transportation.
- In FY 2020, DOE continued to expand partnerships with international, inter-agency, and private sector partners to build relationships and engage with experts on Industrial Control Systems (ICS) and High Performance Computing (HPC) to support DOE initiatives to address current and future threats.

HUMAN CAPITAL MANAGEMENT

Key Challenges: DOE requires an empowered and high performing Federal workforce to accomplish the mission. Key human capital challenges include:

- Competition for highly skilled talent
- Risk to institutional knowledge due to retirement eligibility of the workforce
- Vulnerability due to unplanned attrition
- Workforce and leadership development gaps
- Employee engagement

The Office of the Chief Human Capital Officer (HC), working with DOE Program and functional offices, identified three strategic human capital priority areas relating to leadership, people, and human resources (HR):

- Strategic Human Capital Planning

- Talent Management
- HR Service Delivery

Departmental Initiatives: DOE aligns actions with the Administration's goal to make government lean, accountable, and efficient. In FY 2020, DOE employed strategic human capital initiatives to meet the workforce needs of today and plan for those of the future, including:

Strategic Human Capital Planning:

- Completed the Department-wide assessment of career and limited (LT) Senior Executive Service (SES) allocations, designating them into SES Priority categories based on complexity of work, breadth of responsibility, and effect on mission accomplishment.
 - Issued overarching guidance for a measured executive allocation management process within the Department, providing a standardized approach when adjudicating requests for SES allocations and prioritizing recruitments. DOE will continue to closely manage executive allocations through the Department's Managed Hiring Process, focus on filling existing SES positions with onboard talent, and manage SES allocations to operate in a leaner, more efficient, and more accountable manner.
 - DOE will continue to explore ways to incorporate SES Priority designations into other areas of executive management, to include executive compensation.
- Continued to provide executive performance management guidance by releasing comprehensive opening and closing guidance, as well as providing updated training sessions to reaffirm effective practices and share lessons learned.
 - Successfully redirected SES ratings distributions from the previous four years—Level 5 ratings decreased from 52 percent to 30 percent, with a more normalized distribution of Level 4—and revised the compensation structure to increase the average award by almost \$2,000 for each rating level.
 - DOE will continue to support SES performance management with the establishment of performance plans containing executive-level expectations that align to the organization's and the Department's mission, and will continue to encourage increased communication efforts throughout the performance management cycle between raters, reviewers, and Under Secretaries, where applicable, to provide a balanced ratings distribution.
- Facilitated Department-wide adherence to the updated Managed Hiring Process, which included new flexibilities and definitions and codified changes in the previous hiring process. Consistent with earlier guidance, during the managed hiring process, no vacant position could be filled from an external source and no positions created, except in limited circumstances set forth in Managed Hiring Process –

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Updated Implementation Guidance and Procedures. These efforts supported the Department's goal of efficient and strategic position management.

- Continued the use of the Human Capital Framework as the set of strategic criteria for internal audits and evaluations of human capital programs and processes, focusing on four human capital management systems: Talent Management, Performance Management, Strategic Planning and Alignment, and Evaluation.
 - Conducted an HC Management Assessment Program (HCMAP) audit of the NNSA to identify strengths and areas of improvements in the four focus areas, providing leadership insight on the state of human capital.
 - Conducted the first-ever DOE-wide study of the Department's Pathways Programs, which examined program execution and effectiveness in the administration of the Recent Graduates, Interns, and Presidential Management Fellows Programs.
 - HC will align the HCMAP Policy Memo with new OPM requirements. Also, a HCMAP review of the Bonneville Power Administration commenced on August 25, 2020, to assess the compliance and effectiveness of the human capital program. The review is scheduled to conclude mid-November with a report issued in December 2020.
- Continued supporting the development of operational staffing plans for DOE program offices. Partnered with the U.S. Office of Personnel Management (OPM) to initiate organizational assessments of DOE program offices. Results from the assessments will provide offices with data to inform strategic approaches to resourcing, functional alignment, and organizational structure.

Talent Management:

- Continued development of the Departmental Learning Management System (LMS) to support the development needs of the DOE workforce, including the release of a Mentoring Module to facilitate mentoring relationships as a key component of employee development, and a competency assessment module to identify individual and organizational skill gaps.
 - HC will continue to expand access to the LMS by migrating DOE contractors into the platform, and will invest in functional enhancements to help program managers assess, assign, and evaluate employee training and development.
- Led efforts to strengthen employee engagement across the Department by improving access to engagement data, providing opportunities for employees to collaborate and provide input on work environment, and providing targeted support to low-performing organizations. These efforts support goals established under the President's Management Agenda and employee-led crowd-sourcing efforts to identify and implement enhancements to the DOE work environment.

- HC will develop custom data analysis for DOE organizations to highlight areas of strength and help target areas needing improvement, and will expand outreach to program offices, promoting best practices for strengthening employee engagement and supporting organizations in employee engagement action planning.

HR Service Delivery:

- With the Department's transition to maximum telework in response to COVID-19, HC moved to virtual onboarding for employees, onboarding 506 GS employees and 45 Senior Executive Service and excepted service employees since mid-March 2020.
 - The Oak Ridge HR Shared Service Center (ORSSC), finalized Service Level Expectations with customers to formalize service expectations.
 - Expanded contracts to aid in operational workload surge support, including direct support to specific users based on high volume demands.
 - Developed 174 standardized position descriptions to improve time-to-hire. Since implementation, improved classification time by eight days. Developed and implemented standardized hiring incentive packages for managers to decrease the administrative burden and improve efficiency. ORSSC will obtain contractor support for the development of standardized job analysis documents to further aid in time-to-hire improvement efforts.
 - Used Continuous Direct Hire announcements to expand the use of direct hire authorities, decreasing the time-to-hire by 67 percent relative to other vacancies being filled using a regular recruitment method such as Delegated Examining and Merit Promotion. Direct Hire applies to DOE's Science, Technology, Engineering, and Math positions.
 - Developed plans to establish a HR Help Desk to aid in timely and comprehensive response to human capital inquiries from customers.
 - ORSSC will develop a set of practical supervisory courses to further develop the skills of DOE's hiring managers and improve customer service and understanding of the various roles when serving as a hiring manager in DOE. Additionally, an internal training program is in development to invigorate the knowledge and competency level of ORSSC team members in all functional HR areas.
 - At the PMA HR Shared Service Center (PMA HR SSC), finalized a Service Level Agreement with customers to formalize service expectations. PMA HR SSC customers are 96 percent staffed (1,696 of 1,759 FTEs are filled), and the time to hire for actions in FY 2020 (as of June) are within the 80-day hiring model.
- Implemented dashboard functionality in an automated survey mechanism for collecting feedback from customers and developing internal business rules to establish HC standardization and branding.

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- Implemented enhancements to the automated time-to-hire tracking system and metrics reports to improve accuracy of data, simplify tracking of recruitment actions, and improve communications with customers.
 - Evaluated and fully tested an automated onboarding system. Implemented system enhancements to the Labor Management and Employee Relations module to align with a performance management order and improved case tracking and reporting.
 - Established legal authority codes in the HR system of record for excepted appointments in response to COVID-19.
 - HC will complete an assessment of the applicant tracking system to include an onboarding module to replace the current system in place and upgrade the HR system of record to v9.2 to take advantage of technologies and improve reporting capability.

SAFETY

Key Challenges: Maintaining the safety and health of the DOE Federal and contractor workforce, the public, and the environment during Departmental operations, while striving to enhance the Department's productivity to achieve mission objectives.

Departmental Initiatives: In FY 2020, DOE continued to strengthen Integrated Safety Management (ISM) and worked to build a stronger safety culture, an integral part of ISM, through increased senior leadership and worker engagement. ISM is the overarching framework to plan, execute, and monitor work activities including:

- Safety Culture Improvement Panel (SCIP) continues to provide leadership support to improvement in meeting DOE's safety culture objectives across the complex. The Department uses multiple methods to inform management and workers of Departmental expectations and requirements to provide protections for DOE Federal and contractor whistleblowers. DOE continues to foster a safety-conscious work environment encouraging workers to raise concerns without fear of reprisal. To complement ISM, the SCIP supports development and conduct/delivery of training courses to improve awareness, understanding and implementation of ISM:
 - TLP-200, Safety Culture for DOE and DOE Contractor Senior Leaders;
 - TLP-150, Safety Culture for Front Line Leaders; TLP-151, Safety Culture for Front Line Leaders Train-the-Trainer Certification;
 - TLP-100, Safety Culture Leadership Fundamentals (for employees); and,
 - Safety Culture Fundamentals Workshops and will continue this effort into the foreseeable future.
- SCIP is prioritizing efforts to develop safety culture metrics relative to mission performance/contractor assurance system results and identifying monitoring

means and methods to measure the effective implementation of safety culture.

- DOE continues to prioritize the ongoing efforts of ISM to improve and institutionalize lessons-learned and best practices for integrating safety into management and work practices at levels so that missions are accomplished efficiently while protecting the public, the workers and the environment. The DOE ISM Champions Council began to meet yearly with the Safety Culture Improvement Panel to collaborate and advance approaches to strengthen safety culture across the Department and will continue to build on this effort. The focus is on communications, training, community of practice, contracts, monitoring means and methods, and integration of safety and security with the focus on strengthening the safety of the work the Department performs.
- DOE is responding to concerns about Per- and Polyfluoroalkyl Substances (PFAS), a group of man-made chemicals manufactured and used in a variety of industries since the 1940s. PFAS are persistent in the environment and in the human body, and exposure can lead to adverse human health effects. DOE activities have discharged PFAS as a chemical agent in a fire suppression product, Aqueous Film Forming Foam (AFFF), and other DOE operations and processes have released quantities of PFAS to the environment. DOE is supporting research on past PFAS operations, participating in policymaking and regulatory processes, and tracking the emerging scientific and technical approaches to measuring and remediating PFAS contamination.
- A Pandemic Response Plan was completed to address protection of employees, maintenance of essential functions, support for the Federal response, and communication with partners concerning pandemic planning and response. The Department established a COVID-19 Response Team to provide worker health and safety guidance, and epidemiological and analytical support for COVID-19 response activities. A priority for FY 2021 is to update the Department's Pandemic Response Plan to capture lessons learned from DOE's ongoing response to COVID-19, so DOE will be better prepared for future pandemic events.
- DOE continues formal rulemaking work to revise 10 CFR 850, *Chronic Beryllium Disease Prevention Program*, based on more than ten years of implementation experience with 10 CFR 850 in facilities or areas with beryllium use or beryllium contamination. The revision will provide clarification of requirements and improved worker protection during mission delivery.
- Nuclear Safety Management requires DOE to conduct independent oversight of nuclear facility projects in compliance with 10 CFR 830, *Nuclear Safety Management*. A priority for this year is to complete rulemaking on 10 CFR 830 in support of the Department's regulatory reform effort and will support related Directives and Standards development and updates, and provide assistance to the Programs

intended to clarify and strengthen the Department's implementation of this key nuclear safety rule.

- DOE will continue to seek opportunities to share lessons learned through DOE's Operating Experience Program developing and distributing operating experience reports on emerging safety-related trends and topics at DOE facilities. This program will continue to provide a forum for sharing important information related to safety and health including:
 - Lessons learned from the Department's response to COVID-19; and
 - Capturing occupational exposures to the virus as well as suspect/counterfeit and defective items that could potentially affect DOE operations.
- The Department's effective cross-organizational leadership and coordination aids in resolving Defense Nuclear Facilities Safety Board (DNFSB) related technical, safety, and management issues necessary to public health and safety by providing communication, coordination, and assistance between the DNFSB and the Department is transparent across affected DOE/NNSA Headquarters (HQ) Program Offices and Field Elements:
 - DOE/NNSA HQ Program and Field Elements are kept informed of DNFSB technical issues and safety concerns, and the DNFSB staff is kept informed of DOE/NNSA positions; and,
 - DOE/NNSA deliverables adequately address DNFSB technical issues and safety concerns, and are provided in a timely manner.

INFRASTRUCTURE

Key Challenges: DOE is responsible for a large portfolio of world-leading scientific and production assets, and the general-purpose infrastructure needed to operate and use these assets. While DOE made investments in world-class mission facilities, much of the supporting infrastructure, including office space, general laboratory spaces, maintenance shops, and utilities contributing to the mission and forming the backbone of the laboratory and production plant sites, is beyond design life and needs attention. Based on Department-wide facility assessments and data analyses, DOE is facing a systemic challenge of degrading infrastructure and high levels of deferred maintenance. To address these challenges, DOE focuses infrastructure management priorities on halting further increases in the level of deferred maintenance and reducing levels over time, improving facility condition and functionality, and reducing the number of excess facilities in the Department's real property inventory.

A degrading infrastructure and excess contaminated facilities pose a risk to safety, security, and programmatic objectives. DOE faces challenges with the number of excess facilities throughout the complex and the need to deactivate, decontaminate, decommission, and demolish facilities in the near term. EM is the primary office responsible for performing necessary decontamination and final D&D of process-contaminated facilities.

Departmental Initiatives: In FY 2020, the Department continued to make progress in addressing infrastructure challenges, including:

- DOE's Laboratory Operations Board (LOB) provides an enterprise-wide forum for engaging the DOE laboratories and program secretarial offices (PSOs) in a joint effort to identify opportunities to improve effectiveness and efficiency. LOB addresses aspects of laboratory operations and includes a chartered group, the Infrastructure Executive Committee (IEC), comprising of senior DOE line managers and facility experts to focus on laboratory infrastructure. IEC assists the LOB with identifying and resolving strategic infrastructure issues. IEC focuses on understanding leadership's intent concerning the long-term vision of DOE's laboratories and provides insight to the LOB for improving the effectiveness and efficiency of managing DOE infrastructure.
- Program Office Infrastructure efforts, within individual offices, are an integral part of laboratory planning and evaluation processes. Program Office plans include reduction of deferred maintenance, removal of excess facilities, and proposals for potential construction of facilities. Evaluation of laboratory performance related to infrastructure stewardship is included in laboratory performance plans. The National Nuclear Security Administration's (NNSA) Asset Management Program uses supply chain management economies-of-scale to provide a centralized and efficient procurement approach to replacing mission-critical deteriorating infrastructure systems common throughout the enterprise. NNSA completed development of a ten-year plan to revitalize the deteriorating security technology and infrastructure across the enterprise.
- DOE Order 430.1C, *Real Property Asset Management* establishes a corporate, holistic, and performance-based approach to real property life-cycle asset management. In FY 2017 and FY 2018, Program Offices issued supplemental directives and guidance implementing the order. This approach balances agency consistency with Program Office flexibility to plan and execute in support of unique missions and programs and the Department's asset management goals. In FY 2019, DOE's Office of Management conducted an assessment to determine compliance with the requirements of Order 430.1C, and identified implementation gaps and recommendations for improvement. In FY 2020, DOE updated guidance, policies and procedures to close identified gaps.
- In FY 2020, functions and personnel of the Sustainability Performance Office joined the Office of Asset Management in providing assistance and guidance to DOE program offices and sites for maintaining the long-term operational capability and resilience of DOE facilities, while enhancing environmental and economic performance.
- In FY 2020, the Office of Asset Management initiated development of a Departmental directive establishing

agency-wide policies and procedures for bridge inspection, quality management, and maintenance of a bridge inventory.

- DOE plans to implement the Deactivation and Decommissioning of Non-Operational Defense Nuclear Facilities Plan (D&D Plan). Excess Contaminated Facilities Working Group (ECFWG), a chartered group of the LOB, develops and maintains the Department's D&D Plan. Every two years, the D&D Plan is provided to Congress to meet reporting requirements under section 4423 of the Atomic Energy Defense Act (50 U.S.C. 2603), as amended by section 3133 of the National Defense Authorization Act (NDAA) for FY 2016.
 - Initiated a plan that identifies the number of excess facilities across the Department, provides rough order of magnitude costs to accomplish appropriate D&D work, discusses the methodology used to determine risk and prioritize facilities for D&D activities based on those risks, and highlights actions DOE is planning to demolish specific facilities and to mitigate risks at existing contaminated facilities awaiting disposal.
 - FY 2018 appropriations supported DOE in initiating D&D for certain facilities at the Y-12 National Security Complex site (Y-12) and at Lawrence Livermore National Laboratory (LLNL). In FY 2020, additional appropriations were included to continue D&D work at Y-12 and LLNL which resulted in EM and NNSA working on a plan for collaboration on D&D activities. Rather than focus on facility transfers and ownership, this approach focuses on risk reduction, stabilization and D&D.
 - Under this plan, significant deactivation and stabilization is completed by NNSA with advice from EM, then EM performs the final D&D with funds specifically appropriated by Congress for that purpose. As a result, DOE expects to demolish the Y-12 Biology Complex more than 10 years earlier than planned, and to demolish the LLNL Pool-Type Reactor, and ancillary facilities, more than 20 years earlier than planned.
 - As a result of authority provided in the FY 2018 NDAA, NNSA continues to reassess and update disposition plans, and identify opportunities to accelerate D&D at appropriate facilities. This authority provided NNSA with flexibility to dispose of excess properties and process-contaminated facilities through projects with D&D costs up to \$50 million. Prior to the change, NNSA transferred process-contaminated facilities to EM for D&D.



Financial Results



Photo 2



Photo 3



Photo 4

Photo 1



Message from the Deputy Chief Financial Officer



For the 14th consecutive year, DOE received an unmodified audit opinion on the financial statements from the independent public accounting firm of KPMG LLP. The audit identified no material weaknesses and no instances of noncompliance with laws and regulations, nor instances in which DOE's financial management stewardship and systems did not comply with governmental financial requirements. This reflects an important measure of the integrity and reliability of DOE's overall focus and compliance for financial management. DOE recognizes the importance of accurate and timely financial information for decision-making, and commends the Department's financial management community for achieving this major accomplishment.

In FY 2020, during the COVID-19 pandemic, and the shift to a broader telework environment, OCFO continued to meet mission goals and provide effective financial management and fiscal stewardship:

- Tracked Program and Functional office activity and obligations for \$128 million in CARES Act funding
- Established the Robotic Processing Automation (RPA) working group and initiated several pilots to automate corporate business processes
- Established the DOE Data Governance Board, approved DOE's first data maturity assessment for the *Evidence-Based Policymaking Act of 2018* (Evidence Act)
- Integrated a Governance, Risk and Compliance (GRC) application within STARS, the Department's financial management system
- Completed upgrades to STRIPES, the Department's procurement system, and FDS2.0, the funds distribution system which included a budget formulation functionality for Program and Functional Offices
- Initiated an assessment of OCFO policies and procedures, with a focus on updates to the DOE Financial Management Handbook, and broader Departmental initiatives
- Conducted 71 financial management webinars with a total attendance of over 2,000 participants, including headquarters, field, and contractor staff

Potential challenges for the OCFO in FY 2021 are:

- Completing RPA pilots and integrating technologies to improve the Department's performance of business systems and day-to-day operations
- Publishing DOE's Open Data Plan in support of the Evidence Act
- Strengthening audit resolution follow-up metrics and processes
- Assessing and adapting the right blend of telework and in-office work

DOE's CFO community continues to diligently manage taxpayer dollars wisely, as demonstrated by the FY 2020 AFR and notable achievements. DOE's FY 2019 Agency Financial Report received the Association of Government Accountants (AGA) Certificate of Excellence in Accountability Reporting (CEAR) for Best-in-Class for presentation of forward looking information. DOE also received the GEARS of Government Award for the A-123 Management of Entity Risk and Internal Controls Application (AMERICA). DOE's CFO community is committed to building upon these successes, and to continue delivering superior financial stewardship and management in FY 2021.

R. M. Hendrickson
Deputy Chief Financial Officer
November 16, 2020

Financial Statements, Footnotes, and Consolidating Schedules

Introduction to Principal Statements

The Department's financial statements have been prepared to report the financial position and results of operations of the Department of Energy (the Department or DOE), pursuant to the requirements of the Chief Financial Officers Act of 1990, the Government Management Reform Act of 1994, and the OMB Circular A-136, *Financial Reporting Requirements*.

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

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

Consolidated Balance Sheets

The *Consolidated Balance Sheets* present, as of a specific time, amounts of future economic benefits owned or managed by the Department (assets), amounts owed by the Department (liabilities), and residual amounts retained by the Department comprising the difference (net position).

Consolidated Statements of Net Cost

The *Consolidated Statements of Net Cost* summarize the Department's costs by the major programs of the Department. All costs reported reflect full costs, except for certain indirect costs, which are reported within the Other Programs line of the statements. The costs for each line are reduced by earned revenues to arrive at net costs.

Consolidated Statements of Changes in Net Position

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

Combined Statements of Budgetary Resources

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

Consolidated Statements of Custodial Activities

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

Notes to the Consolidated and Combined Financial Statements

The notes to the consolidated and combined financial statements provide a detailed explanation for activity that is included in the line items of each statement. The notes also provide information to support the valuation and computation of the financial statement activity.

Consolidating and Combining Schedules

The consolidating and combining schedules separate the Department's financial activity by the independent organizations that are included in the financial statement line items. The independent organizations include Power Marketing Administrations (PMA) and the Federal Energy Regulatory Commission (FERC). The consolidating schedules also identify intradepartmental activity that is eliminated during the financial statement preparation process. Intradepartmental activity is not eliminated from the combining schedules.

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

Principal Statements

U.S. Department of Energy Consolidated Balance Sheets

As September 30, 2020 and 2019

(\$ IN MILLIONS)	FY 2020	FY 2019
ASSETS: ^(Notes 2 and 26)		
Intragovernmental Assets:		
Fund Balance with Treasury ^(Note 3)	\$ 45,857	\$ 41,368
Investments and Related Interest, Net ^(Note 4)	45,736	44,445
Accounts Receivable, Net ^(Note 5)	532	573
Other Assets	32	37
Total Intragovernmental Assets	\$ 92,157	\$ 86,423
Accounts Receivable, Net ^(Note 5)	3,034	3,182
Direct Loans and Loan Guarantees, Net ^(Note 7)	15,161	14,413
Inventory, Net ^(Note 8)	48,849	47,345
General Property, Plant, and Equipment, Net ^(Note 9)	40,413	38,120
Regulatory Assets ^(Note 6)	9,656	9,898
Other Non-Intragovernmental Assets ^(Note 10)	4,709	4,964
Total Assets	\$ 213,979	\$ 204,345
LIABILITIES: ^(Notes 11 and 27)		
Intragovernmental Liabilities:		
Accounts Payable	\$ 173	\$ 170
Debt ^(Note 12)	25,725	24,150
Deferred Revenues and Other Credits ^(Note 13)	239	246
Other Liabilities ^(Note 14)	889	762
Total Intragovernmental Liabilities	\$ 27,026	\$ 25,328
Accounts Payable	4,341	4,182
Loan Guarantee Liability ^(Note 7)	117	174
Debt Held by the Public ^(Notes 11 and 12)	5,078	5,479
Deferred Revenues and Other Credits ^(Note 13)	47,057	45,521
Environmental Cleanup and Disposal Liabilities ^(Note 15)	512,257	505,302
Pension and Other Actuarial Liabilities ^(Note 16)	30,196	28,945
Obligations Under Capital Leases ^(Note 17)	2,319	2,291
Other Non-Intragovernmental Liabilities ^(Note 14)	7,030	6,679
Contingencies and Commitments ^(Note 18)	30,660	28,706
Total Liabilities	\$ 666,081	\$ 652,607
NET POSITION: ^(Note 27)		
Unexpended Appropriations		
Unexpended Appropriations - Funds from Dedicated Collections ^(Note 19)	\$ 9	\$ 7
Unexpended Appropriations - Other Funds	32,757	29,449
Cumulative Results of Operations		
Cumulative Results of Operations - Funds from Dedicated Collections ^(Note 19)	(12,942)	(12,985)
Cumulative Results of Operations - Other Funds	(471,926)	(464,733)
Total Net Position	\$ (452,102)	\$ (448,262)
Total Liabilities and Net Position	\$ 213,979	\$ 204,345

The accompanying notes are an integral part of these statements.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

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

For the Years Ended September 30, 2020 and 2019

(\$ IN MILLIONS)	FY 2020	FY 2019
MAJOR PROGRAMS: ^(Note 20)		
Nuclear Security and NNSA		
Program Costs	\$ 14,517	\$ (3,378)
Less: Earned Revenues	(18)	(18)
Net Cost (+/-) of Nuclear Security and NNSA	\$ 14,499	\$ (3,396)
Science		
Program Costs	\$ 23,281	\$ 44,451
Less: Earned Revenues	(94)	(122)
Net Cost (+/-) of Science	\$ 23,187	\$ 44,329
Energy		
Program Costs	\$ 10,556	\$ 9,519
Less: Earned Revenues	(5,621)	(6,001)
Net Cost (+/-) of Energy	\$ 4,935	\$ 3,518
Net Cost of Major Programs	\$ 42,621	\$ 44,451
OTHER PROGRAMS: ^(Note 20)		
Reimbursable Programs		
Program Costs	\$ 5,160	\$ 4,877
Less: Earned Revenues	(5,057)	(4,780)
Net Cost (+/-) of Reimbursable Programs	\$ 103	\$ 97
Other Programs		
Program Costs	\$ 1,803	\$ 1,680
Less: Earned Revenues	(399)	(379)
Net Cost (+/-) of Other Programs	\$ 1,404	\$ 1,301
Costs Applied to Reduction of Legacy Environmental Liabilities ^(Notes 15 and 20)	\$ (6,310)	\$ (6,083)
Costs Not Assigned to Programs ^(Note 21)	\$ 17,191	\$ 13,285
Net Cost of Operations	\$ 55,009	\$ 53,051

The accompanying notes are an integral part of these statements.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

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

For the Years Ended September 30, 2020 and 2019

(\$ IN MILLIONS)	FUNDS FROM DEDICATED COLLECTIONS <small>(Note 19)</small>	ALL OTHER FUNDS	ELIMINATIONS	CONSOLIDATED
	FY 2020			
UNEXPENDED APPROPRIATIONS: <small>(Note 27)</small>				
Beginning Balances	\$ 7	\$ 29,449	\$ -	\$ 29,456
Budgetary Financing Sources:				
Appropriations Received <small>(Note 23)</small>	\$ 10	\$ 37,919	\$ -	\$ 37,929
Appropriations Transferred - In/(Out)	-	9	-	9
Other Adjustments	-	(97)	-	(97)
Appropriations Used	(8)	(34,523)	-	(34,531)
Total Budgetary Financing Sources	\$ 2	\$ 3,308	\$ -	\$ 3,310
Total Unexpended Appropriations	\$ 9	\$ 32,757	\$ -	\$ 32,766
CUMULATIVE RESULTS OF OPERATIONS: <small>(Note 27)</small>				
Beginning Balances	\$ (12,985)	\$ (464,733)	\$ -	\$ (477,718)
Budgetary Financing Sources:				
Appropriations Used	\$ 8	\$ 34,523	\$ -	\$ 34,531
Non-Exchange Revenue	30	-	-	30
Donations and Forfeitures of Cash	-	13	-	13
Transfers - In/(Out) Without Reimbursement	(367)	35	11	(321)
Other Budgetary Financing Sources	89	-	-	89
Other Financing Sources (Non-Exchange):				
Donations and Forfeitures of Cash	19	2	-	21
Transfers - In/(Out) Without Reimbursement	(136)	(8)	(11)	(155)
Imputed Financing from Costs Absorbed by Others <small>(Notes 22 and 25)</small>	8	13,835	-	13,843
Other	(44)	(148)	-	(192)
Total Financing Sources	\$ (393)	\$ 48,252	\$ -	\$ 47,859
Net Cost of Operations	436	(55,445)	-	(55,009)
Net Change	\$ 43	\$ (7,193)	\$ -	\$ (7,150)
Total Cumulative Results of Operations	\$ (12,942)	\$ (471,926)	\$ -	\$ (484,868)
Net Position	\$ (12,933)	\$ (439,169)	\$ -	\$ (452,102)
	FY 2019			
UNEXPENDED APPROPRIATIONS: <small>(Note 27)</small>				
Beginning Balances	\$ 7	\$ 26,889	\$ -	\$ 26,896
Budgetary Financing Sources:				
Appropriations Received <small>(Note 23)</small>	\$ 10	\$ 34,785	\$ -	\$ 34,795
Appropriations Transferred - In/(Out)	-	62	-	62
Other Adjustments	-	(52)	-	(52)
Appropriations Used	(10)	(32,235)	-	(32,245)
Total Budgetary Financing Sources	\$ -	\$ 2,560	\$ -	\$ 2,560
Total Unexpended Appropriations	\$ 7	\$ 29,449	\$ -	\$ 29,456
CUMULATIVE RESULTS OF OPERATIONS: <small>(Note 27)</small>				
Beginning Balances	\$ (13,367)	\$ (447,073)	\$ -	\$ (460,440)
Budgetary Financing Sources:				
Appropriations Used	\$ 10	\$ 32,235	\$ -	\$ 32,245
Non-Exchange Revenue	42	-	-	42
Donations and Forfeitures of Cash	-	5	-	5
Transfers - In/(Out) Without Reimbursement	(312)	-	-	(312)
Other Budgetary Financing Sources	185	-	-	185
Other Financing Sources (Non-Exchange):				
Donations and Forfeitures of Cash	10	-	-	10
Transfers - In/(Out) Without Reimbursement	(170)	1	-	(169)
Imputed Financing from Costs Absorbed by Others <small>(Note 22)</small>	12	4,766	-	4,778
Other	(780)	(231)	-	(1,011)
Total Financing Sources	\$ (1,003)	\$ 36,776	\$ -	\$ 35,773
Net Cost of Operations	1,385	(54,436)	-	(53,051)
Net Change	\$ 382	\$ (17,660)	\$ -	\$ (17,278)
Total Cumulative Results of Operations	\$ (12,985)	\$ (464,733)	\$ -	\$ (477,718)
Net Position	\$ (12,978)	\$ (435,284)	\$ -	\$ (448,262)

The accompanying notes are an integral part of these statements.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

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

For the Years Ended September 30, 2020 and 2019

(\$ IN MILLIONS)	BUDGETARY	NON-BUDGETARY CREDIT REFORM FINANCING ACCOUNTS	BUDGETARY	NON-BUDGETARY CREDIT REFORM FINANCING ACCOUNTS
BUDGETARY RESOURCES:				
Unobligated Balance from Prior Year Budget Authority, Net	\$ 9,686	\$ 785	\$ 9,951	\$ 901
Appropriations ^(Note 23)	38,842	-	36,013	2
Borrowing Authority	765	46	255	3,990
Contract Authority	2,519	-	2,850	-
Spending Authority from Offsetting Collections	7,084	756	7,527	646
Total Budgetary Resources	\$ 58,896	\$ 1,587	\$ 56,596	\$ 5,539
STATUS OF BUDGETARY RESOURCES:				
New Obligations and Upward Adjustments (Total)	\$ 49,400	\$ 514	\$ 47,456	\$ 4,515
Unobligated Balance, End of Year:				
Apportioned, Unexpired Accounts	\$ 9,360	\$ 11	\$ 9,013	\$ 19
Exempt from Apportionment, Unexpired Accounts	14	-	16	-
Unapportioned, Unexpired Accounts	51	1,062	36	1,005
Unexpired, Unobligated Balance, End of Year	\$ 9,425	\$ 1,073	\$ 9,065	\$ 1,024
Expired, Unobligated Balance, End of Year	71	-	75	-
Unobligated Balance, End of Year (Total)	\$ 9,496	\$ 1,073	\$ 9,140	\$ 1,024
Total Budgetary Resources	\$ 58,896	\$ 1,587	\$ 56,596	\$ 5,539
OUTLAYS, NET				
Outlays, Net (Total) ^(Note 25)	\$ 34,970	\$ 1,125	\$ 32,632	\$ 1,455
Distributed Offsetting Receipts (-) ^(Note 25)	(2,968)	-	(3,716)	-
Agency Outlays, Net ^(Note 25)	\$ 32,002	\$ 1,125	\$ 28,916	\$ 1,455
Disbursements, Net (Total)(Mandatory)	\$ -	\$ 1,125	\$ -	\$ 1,455

The accompanying notes are an integral part of these statements.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

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

For the Years Ended September 30, 2020 and 2019

(\$ IN MILLIONS)	FY 2020	FY 2019
SOURCES OF COLLECTIONS:		
Cash Collections: ^(Note 24)		
Power Marketing Administrations	\$ 638	\$ 725
Federal Energy Regulatory Commission	34	52
Total Cash Collections	\$ 672	\$ 777
Accrual Adjustment	(1)	(8)
Total Custodial Revenue	\$ 671	\$ 769
DISPOSITION OF REVENUE:		
Transferred to Others:		
Bureau of Reclamation	\$ (200)	\$ (274)
Department of the Treasury	(163)	(267)
Army Corps of Engineers	(309)	(232)
Others	(3)	(4)
(Increase)/Decrease in Amounts to be Transferred	4	8
Net Custodial Activity	\$ -	\$ -

The accompanying notes are an integral part of these statements.

Notes to the Consolidated and Combined Financial Statements

1. Summary of Significant Accounting Policies

A. BASIS OF PRESENTATION

These consolidated and combined financial statements have been prepared to report the financial position and results of operations of the United States (U.S.)

Department of Energy. The statements were prepared from the books and records of the Department in accordance with United States generally accepted accounting principles issued by the Federal Accounting Standards Advisory Board (FASAB) and presentation guidelines in Office of Management and Budget (OMB) Circular A-136, *Financial Reporting Requirements*.

Additionally, certain records are presented in accordance with standards established by the Financial Accounting Standards Board (FASB).

Accounting standards require all reporting entities to disclose that accounting standards allow certain presentations and disclosures to be modified, if needed, to prevent the disclosure of classified information per Statement of Federal Financial Accounting Standards (SFFAS) 56, *Classified Activities*.

B. DESCRIPTION OF REPORTING ENTITY

The accompanying financial statements include activities and operations of the United States Department of Energy. In accordance with SFFAS 47, *Reporting Entity*, DOE has included all consolidation entities for which it is accountable in the accompanying financial statements and DOE does not have relationships requiring disclosure as a disclosure entity or related party.

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

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

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

C. BASIS OF ACCOUNTING

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

Throughout these financial statements, assets, liabilities, earned revenue, and costs have been classified according to the type of entity with which the transactions were made. Intragovernmental assets and liabilities are those from or to other federal entities. Intragovernmental earned revenue represents collections or accruals of

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revenue from other Federal entities. Intragovernmental costs are payments or accruals for goods and services provided by other federal entities, and costs incurred by other federal entities as a result of the Department's programs.

D. FUND BALANCE WITH U.S. TREASURY

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

E. INVESTMENTS AND RELATED INTEREST, NET

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

F. ACCOUNTS RECEIVABLE, NET

Intragovernmental accounts receivable represent amounts due from other federal agencies. For intragovernmental receivables, allowances for uncollectible accounts are not reported due to immateriality. The amounts due for non-intra-governmental (non-federal) receivables are stated net of an allowance for uncollectible accounts. The estimate of the allowance is based on past experience in the collection of receivables and an analysis of the outstanding balances (see [Note 5](#)).

G. DIRECT LOANS AND LOAN GUARANTEES, NET

The Department has one loan that was obligated and disbursed prior to Fiscal Year 1992, and is presented net of an allowance for loss. All loans obligated after Fiscal Year 1992 are presented on a present value basis in compliance with the Federal Credit Reform Act of 1990. The present value of the loans is revalued on an annual basis (see [Note Z](#)).

Interest expense on the Bureau of the Fiscal Service (BFS) and Federal Financing Bank (FFB) debt is calculated in accordance with OMB Circular A-11, Sections 185.32 and 185.34 using the Credit Subsidy Calculator. Capitalized interest receivables on loans with FFB are reclassified to principal outstanding on the capitalization date.

H. INVENTORY, NET

Stockpile materials are recorded at historical cost in accordance with SFFAS 3, *Accounting for Inventory and Related Property*, except for certain nuclear materials identified as surplus or excess to the Department's needs. These nuclear materials are recorded at their net realizable value (see [Note 8](#)).

I. GENERAL PROPERTY, PLANT, AND EQUIPMENT, NET

Property, plant, and equipment that are purchased, constructed, or fabricated in-house, including major modifications or improvements, are capitalized at cost.

The Department's property, plant, and equipment capitalization threshold, except as noted below, is \$500,000. The capitalization threshold for the Nuclear Waste Fund (NWF) is \$50,000. The capitalization thresholds for the PMAs and FERC range from \$5,000 to \$100,000 or may depend on whether particular equipment is considered a major unit of property, which is capitalized upon purchase, or a minor unit, which is generally expensed. The capitalization threshold for internal use software is \$750,000, except for the PMAs and FERC, which use thresholds ranging from \$5,000 to \$500,000 (see [Note 9](#)).

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

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

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

J. LIABILITIES

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

K. FUNDS FROM DEDICATED COLLECTIONS

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

L. ACCRUED ANNUAL, SICK, AND OTHER LEAVE

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

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

M. RETIREMENT PLANS

Federal Employees: There are two primary retirement systems for federal employees. Employees hired prior to January 1, 1984, may participate in the Civil Service Retirement System (CSRS). On January 1, 1984, the Federal Employees Retirement System (FERS) went into effect pursuant to Public Law 99-335. Most employees hired after December 31, 1983, are automatically covered by FERS and Social Security. Employees hired prior to January 1, 1984, elected to either join FERS and Social Security or remain in CSRS. All employees are eligible to contribute to the Federal Thrift Savings Plan (TSP). For employees covered by FERS, a TSP account is automatically established to which the Department is required to contribute one percent of gross pay and match employee contributions up to an additional four percent. For most employees hired since December 31, 1983, the Department also contributes the employer's matching share for Social Security. The Department does not report CSRS or FERS assets, accumulated plan benefits, or unfunded liabilities, if any, applicable to its employees. Reporting such amounts is the responsibility of the Office of Personnel Management (OPM). The Department does report, as an imputed financing source and a program expense, the difference between its contributions to federal employee pension and other retirement benefits and the estimated actuarial costs as computed by OPM. The PMAs make additional annual contributions to Treasury to ensure that all postretirement benefit programs provided to their employees are fully funded and such costs are both recovered through rates and properly expensed.

Contractor Employees: The Department is contractually responsible for reimbursing its major contractors who sponsor employee defined benefit pension plans for the costs of contractor employee retiree benefits because these are allowable costs under their contracts. Most of these contractors sponsor defined benefit pension plans under which these plans promise to pay employees specified benefits, such as a percentage of the final average pay for each year of service. The Department does not sponsor and is not the fiduciary of contractor employee defined benefit plans. Contractors are required to make

contributions to their plans as required by the Internal Revenue Code and the Employee Retirement Income Security Act (ERISA), as amended. For qualified defined benefit pension plans, the Department's current funding policy is to reimburse contractors for the minimum required contributions made, absent the Department's agreement to reimburse at a different level. For nonqualified plans, the funding policy is pay-as-you-go. Employer contributions are calculated to ensure that plan assets are sufficient to provide for accrued benefits of contractor employees. The level of contributions is dependent on plan provisions and actuarial assumptions about the future, such as interest rates, employee turnover and mortality, age of retirement, and compensation increases. The Department's major contractors also sponsor postretirement benefits (PRB) other than pensions consisting of predominantly postretirement health care benefits which are generally funded on a pay-as-you-go basis. Since the Department is responsible for the allowable costs of funding these contractor pension and PRB plans, it reports assets and liabilities for these plans (see [Note 16](#)).

N. NET COST OF OPERATIONS

Program costs are summarized in the *Consolidated Statements of Net Cost* by the Department's major programs (see [Note 20](#)). Full costs are reduced by exchange (earned) revenues to arrive at net operating cost.

O. REVENUES AND OTHER FINANCING SOURCES

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

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

Imputed Financing Sources: In certain instances, program costs of the Department are paid out of the funds appropriated to other federal agencies. For example, certain costs of retirement programs are paid by OPM, and certain legal judgments against the Department are paid

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from the Judgment Fund maintained by Treasury. When costs are incurred by other federal entities as a result of the Department's programs, the Department recognizes these amounts on the *Consolidated Statements of Net Cost*. In addition, these amounts are recognized as imputed financing sources on the *Consolidated Statements of Changes in Net Position* (see [Notes 22](#) and [25](#)).

Custodial Revenues: The Department collects certain revenues on behalf of others, which are designated as custodial revenues. The Department incurs virtually no costs to generate these revenues, nor can it use these revenues to finance its operations. The revenues are returned to Treasury and others and are reported on the *Consolidated Statements of Custodial Activities* (see [Note 24](#)).

P. USE OF ESTIMATES

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

Q. COMPARATIVE DATA

During FY 2020, the Reconciliation of Net Cost to Net Outlays footnote (see [Note 25](#)) was revised to align with the new guidance in OMB Circular A-136 for loan receivables under FCRA. In addition, certain other FY 2019 amounts have been reclassified to conform to the FY 2020 presentation.

R. ALLOCATION TRANSFERS WITH OTHER FEDERAL AGENCIES

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

2. Non-Entity Assets

(\$ IN MILLIONS)	FY 2020	FY 2019
Intragovernmental		
Inventories - Department of Defense stockpile oil ^(Notes 8 and 14)	\$ 123	\$ 123
Other	12	12
Subtotal	\$ 135	\$ 135
Inventories - Oil held for others ^(Notes 8 and 14)	149	-
Other	9	7
Total non-entity assets	\$ 293	\$ 142
Total entity assets	213,686	204,203
Total assets	\$ 213,979	\$ 204,345

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

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3. Fund Balance with Treasury

(\$ IN MILLIONS)	FY 2020	FY 2019
Status of Fund Balance With Treasury		
Unobligated balance:		
Available	\$ 9,042	\$ 9,000
Unavailable	1,566	1,205
Obligated balance not yet disbursed	34,837	33,004
Borrowing authority not yet converted to fund balance	(2,445)	(4,419)
Budgetary resources invested in Treasury securities	(782)	(414)
Non-Budgetary Fund Balance with Treasury	3,639	2,992
Total Fund Balance with Treasury	\$ 45,857	\$ 41,368

Unobligated balance and Obligated balance not yet disbursed amounts reported above differ from related amounts in the *Combined Statements of Budgetary Resources* (SBR) because budgetary balances on the SBR are supported by amounts other than the Fund Balance with Treasury. These amounts include contract authority, transfers of invested balances payable, realized authority to be transferred from invested balances, and budgetary resources temporarily precluded or reduced.

Borrowing authority not yet converted to fund balance represents unobligated and obligated amounts recorded that will be funded by future borrowings. Budgetary resources invested in Treasury securities represents

unobligated and obligated amounts that will be redeemed in the future to pay program costs as they arise. Non-Budgetary Fund Balance with Treasury includes special fund receipt accounts, deposit funds, and clearing and suspense account balances awaiting disposition or reclassification.

Unobligated balance, available amounts may be restricted to future years. FY 2020 and FY 2019 amounts restricted to future years are included in Category C – Apportioned for future years specified on the annual OMB SF-132 (Apportionment and Reapportionment Schedule).

4. Investments and Related Interest, Net

(\$ IN MILLIONS)	FACE VALUE	UNAMORTIZED PREMIUM (DISCOUNT)	INTEREST RECEIVABLE	INVESTMENTS, NET	UNREALIZED MARKET GAINS (LOSSES)	MARKET VALUE
	FY 2020					
Intragovernmental Non-Marketable						
Nuclear Waste Fund	\$ 54,666	\$ (12,139)	\$ 122	\$ 42,649	\$ 11,634	\$ 54,283
D&D Fund	851	5	4	860	9	869
U.S. Enrichment Corporation Fund	1,717	2	17	1,736	3	1,739
Power Marketing Administrations	491	-	-	491	-	491
Total investments and related interest, net	\$ 57,725	\$ (12,132)	\$ 143	\$ 45,736	\$ 11,646	\$ 57,382
	FY 2019					
Intragovernmental Non-Marketable						
Nuclear Waste Fund	\$ 54,022	\$ (13,235)	\$ 117	\$ 40,904	\$ 8,415	\$ 49,319
D&D Fund	1,689	-	10	1,699	6	1,705
U.S. Enrichment Corporation Fund	1,703	(4)	6	1,705	2	1,707
Power Marketing Administrations	137	-	-	137	-	137
Total investments and related interest, net	\$ 57,551	\$ (13,239)	\$ 133	\$ 44,445	\$ 8,423	\$ 52,868

Pursuant to statutory authorizations, the Department invests monies in Treasury securities. The Department's investments primarily involve the NWF and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund. Fees collected from owners and generators of spent nuclear fuel (SNF) and high-level radioactive waste and fees collected from domestic utilities are deposited into the respective funds. Funds in excess of

those needed to pay current program costs are invested in Treasury securities.

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

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The Federal Government does not set aside assets to pay for expenditures associated with the funds for which the Department holds Treasury securities. These Treasury securities are an asset to the Department and a liability to Treasury. Because the Department and Treasury are both parts of the Federal Government, these assets and liabilities offset each other from the standpoint of the Federal Government as a whole. For this reason, they do not represent an asset or a liability in the U.S.

Government-wide financial statements. Treasury

securities provide the Department with ability to draw upon the Treasury to make expenditures, subject to available appropriations and OMB apportionments. When the Department requires redemption of these securities, the Federal Government finances those expenditures out of accumulated cash balances by raising taxes or other receipts, by borrowing from the public, repaying less debt, or by curtailing other expenditures. This is the same way the Federal Government finances all other expenditures.

5. Accounts Receivable, Net

(\$ IN MILLIONS)	FY 2020			FY 2019		
	RECEIVABLE	ALLOWANCE	NET	RECEIVABLE	ALLOWANCE	NET
Intragovernmental	\$ 532	\$ -	\$ 532	\$ 573	\$ -	\$ 573
Nuclear Waste Fund	\$ 2,418	\$ -	\$ 2,418	\$ 2,576	\$ -	\$ 2,576
Power Marketing Administrations	519	(3)	516	519	(3)	516
Other	206	(106)	100	196	(106)	90
Subtotal	\$ 3,143	\$ (109)	\$ 3,034	\$ 3,291	\$ (109)	\$ 3,182
Total accounts receivable, net	\$ 3,675	\$ (109)	\$ 3,566	\$ 3,864	\$ (109)	\$ 3,755

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

Non-intragovernmental receivables primarily represent fees due from owners and generators of SNF that contribute resources to the NWF. The NWF receivables are supported by contracts and are comprised of amounts due for two types of fees to be paid to the Department for disposal services: (a) a one-time charge for SNF existing prior to April 7, 1983; and (b) a per kWh fee on all net electricity generated and sold by civilian nuclear power

reactors after April 7, 1983. The Department ceased the per kWh portion of the fee in 2014. However, the receivables associated with the one-time charges remain and continue to earn interest each year.

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

6. Regulatory Assets

(\$ IN MILLIONS)	FY 2020	FY 2019
Refinanced and additional appropriated capital	\$ 5,264	\$ 5,264
Residential exchange program scheduled and refund amounts	1,910	2,093
Non-operating facilities	1,631	1,715
Conservation and fish and wildlife measures	413	450
Other regulatory assets	438	376
Total regulatory assets	\$ 9,656	\$ 9,898

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

REFINANCED AND ADDITIONAL APPROPRIATED CAPITAL

BPA is responsible for repaying the Treasury for transmission and power generating assets that were funded by appropriations, including those of the USACE and Bureau of Reclamation (BOR). In accordance with accounting guidance for regulated operations, BPA records a regulatory asset based on this deferred cost that must be repaid to the Treasury for those assets owned by the USACE and BOR. This regulatory asset is amortized to program costs over a period of between 68 and 75 years on a straight-line method based on the estimated service lives of the assets. BPA's trial balance also includes a regulatory asset and a corresponding intragovernmental debt for refinanced and additional appropriations owed to the Treasury. Under the BPA Refinancing Section of the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (Refinancing Act), 16 U.S.C. 838(l), BPA refinanced its unpaid capital appropriations as of September 30, 1996, and is responsible for the repayment of additional appropriated capital investment after the Refinancing Act (see [Note 12](#)).

RESIDENTIAL EXCHANGE PROGRAM (REP) SCHEDULED AMOUNTS

Under the provisions of the 2012 Residential Exchange Program (REP) Settlement Agreement, BPA's investor-owned utilities customers (IOUs) receive a fixed schedule of benefit payments (Scheduled Amounts) that are being recovered in rates through 2028. These amounts amortize to program costs (see [Note 14](#)).

NON-OPERATING FACILITIES

BPA is responsible for repayment of debt for terminated Energy Northwest Nuclear Projects 1 and 3. These assets are amortized to program costs through 2043. BPA is also responsible for the repayment of the Northern Wasco Hydro Project for which BPA ceased its participation as recipient of the project's electric power. This asset is amortized to program costs through 2025 (see [Note 12](#)).

CONSERVATION AND FISH AND WILDLIFE MEASURES

Conservation measures consist of the costs of deferred energy conservation measures to be recovered in future rates. These costs are amortized to program costs over periods of 12 or 20 years. Fish and wildlife measures consist of deferred fish and wildlife project expenses to be recovered in future rates. These costs are amortized to program costs over a period of 15 years.

OTHER REGULATORY ASSETS

Other regulatory assets for BPA primarily include costs to be recovered in future rates for preliminary construction and related activities of the terminated I-5 Corridor Reinforcement Project (amortized over a period of five years beginning in FY 2020); spacer damper replacement program costs to replace deteriorated spacer dampers (amortized over a period of 25 or 30 years); and decommissioning and site restoration costs that reflect amounts to be recovered in future rates for funding the asset retirement obligation (ARO) liability related to the former Trojan nuclear facility.

7. Direct Loans and Loan Guarantees, Net

(\$ IN MILLIONS)	FY 2020	FY 2019
Pre-FCRA loans	\$ 1	\$ 1
FCRA Direct loans		
ATVM	1,173	1,567
Title XVII	13,987	12,845
Total direct loans and 100% guarantee loans, net *	\$ 15,161	\$ 14,413
FCRA Guarantee loans (guaranteed value)		
Title XVII	1,600	2,022
Total direct loans and loan guarantees, net	\$ 16,761	\$ 16,435

* Net means disbursements net of interest, repayments, recoveries and allowance for subsidy

PRE-FCRA LOANS

The Department has one loan outstanding as of September 30, 2020 and one loan outstanding as of September 30, 2019 that were issued prior to the Federal Credit Reform Act of 1990 (FCRA). The loans are presented net of an allowance for loss of \$0 million and \$0 million as of September 30, 2020 and September 30, 2019 respectively.

FCRA DIRECT LOANS AND LOAN GUARANTEES

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

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

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

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

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

ATVM

Section 136 of the Energy Independence and Security Act of 2007, which established the ATVM Loan Program, authorized the Department to make direct loans to support the establishment of manufacturing facilities for the production of advanced technology vehicles and components for such vehicles. The ATVM direct loans to such manufacturers are available to finance the cost of re-equipping, expanding, or establishing such manufacturing facilities and for the costs of engineering integration associated with such vehicles and components. To be eligible for a direct loan, an advanced technology vehicle manufacturer applicant must demonstrate that the adjusted average fuel economy for its light duty vehicle fleet exceeds its fleet average for model year (MY) 2005. If the applicant is a new manufacturer of advanced technology vehicles, to be eligible for a direct loan, it must demonstrate that its vehicles meet or exceed the industry adjusted average fuel economy for MY 2005 of equivalent vehicles. An advanced technology vehicle under Section 136 is a vehicle that is rated at or above 125% of the fuel economy standards for vehicles with substantially similar attributes for MY 2005. The FY 2009 Continuing Resolution (CR) enacted on September 30, 2008, appropriated \$7.5 billion to support a maximum of \$25.0 billion in loans under the ATVM Loan Program.

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

In determining the subsidies, the Department estimates a base borrower interest rate from the budget assumption yield curve used to discount cash flows that generates a zero financing subsidy when determining the final subsidy cost at the point of obligation. This base interest rate is used for calculating the subsidy cost only. Actual interest rates that borrowers pay are not affected. During the interest rate re-estimate, the actual interest rates and the discount rates are updated and will true-up the difference in the Treasury interest rates assumed in the original

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subsidy cost, and the actual Treasury rates at the point of disbursement, when the borrower interest rates are set.

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

In June 2020, one ATVM borrower modified their loan to adjust their principal repayment schedule without a change to the maturity date. The discount rates used for this modification were the economic assumption rates for fiscal year 2020. The modification resulted in a gain of \$10.6 million due to the difference between the discount rate and the cohort rate. The modification resulted in no cost, or subsidy expense, to the government.

In March 2020, DOE received \$20 million from the Department of Justice as a result of settlement of a claim in connection with a prior ATVM loan sale.

As of September 30, 2020, the Department obligated approximately \$8.4 billion in closed loans under the ATVM Loan Program for five borrowers. Of this sum, the Department disbursed \$7.3 billion and de-obligated \$1.1 billion.

TITLE XVII

The Energy Policy Act of 2005 (EPA05), P.L. 109-58 authorizes the Department to issue loan guarantees to eligible projects that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" and "employ new or significantly improved technologies as compared to technologies in service in the U.S. at the time the guarantee is issued." Title XVII of EPA05 provides broad authority for the Department to guarantee loans for projects that satisfy the above criteria if "there is reasonable prospect of repayment of the principal and interest on the obligation by the borrower."

Under the Revised Continuing Appropriations Resolution, 2007, P.L. No. 109-58, div. B, tit. II, ch. 3, section 20320, as amended by P.L. No. 110-5, 121 Stat.8, \$4 billion in loan guarantee authority was provided. Of that \$4 billion, \$1.5 billion is allocated to renewable energy/energy efficiency, \$500 million is allocated to advanced fossil energy, and the remaining \$2 billion is allocated to nuclear. An additional \$1.5 billion in renewable energy/energy efficiency loan guarantee authority, is available under the FY 2011 CR and the Omnibus Appropriations Act, 2009, P.L. No. 111-8, as amended by Section 408 of the Supplemental Appropriations Act, 2009, P.L. No. 111-32. The Omnibus Appropriations Act, 2009, P.L. No. 111-8, as amended by Section 408 of the Supplement Appropriation Act, 2009, P.L. No. 111-32 also provided \$8 billion in loan guarantee authority for advanced fossil energy projects and an additional \$20.5 billion for nuclear energy projects.

Under the Department of Defense and Full-Year Continuing Appropriations Act, 2011, P.L. No. 112-10 (FY 2011 CR), Congress made available approximately \$170 million in appropriated funds to pay the subsidy of loan guarantees for renewable energy or efficient end-use energy technologies. Of this amount, \$9 million was rescinded by the Consolidated Appropriations Act, 2017, P.L. No. 115-31.

The Consolidated Appropriations Act, 2012, P.L. 112-74, amended Section 1702 of Title XVII to provide that the Department may combine an appropriation of credit subsidy with a direct payment from the borrower to cover the subsidy of a loan guarantee. For nuclear power, front-end nuclear, and advanced fossil projects, Section 1703 continues to operate as a "self-pay" program whereby borrowers pay the subsidy cost.

In addition to the program under Section 1703 of Title XVII (Section 1703 program), the American Recovery and Reinvestment Act established a new program under Section 1705 of Title XVII (Section 1705 program) that permitted the Department to issue loan guarantees for certain renewable energy systems, electric power transmission systems, and leading edge biofuel projects that commenced construction on or before September 30, 2011, and also appropriated \$6 billion to pay for the subsidy costs for the loan guarantees of such projects. Public Law 111-47 required \$2.0 billion of the subsidy funds to be transferred to the Department of Transportation to fund the "Cash for Clunkers" program. Public Law 111-226 required \$1.5 billion of the subsidy funds to be rescinded. Public Law 111-203 required \$0.5 billion of the subsidy to be rescinded and returned to the U.S. Treasury (Dodd-Frank). The loan guarantee authority for Sections 1703 and 1705 and the subsidy for loan guarantees issued under Section 1705 are obligated at the time the loan guarantee is issued by the Department.

Both the Section 1703 and 1705 programs are authorized to issue loan guarantees for up to 100 percent of a debt obligation, which must not exceed 80 percent of eligible project costs. In cases where the Department issues a 100% guarantee, the regulations implementing Title XVII requires that the FFB provide the funding. Guarantees by the Department of 100 percent of loans made by FFB constitute direct loans under FCRA. For the purpose of determining the subsidy, the Department models these loan guarantees as direct loans to reflect the economic reality to the Federal Government as a whole. Under Title XVII, the subsidy cost for a direct loan or a loan guarantee is comprised of default subsidy and financing subsidy. We note that the Department collects fees designed to offset the cost of administering the Title XVII loan program, and that such fees are not considered when calculating the subsidy cost.

In implementing the Section 1705 program, the Department also established the Financial Institution Partnership Program (FIPP) which supported loans for

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

conventional renewable energy generation projects with commercial financing. Under FIPP, the Department provided a guarantee for up to 80 percent of a loan. The goal of FIPP was to leverage the human and financial capital of private sector financial institutions in accelerating the loan application process, while balancing risk between the Department and private sector partners participating in the program. The subsidy related to FIPP loans was obligated at the time the loan guarantees closed.

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

As of September 30, 2020, under the Section 1703 program, the Department has obligated approximately \$11.6 billion for one project, of which \$9.2 billion has been disbursed.

As of September 30, 2020, under the Section 1703 program, conditional commitments to issue loan guarantees have been issued for one project totaling \$2.0 billion.

As of September 30, 2020, under the Section 1705 program, the Department has obligated approximately \$13.3 billion for 23 projects (the Department initially obligated approximately \$15.8 billion for 28 projects, but subsequently de-obligated approximately \$2.5 billion). Seventeen of 23 projects received 100 percent guarantees of loans and six projects received partial guarantees of loans under FIPP. The Department obligated approximately \$9.1 billion to the projects receiving 100% guarantees under the Section 1705 program and has disbursed approximately \$9.1 billion. The Department obligated approximately \$4.2 billion to the six FIPP projects and has disbursed approximately \$4.1 billion.

TELGP

The TELGP authorized under EPAct05 (25 USC 3502(c)) is a partial loan guarantee program that permits DOE to guarantee up to 90 percent of the unpaid principal and interest due on any loan made to a federally recognized Indian tribe for energy development. The tribal borrower will be required to invest equity in the project, and project debt will be provided by commercial lenders. Under the Consolidated Appropriations Act, 2017, Public Law 115-31 Congress made available approximately \$8.5 million in appropriated funds to pay the credit subsidy of the loan guarantees under TELGP, which also must not exceed \$2 billion in total volume. Any appropriated credit subsidy amounts shall be obligated at financial close. A solicitation outlining the rules of the loan program was issued on June 12, 2018.

As of September 30, 2020, under the TELGP, no loan guarantees have been obligated.

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

(\$ IN MILLIONS)	LOANS RECEIVABLE, GROSS	INTEREST RECEIVABLE	ALLOWANCE FOR SUBSIDY COST (PRESENT VALUE)	VALUE OF ASSETS RELATED TO LOANS, NET	DISBURSED IN FISCAL YEAR
FY 2020					
ATVM	\$ 1,249	\$ 1	\$ (77)	\$ 1,173	\$ -
Title XVII	14,782	77	(872)	13,987	1,913
Total loans	\$ 16,031	\$ 78	\$ (949)	\$ 15,160	\$ 1,913
FY 2019					
ATVM	\$ 1,618	\$ 1	\$ (52)	\$ 1,567	\$ -
Title XVII	13,199	74	(428)	12,845	1,965
Total loans	\$ 14,817	\$ 75	\$ (480)	\$ 14,412	\$ 1,965

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

(\$ IN MILLIONS)	INTEREST DIFFERENTIAL	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
FY 2020					
Subsidy expense for new direct loans disbursed*					
Title XVII	\$ (93)	\$ 31	\$ -	\$ -	\$ (62)
Total	\$ (93)	\$ 31	\$ -	\$ -	\$ (62)
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TOTAL RE-ESTIMATES	TOTAL MODIFICATIONS	TOTAL DIRECT LOAN SUBSIDY EXPENSE
Re-estimates and Modifications					
ATVM	\$ -	\$ 14	\$ 14	\$ -	\$ 14
Title XVII	25	419	444	-	382
Total	\$ 25	\$ 433	\$ 458	\$ -	\$ 396

(\$ IN MILLIONS)	INTEREST DIFFERENTIAL	DEFAULTS	FEES AND OTHER COLLECTIONS	OTHER	TOTAL
FY 2019					
Subsidy expense for new direct loans disbursed*					
Title XVII	\$ (120)	\$ 55	\$ -	\$ -	\$ (65)
Total	\$ (120)	\$ 55	\$ -	\$ -	\$ (65)
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TOTAL RE-ESTIMATES	TOTAL MODIFICATIONS	TOTAL DIRECT LOAN SUBSIDY EXPENSE
Re-estimates and Modifications					
ATVM	\$ -	\$ (17)	\$ (17)	\$ -	\$ (17)
Title XVII	(99)	1	(98)	34	(129)
Total	\$ (99)	\$ (16)	\$ (115)	\$ 34	\$ (146)

* New disbursements of existing loan obligations

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Subsidy Rates for FCRA Direct Loans by Program and Component

	INTEREST DIFFERENTIAL	DEFAULTS	FEEES AND OTHER COLLECTIONS	OTHER	TOTAL
	FY 2020				
Title XVII	0.000%	0.000%	0.000%	0.000%	0.000%
	FY 2019				
Title XVII	-4.441%	1.596%	0.000%	0.000%	-2.845%

Rates are the weighted-average of the individual loan subsidy rates for that program. The subsidy rates disclosed pertain only to the current year's cohorts. These rates cannot be applied to the direct loans disbursed during the current reporting year to yield the subsidy

expense. The subsidy expense for new loans reported in the current year could result from disbursements of loans from both current year cohorts and prior-year(s) cohorts. The subsidy expense reported in the current year also includes re-estimates.

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

(\$ IN MILLIONS)	FY 2020	FY 2019
Beginning balance of the subsidy cost allowance	\$ 480	\$ 544
Add: subsidy expense for direct loans disbursed during the reporting years by component		
Interest rate differential costs	\$ (93)	\$ (120)
Default costs (net of recoveries)	31	55
Total of the above subsidy components	\$ (62)	\$ (65)
Adjustments:		
(a) Loan modifications	-	34
(b) Modification adjustment transfer	(11)	2
(c) Subsidy allowance amortization	84	80
Ending balance of subsidy cost allowance before re-estimates	\$ 491	\$ 595
Add or subtract subsidy re-estimates by component:		
Interest rate re-estimates	25	(99)
Technical/default re-estimates	433	(16)
Ending balance of subsidy cost allowance	\$ 949	\$ 480

Guaranteed Loans Outstanding

(\$ IN MILLIONS)	PRINCIPAL OF GUARANTEED LOANS FACE VALUE	AMOUNT OF OUTSTANDING PRINCIPAL GUARANTEED
	FY 2020	
Title XVII	\$ 2,000	\$ 1,600
	FY 2019	
Title XVII	\$ 2,528	\$ 2,022

Liability for Loan Guarantees, Present Value Method

(\$ IN MILLIONS)	FY 2020	FY 2019
Title XVII	\$ 117	\$ 174

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Subsidy Expense for New Loan Guarantees by Program and Component

(\$ IN MILLIONS)	INTEREST SUPPLEMENTS	DEFAULTS	FEEES AND OTHER COLLECTIONS	OTHER	TO TAL
FY 2020					
Subsidy expense for new loan guarantees Title XVII	\$ -	\$ -	\$ -	\$ -	\$ -
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TO TAL RE-ESTIMATES		TO TAL LOAN GUARANTEE SUBSIDY EXPENSE
Re-estimates Title XVII	\$ -	\$ (69)	\$ (69)		\$ (69)
(\$ IN MILLIONS)	INTEREST SUPPLEMENTS	DEFAULTS	FEEES AND OTHER COLLECTIONS	OTHER	TO TAL
FY 2019					
Subsidy expense for new loan guarantees Title XVII	\$ -	\$ -	\$ -	\$ -	\$ -
	INTEREST RE-ESTIMATES	TECHNICAL RE-ESTIMATES	TO TAL RE-ESTIMATES		TO TAL LOAN GUARANTEE SUBSIDY EXPENSE
Re-estimates Title XVII	\$ -	\$ 45	\$ 45		\$ 45

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

(\$ IN MILLIONS)	FY 2020	FY 2019
Beginning balance of the loan guarantee liability	\$ 174	\$ 116
Adjustments:		
Interest Accumulation on the liability balance	12	13
Ending balance of loan guarantee liability before re-estimates	\$ 186	\$ 129
Add or subtract subsidy re-estimates by component		
Technical/default re-estimates	(69)	45
Ending balance of loan guarantee liability	\$ 117	\$ 174

Administrative Expenses

(\$ IN MILLIONS)	FY 2020	FY 2019
Direct loan program - ATVM	\$ 4	\$ 3
Loan guarantee program - Title XVII	\$ 32	\$ 30

8. Inventory, Net

(\$ IN MILLIONS)	FY 2020	FY 2019
Strategic Petroleum, Northeast Home Heating Oil and Gasoline Supply Reserves	\$ 19,498	\$ 19,575
Nuclear Materials	28,650	27,083
Other Inventory	701	687
Total inventory, net	\$ 48,849	\$ 47,345

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

STRATEGIC PETROLEUM RESERVE

The SPR consists of crude oil stored in salt domes, terminals, and pipelines. As of September 30, 2020, the SPR contained crude oil with a historical cost of \$19.2 billion. The SPR provides a response mechanism should a severe oil supply disruption occur. Included in the SPR is six million barrels of crude oil held for future DoD use. The Department of Defense Appropriations Act, 1993, authorized the Department to acquire, transport, store, and prepare for ultimate drawdown of crude oil for DoD. Of the \$19.2 billion, the crude oil purchased with DoD funding is commingled with the Department's stock and is valued at its historical cost of \$123 million at September 30, 2020 (see [Notes 2](#) and [14](#)).

Beginning in FY 2017 and ending in FY 2028, the Department will conduct a series of oil sales authorized by the Bipartisan Budget Act of 2015, 21st Century Cures Act of 2015 (Cures Act), Fixing America's Surface Transportation Act of 2015 (FAST), Tax Cuts and Jobs Act of 2017, Bipartisan Budget Act of 2018, Consolidated Appropriations Act of 2018, and the America's Water Infrastructure Act of 2018. The Bipartisan Budget Act of 2015 authorizes selling enough oil from FY 2017 to FY 2022 to raise \$1.4 billion to modernize the SPR, subject to appropriation, and to sell a total 58 million barrels of oil from FY 2018 to FY 2025 for deficit reduction. The second law (Cures Act) authorizes the sale of 25 million barrels to fund National Institutes of Health (NIH) innovation projects. The third law (FAST) authorizes the sale of an additional 66 million barrels of oil from FY 2023 to 2025 (or raising \$5 billion, whichever comes first).

The Tax Cuts and Jobs Act of 2017, Bipartisan Budget Act of 2018, Consolidated Appropriations Act of 2018, and the America's Water Infrastructure Act of 2018 have expanded the overall sales volume by authorizing 122 million additional barrels to be sold between FY 2020 and FY 2028. As of September 30, 2020, stockpile materials held for sale of crude oil are valued at \$29.88 per barrel. The difference between the estimated selling price and the carrying amount of stockpile materials held for sale is \$11 per barrel as of September 30, 2020.

In April 2020 an emergency reverse exchange for storage was authorized in response to the low price per barrel of oil and an oversupply of oil in the market. The Strategic Petroleum Reserve granted aid to suppliers by storing oil for up to a year timeframe at a premium barrel exchange rate. The crude oil is commingled with the Department's stock and is valued at its historical cost of \$91 million at September 30, 2020.

On June 3, 2020 a foreign lease agreement was signed with the Commonwealth of Australia (COA) to store up to 25 million barrels at the SPR Big Hill site. The 1.5 million barrels of crude oil which is currently being stored for the COA is commingled with the Department's stock and is valued at its historical cost of \$58 million at September 30, 2020.

NORTHEAST HOME HEATING OIL RESERVE

The Northeast Home Heating Oil Reserve was established in FY 2000 pursuant to the Energy Policy and Conservation Act of 1975. The Reserve contains petroleum distillate in the New England geographical area. The historical cost of product contained in reserve was \$141 million as of September 30, 2020.

NORTHEAST GASOLINE SUPPLY RESERVE

The Northeast Gasoline Supply Reserve was established in FY 2014. The Reserve contains refined petroleum product in the New York Harbor area and the Boston/Northern New England area. The historical cost of the product contained in the reserve was \$122 million as of September 30, 2020.

NUCLEAR MATERIALS

Nuclear materials include plutonium (weapons-grade, fuel-grade), uranium (highly enriched uranium [HEU], low enriched uranium [LEU], natural uranium, depleted uranium), tritium, and other materials including those in the custody of the DOD as allowed under Presidential Directive. Nuclear materials are used in weapons and components, naval and other reactors, and research and development.

As of September 30, 2020, the Department has natural uranium inventories of 3,710 metric tons (MTU) of uranium hexafluoride (UF6). This material can be divided into two stockpiles of material: U.S. origin (1,980 MTU of UF6) and Russian origin material (1,730 MTU of UF6). This includes the Reclassified US Origin (142.3 MTU of UF6) to Russian and Canadian.

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

the Department's HEU was identified as excess to national security needs (S94). Analysis of this 174.3 MTU identified 154 MTU that was appropriate for downblending. In 2005, Secretary of Energy Bodman announced that, over the coming decades, another 200 MTU of HEU would be removed from use as fissile material in weapons. The majority of this 200 MTU was set aside for naval reactors and other HEU reactors, but analysis identified about 28 MTU for downblending. Finally, another 4 MTU of HEU not included in these declarations, has been identified for downblending. All totaled, 186 MTU HEU will be dispositioned through downblending, where 163.7 MTU has been completed at the end of FY 2020.

Under a declaration by the Nuclear Weapons Council and an announcement by the President in 1995, 174.3 MTU of

9. General Property, Plant, and Equipment, Net

(\$ IN MILLIONS)	ACQUISITION COSTS	ACCUMULATED DEPRECIATION	NET BOOK VALUE	ACQUISITION COSTS	ACCUMULATED DEPRECIATION	NET BOOK VALUE
	FY 2020			FY 2019		
Land and land rights	\$ 2,527	\$ (1,161)	\$ 1,366	\$ 2,495	\$ (1,136)	\$ 1,359
Structures and facilities	52,897	(33,658)	19,239	51,992	(32,701)	19,291
Internal use software	1,212	(877)	335	1,149	(784)	365
Equipment	21,609	(13,619)	7,990	21,093	(13,129)	7,964
Natural resources	124	(21)	103	121	(20)	101
Construction work in process	11,380	-	11,380	9,040	-	9,040
Total general property, plant & equipment	\$ 89,749	\$ (49,336)	\$ 40,413	\$ 85,890	\$ (47,770)	\$ 38,120

(\$ IN MILLIONS)	PP&E	ACCUMULATED DEPRECIATION	NET PP&E
PP&E Balance beginning of year	\$ 85,890	\$ (47,770)	\$ 38,120
Capitalized acquisitions from the public	5,456	-	5,456
Capitalized acquisitions from the government agencies	3	-	3
Dispositions	(397)	397	-
Revaluations	(1,203)	-	(1,203)
Depreciation/Amortization	-	(1,963)	(1,963)
Total PP&E Balance at end of year	\$ 89,749	\$ (49,336)	\$ 40,413

10. Other Non-Intragovernmental Assets

(\$ IN MILLIONS)	FY 2020	FY 2019
Operating non-federal projects	\$ 3,464	\$ 3,774
Prepaid pension plan costs ^(Note 16)	71	62
Prepaid post retirement benefit costs ^(Note 16)	16	15
Prepayments and advances	287	275
Non-federal nuclear decommissioning trusts	398	392
Lease-purchase trust funds	45	76
Other cash	300	224
Other	128	146
Total other non-intragovernmental assets	\$ 4,709	\$ 4,964

OPERATING NON-FEDERAL PROJECTS

BPA is party to long-term contracts for BPA to acquire all of the generating capability of Energy Northwest's Columbia Generating Station (CGS) and, through 2032, all of Lewis County Public Utility District's Cowlitz Falls Hydroelectric Project. These contracts require that BPA meet all of the operating, maintenance and debt service costs for these projects. (see [Note 12](#)). Beginning in FY 2020, the assets are amortized on a straight-line basis through their respective license termination dates to program costs.

PREPAYMENTS AND ADVANCES

Prepayments for BPA represents prepayments for future services and other advance payments.

NON-FEDERAL NUCLEAR DECOMMISSIONING TRUSTS

BPA recognizes an asset that represents trust fund account balances for decommissioning and site restoration costs, primarily for CGS but also for Energy Northwest Projects 1 and 4. External trust fund accounts for decommissioning and site restoration costs for CGS are funded monthly, with these contributions recorded as an increase to the trust fund asset. These amounts are charged to program costs. The CGS decommissioning trust fund account was established to provide for decommissioning at the end of the project's operations in accordance with Nuclear Regulatory Commission (NRC) requirements. The NRC requires that this period be no longer than 60 years from the time the plant ceases operations. Decommissioning funding requirements for CGS are based on the 2019 site-specific decommissioning study for CGS and the license termination date, which is in December 2043 (see [Note](#)

[14](#)). The CGS trust fund accounts are funded and managed by BPA in accordance with the NRC requirements and site certification agreements.

LEASE-PURCHASE TRUST FUNDS

Lease-purchase trust funds are amounts held in separate trust accounts outside the Bonneville Fund for the construction of leased transmission assets, the use of which BPA has acquired under lease-purchase agreements. The amounts held in trust are also used in part for debt service payments during the construction period and include an investment fund mainly for future principal and interest debt service payments. At the time of debt extinguishment, unspent trust funds under a particular line of credit are used to repay the related lease-purchase debt and associated debt extinguishment costs for that line of credit.

OTHER CASH

Pursuant to Section 216 of the Water Resources Development Act of 1996, as amended (110 Stat. 3694; 33 U.S.C. 2321a), this represents funds held in escrow for SWPA's activities under the statute. These funds are specifically restricted to fund operation, maintenance, rehabilitation, and modernization activities at hydroelectric generating facilities of the USACE in SWPA's marketing region.

OTHER

This amount includes BPA's derivative instruments that represent unrealized gains, BPA's funding agreements for certain joint transmission projects, and WAPA's power rights.

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11. Liabilities Not Covered By Budgetary Resources

(\$ IN MILLIONS)	FY 2020	FY 2019
Intragovernmental		
Debt ^(Note 12)	\$ 9,370	\$ 8,980
Future reimbursements to the Treasury Judgment Fund ^(Note 14)	407	393
Other	16	14
Total intragovernmental	\$ 9,793	\$ 9,387
Debt held by the public ^(Note 12)	5,078	5,479
Nuclear Waste Fund deferred revenues ^(Note 13)	45,069	43,481
Environmental liabilities ^(Note 15)	509,572	502,833
Pension and other actuarial liabilities ^(Note 16)	30,196	28,945
Capital leases ^(Note 17)	96	119
Other liabilities		
Residential exchange - scheduled amounts ^(Note 14)	1,910	2,093
Environment, safety, and health compliance activities ^(Note 14)	1,431	1,427
Energy savings performance contracts and utility energy service contracts ^(Note 14)	462	504
Accrued annual leave for federal employees	180	151
Other	45	45
Contingencies and commitments ^(Note 18)	30,656	28,704
Total liabilities not covered by budgetary resources	\$ 634,488	\$ 623,168
Total liabilities covered by budgetary resources	30,732	28,574
Total liabilities not requiring budgetary resources	861	865
Total liabilities	\$ 666,081	\$ 652,607

12. Debt

(\$ IN MILLIONS)	BEGINNING BALANCE	NET BORROWINGS	ENDING BALANCE	BEGINNING BALANCE	NET BORROWINGS	ENDING BALANCE
	FY 2020			FY 2019		
Intragovernmental - not covered ^(Note 11)						
Borrowing from Treasury	\$ 5,356	\$ 368	\$ 5,724	\$ 5,628	\$ (272)	\$ 5,356
Appropriated capital	1,394	56	1,450	1,299	95	1,394
Refinanced & additional appropriations	1,147	31	1,178	1,321	(174)	1,147
Capitalization adjustment	1,083	(65)	1,018	1,147	(64)	1,083
Subtotal	\$ 8,980	\$ 390	\$ 9,370	\$ 9,395	\$ (415)	\$ 8,980
Intragovernmental - covered						
Borrowing from Treasury	\$ 748	\$ 159	\$ 907	\$ 514	234	\$ 748
Borrowing from FFB	14,422	1,026	15,448	13,276	1,146	14,422
Subtotal	\$ 15,170	\$ 1,185	\$ 16,355	\$ 13,790	\$ 1,380	\$ 15,170
Total intragovernmental debt	\$ 24,150	\$ 1,575	\$ 25,725	\$ 23,185	\$ 965	\$ 24,150
Debt held by the public ^(Note 11)	5,479	(401)	5,078	5,580	(101)	5,479
Total debt	\$ 29,629	\$ 1,174	\$ 30,803	\$ 28,765	\$ 864	\$ 29,629

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BORROWING FROM TREASURY

BPA is authorized by Congress to issue and sell bonds to the Treasury, and have outstanding at any one time, up to \$7.7 billion aggregate principal amount of bonds. Of the \$7.7 billion in Treasury borrowing authority, \$1.3 billion is available for electric power conservation and renewable resources, including capital investment at Federal Columbia River Power System (FCRPS) hydroelectric facilities owned by the USACE and BOR, and \$6.4 billion is available for BPA's transmission capital program and to implement BPA's authorities under the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act). Of the \$7.7 billion, \$750 million can be issued to finance Northwest Power Act related expenses. The interest on BPA's outstanding bonds is set at rates comparable to rates on debt issued by other comparable federal government institutions at the time of issuance. Bonds can be issued with call options.

As of September 30, 2020, and 2019, BPA had no bonds outstanding related to Northwest Power Act expenses.

As of September 30, 2020, \$1.0 billion of variable-rate bonds were callable by BPA at par value on their interest repricing dates, which occurs every three to six months. The remaining \$4.6 billion of bonds are callable by BPA at a premium or discount, which is calculated based on the current government agency rates for the remaining term to maturity at the time the bonds are called. As of September 30, 2019, \$1.7 billion of variable-rate bonds were outstanding.

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

The Department is authorized to borrow from Treasury if cash previously collected is not enough to cover interest expense and other items related to the ATVM and Title XVII loan programs. As of September 30, 2020, the maturity range of the debt was September 30, 2024 to September 30, 2048 and the interest rate range was 2.32 percent to 3.00 percent. As of September 30, 2019, the maturity range of the debt was September 30, 2040 to September 30, 2048 and the interest rate range was 2.59 percent to 3.93 percent. Borrowings from Treasury related to ATVM and Title XVII loan programs are considered covered by budgetary resources as there is no congressional action necessary to pay the debt.

BORROWING FROM THE FFB

To finance its loan programs, the Department is required to use the FFB for the ATVM program and the 100 percent loan guarantees of the Title XVII program. As of September 30, 2020 and September 30, 2019, the maturity range of the debt was from October 2, 2020 to April 3, 2045 and October 2, 2019 to April 3, 2045, respectively.

The interest rate range was from 2.08 percent to 3.00 percent and from 2.08 percent to 3.93 percent as of September 30, 2020 and September 30, 2019, respectively. All debt from the FFB is considered covered by budgetary resources as there is no congressional action necessary to pay the debt.

APPROPRIATED CAPITAL

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

SEPA receives annual appropriations from the Treasury's General Fund for operating expenses. Annual program costs are repaid from offsetting collections from the sale of Federal hydroelectric power during the current year, resulting in a net zero appropriation.

SWPA receives annual appropriations from the Treasury's General fund for capital, operation and maintenance expenses. Annual operation and maintenance costs are repaid from offsetting collections from the sale of Federal hydroelectric power during the current year, resulting in a net zero appropriation. Capital costs are generally repaid over their estimated useful lives. As noted in the first paragraph of this section, the unpaid balance of these appropriations are reported as appropriated funds owed Treasury.

WAPA receives annual appropriations from the Reclamation Fund for construction, operation and maintenance expenses: additional detail on WAPA's debt owed to the Reclamation Fund and corresponding elimination are found in [Note 27](#). Annual operation and maintenance costs are repaid from offsetting collections during the current year and construction costs are generally repaid over their estimated useful lives. Funding received from the Reclamation Fund is not reported as appropriated capital owed since the Reclamation Fund is managed by WAPA and all inter-fund activity is eliminated for combined reporting.

WAPA has also received appropriations from Treasury General Fund, as noted in the first paragraph of this section, the unpaid balance of these appropriations are reported as appropriated capital owed Treasury.

Except for the appropriation refinancing asset described in [Note 6](#) and in the next section, the Department's financial

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

statements do not reflect the federal investment in power generating facilities owned by the USACE; DOI, BOR; and the Department of State (DOS), International Boundary and Water Commission. BPA makes annual payments to Treasury from its net proceeds.

REFINANCED AND ADDITIONAL APPROPRIATED CAPITAL

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

Federal appropriations may be paid early without penalty at their par value (i.e. carrying value for federal appropriations) as part of BPA's payment to the Treasury. BPA repaid appropriations earlier than their due date in FY 2020 and FY 2019.

CAPITALIZATION ADJUSTMENT

The capitalization adjustment is the difference between the outstanding balance of federal appropriations, plus \$100 million, before and after refinancing under the Refinancing Act. Consistent with treatment in BPA's

power and transmission rate cases, this adjustment is being amortized over a 40-year period through FY 2036. Amortization of the capitalization adjustment was \$65 million for FY 2020 and \$65 million for FY 2019 (see [Note 6](#)).

DEBT HELD BY THE PUBLIC

Debt held by the public primarily includes liabilities associated with BPA purchased generating capability discussed in Note 10; the non-operating facilities for which BPA bears responsibility discussed in [Note 6](#); and customer prepaid power purchases.

In FY 2020, Energy Northwest entered into two line-of-credit borrowing arrangements with banking institutions in an aggregate amount of \$300 million, of which \$10 million had been drawn as of September 30, 2020, and \$290 million was still available. Amounts made available under the lines of credit borrowing do not become a BPA liability until drawn by Energy Northwest. Instead of providing funds to Energy Northwest for operations and maintenance and interest purposes, BPA either will or has funded the repayment of the borrowing arrangements.

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

In March 2013, BPA received \$340 million representing \$474 million in scheduled credits for blocks purchased by customers. BPA accounts for the prepayment proceeds as a financing transaction and reports the value of the obligations associated with the fixed credits as a prepayment liability. The prepaid liability is reduced and the credits are applied as power is delivered through FY 2028. As of September 30, 2020, BPA's remaining liability is \$207 million.

13. Deferred Revenues and Other Credits

(\$ IN MILLIONS)	FY 2020	FY 2019
Intragovernmental	\$ 239	\$ 246
Nuclear Waste Fund ^(Note 11)	\$ 45,069	\$ 43,481
Power Marketing Administrations	1,441	1,504
Reimbursable work advances	328	316
Other	219	220
Subtotal	\$ 47,057	\$ 45,521
Total deferred revenues and other credits	\$ 47,296	\$ 45,767

NUCLEAR WASTE FUND

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

POWER MARKETING ADMINISTRATIONS

BPA's deferred revenues and other credits make up the majority of the deferred revenues and other credits for the Power Marketing Administrations.

BPA's deferred revenues and other credits primarily represent the following:

- Regulatory liabilities for amounts previously collected through rates for accumulated plant

removal costs as part of depreciation and decommissioning and site restoration costs.

- Interconnection agreements which are advances for requested new network upgrades and interconnections that accrue interest and will be returned as cash or credits against future transmission service on the new or upgraded lines.
- Deferred project revenue funded in advance consisting of third party advances received where BPA will own the resulting transmission assets. The balance is amortized as other revenue not with customers over the life of the assets so that the balance prevents any stranded costs in case of impairment as prescribed by the transmission rate process.
- Third AC intertie transmission line capacity agreements reflecting unearned revenues from customers related to the Third AC intertie transmission line capacity project.

14. Other Liabilities

(\$ IN MILLIONS)	FY 2020	FY 2019
Intragovernmental		
Oil held for Department of Defense ^(Notes 2 and 8)	\$ 123	\$ 123
Future reimbursements to the Treasury Judgment Fund ^(Note 11)	407	393
Negative subsidies and downward re-estimates on loans outstanding	168	172
Other	191	74
Total other intragovernmental liabilities	\$ 889	\$ 762
Environment, safety, and health compliance activities ^(Note 11)	\$ 1,436	\$ 1,436
Accrued payroll, benefits, and withholding taxes	1,909	1,551
Residential exchange ^(Note 11)	1,910	2,093
Asset retirement obligations	891	821
Energy savings performance contracts and utility energy service contracts ^(Note 11)	462	504
Oil held for others ^(Notes 2 and 8)	149	-
Other	273	274
Subtotal	\$ 7,030	\$ 6,679
Total other liabilities	\$ 7,919	\$ 7,441

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FUTURE REIMBURSEMENTS TO THE TREASURY JUDGMENT FUND

This amount is comprised of future reimbursements the Department will need to make to the Treasury Judgment Fund for litigation payments made on behalf of the Department.

ENVIRONMENT, SAFETY, AND HEALTH COMPLIANCE ACTIVITIES

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

ACCRUED PAYROLL, BENEFITS, AND WITHHOLDING TAXES

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

RESIDENTIAL EXCHANGE PROGRAM

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

Beginning in April 2010, over 50 litigants and other regional parties entered into mediation to resolve numerous disputes over the REP. In FY 2011, the parties reached a final settlement agreement – the 2012 Residential Exchange Program Settlement Agreement (2012 REP Settlement Agreement). As a result of the settlement, BPA recorded an associated long-term IOU exchange benefits liability and corresponding regulatory asset of \$3.1 billion. Under the 2012 REP Settlement Agreement the IOUs REP benefits were determined for fiscal years 2012-2028 (also referred to herein as Scheduled Amounts). The Scheduled Amounts started at \$182 million for FY 2012 and increase over time to \$286 million for FY 2028. As provided in the 2012 REP Settlement Agreement, the Scheduled Amounts are established for each IOU based on the IOU's average

system cost, its residential exchange load and BPA's applicable Priority Firm Exchange rate. The Scheduled Amounts total \$4.1 billion over the 17-year period through FY 2028. As of September 30, 2020, the remaining Scheduled Amounts total \$2.2 billion. Amounts recorded of \$1.9 billion at September 30, 2020 represent the present value of future cash outflows for these IOU exchange benefits.

ASSET RETIREMENT OBLIGATIONS

BPA recognizes asset retirement obligations (AROs) based on the future retirement of certain tangible, long-lived assets, BPA's AROs are recognized based on the estimated fair value of the dismantlement and restoration costs associated with the retirement of certain tangible long-lived assets, primarily comprised of the Columbia Generating Station (CGS), and 30% share of the former Trojan nuclear power plant decommissioning activities.

The CGS is a nonfederal nuclear power plant owned and operated by Energy Northwest, a joint operating agency of the state of Washington. The liability is adjusted for any revisions, expenditures and the passage of time. As a result of a 2019 site-specific decommissioning study for CGS, BPA management revised the estimate for the ARO liability during FY 2019 by \$595 million. This change in estimate was largely driven by the addition of a fuel storage estimate, the change in assumed decommissioning method, and increases in labor rates, which exceed the rate of inflation. Actual decommissioning costs may vary from this estimate because of various factors including future decommissioning dates, requirements, costs and technology.

Based on agreements in place, BPA directly funds Eugene Water and Electric Board's 30% share of the former Trojan nuclear power plant decommissioning activities that consist of long-term operation and decommissioning of the Independent Spent Fuel Installation (ISFSI). BPA funds these costs through current rates. The Trojan decommissioning primarily relates to the storage of spent nuclear fuel through 2059 at the former nuclear plant site. Decommissioning of the ISFSI and final site restoration activities is not expected to occur before 2059, which is the year the NRC extended the fuel storage license through. As a result of this extension, BPA management revised the liability by approximately \$38 million in FY 2020.

BPA also has tangible long-lived assets without an associated ARO because no legal obligation exists to remove these assets.

ENERGY SAVINGS PERFORMANCE CONTRACTS AND UTILITY ENERGY SERVICE CONTRACTS

Beginning in FY 2019, SFFAS 49, *Public-Private Partnerships*, requires the disclosure of risk-sharing arrangements with expected lives greater than five years between public and private sector entities. Per SFFAS 49, "Such arrangements or transactions provide a service or an asset for government and/or general public use where

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in addition to the sharing of resources, each party shares in the risks and rewards of said arrangements or transactions.” DOE has determined that Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESC) meet the Public-Private Partnership (P3) criteria outlined in SFFAS 49; the disclosure details for DOE’s ESPC and UESC arrangements are provided below.

Initially authorized by the Energy Policy Act of 1992 and subsequently codified as 42 U.S.C. 8287 and 42 U.S.C. 8256, respectively, ESPCs and UESCs represent partnerships with energy service companies (ESCOs) and utility companies in the form of fixed-price, performance-based arrangements that are paid back over time through generated energy cost savings. In particular, ESPCs enable DOE to partner with an ESCO for a period not to exceed 25 years to improve energy efficiency in one or more DOE facilities at no direct capital cost to the U.S. Government and without special Congressional appropriations. The ESCO finances the upfront costs of implementing energy conservation measures—often borrowing the necessary funding for the investment from a third-party financier—and receives, in return, a contractually determined share of the cost savings that result. The ESCO provides a guarantee that the improvements will generate sufficient energy cost savings to pay for the project over the expected life of the arrangement, and after the arrangement ends, DOE fully retains all subsequent cost savings. Ultimately, ESPCs and UESCs provide DOE with the overall ability to implement energy efficient infrastructure upgrades at little to no upfront expense to the Government and generate future energy cost savings. (Similar to ESPCs, UESCs are partnerships between a federal agency and its serving utility company in which the utility company arranges financing to cover the upfront costs of energy efficiency projects and the agency’s subsequent payments are based on energy cost savings; unlike ESPCs, however, cost savings are not guaranteed by the utility company.)

Although ESPC and UESC arrangements are structured to minimize the level of risk to which DOE and the Government are exposed, general processes such as a mutual understanding of each entity’s role and responsibilities within the partnership, proper and timely project planning, installation and functionality oversight, and participation in the measurement and verification of equipment performance are all key components to helping ensure that energy cost savings are successfully realized. Failure to appropriately conduct these types of processes could potentially result in lost or unachieved energy cost savings and/or reduced payments to ESCOs in the case of ESPCs, payments being made by DOE in excess of the amount of actual energy cost savings achieved, or costs related to future contract or infrastructure modifications. Additionally, though standard contract language generally allows DOE to terminate ESPC and UESC arrangements for convenience, any such action is considered by DOE to be

remote and often requires, at a minimum, payment by DOE of the remaining unamortized principal (the total of which, as of September 30, 2020, is primarily represented by the "Energy savings performance contracts and utility energy service contracts" liability figure above) as well as other termination fees based on the financial details of each arrangement; further, because title to infrastructure improvement systems and equipment is typically transferred to DOE upon project acceptance, early termination could potentially lead to increased costs related to ownership (for example, maintenance and repairs previously performed by the ESCO or utility company needing to be performed by DOE or another contractor). Lastly, some arrangements contain contractual clauses specifically clarifying that the Government will be responsible for losses due to remote risks such as accidents or "force majeure" events.

As of September 30, 2020, DOE has 19 ESPC arrangements/modifications that are active or for which implementation is currently in process and two active UESC arrangements. The period of performance range for the 21 total arrangements is between 10 and 24 years in length, with the calculation of the period of performance largely dependent upon the amount of predicted annual cost savings in conjunction with the amount of annual payments (not to exceed the amount of annual cost savings in the case of ESPCs) required to eventually fund the overall value of the project. Payments related to these types of arrangements are generally made by DOE indirectly to the ESCO or utility company through a trustee on an annual basis.

The below table provides the amount of funding related to the non-federal partners’ implementation of DOE’s ESPC and UESC arrangements; the combined total amount of DOE payments scheduled to be made over the entire life of the arrangements (including principal repayment, interest, and performance period expenses); the total cumulative amount of payments made by DOE as of September 30, 2020; the total amount of payments made by DOE specifically in FY 2020; and the total amount of remaining DOE payments scheduled to be made in FY21 and beyond.

(\$ IN MILLIONS)	ESPCs	UESCs	Total
Non-federal partners' implementation amount	\$ 619	\$ 20	\$ 639
Total amount of payments to be made by DOE over life of arrangement	1,979	24	2,003
Total cumulative payments made as of 9/30/20	721	13	734
Total payments made in FY 2020	107	2	109
Total amount of scheduled payments remaining to be made in FY 2021+	1,258	11	1,269

OTHER LIABILITIES

Non-Federal Other Liabilities with the Public “Other” represents Contract Holdbacks, limited payroll related liabilities, Undistributed Advances, and various other miscellaneous liabilities.

15. Environmental Cleanup and Disposal Liabilities

(\$ IN MILLIONS)	FY 2020	FY 2019
Beginning balance	\$ 505,302	\$ 493,960
Changes to environmental cleanup and disposal liability estimates ^(Note 20)	14,485	18,639
Costs applied to reduction of legacy environmental liabilities ^(Note 20)	(6,310)	(6,083)
Capital expenditures related to remediation activities	(1,220)	(1,214)
Ending environmental cleanup and disposal liabilities	\$ 512,257	\$ 505,302
Unfunded environmental liabilities ^(Note 11)	\$ 509,572	\$ 502,833
Funded environmental liabilities	2,685	2,469
Total environmental cleanup and disposal liabilities	\$ 512,257	\$ 505,302

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

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

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

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

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

- The Department has identified approximately 11,836 potential release sites from which contaminants could migrate into the environment. Although virtually all of these sites have been at least partially characterized, final remedial action and regulatory decisions have not been made for many sites. Site-specific assumptions regarding the amount and type of contamination and the remediation technologies that will be utilized were used in estimating the environmental liabilities related to these sites.
- Cost estimates for management of the Department’s high-level waste and SNF have been predicated upon assumptions as to the timing of permanent disposition. Changes in high-level waste and SNF disposition plans could cause departmental projected costs to change.
- Estimates are based on remedies considered technically and environmentally reasonable and achievable by local project managers and appropriate regulatory authorities.
- Estimated cleanup costs at sites for which there is no current feasible remediation approaches are excluded from the estimates, although applicable stewardship and monitoring costs for these sites are included. The Department has not been required via regulation to establish remediation activities for these sites.

Changes to the Department’s environmental liabilities estimates in FY 2020 resulted from inflation adjustments to reflect constant dollars for the current year; improved and updated estimates for the same scope of work, including changes resulting from deferral or acceleration of work; revisions in technical approach or scope, including additional contamination; updated estimates of projected waste volumes; legal and regulatory changes; and cleanup activities performed.

The Department’s liabilities also include the estimated cleanup and post-closure responsibilities, including surveillance and monitoring activities, soil and groundwater remediation, and disposition of excess material for sites. The Department is responsible for the post-closure activities at many of the closure sites, as well

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as other sites (former uranium mills and certain sites remediated by the USACE). The costs for these post-closure activities are estimated for a period of 75 years after the balance sheet date, i.e., through 2095 in FY 2020 and through 2094 in FY 2019. While some post-cleanup monitoring and other long-term stewardship activities post 2095 are included, there are others the Department expects to continue beyond 2095 for which the costs cannot reasonably be estimated.

A portion of the environmental liability at various field sites includes anticipated costs for facilities managed by the Department's ongoing program operations which will ultimately require stabilization, deactivation, and decommissioning. These estimates are largely based upon a cost-estimating model. Site-specific estimates are used, in lieu of the cost-estimating model, when available. Cost estimates for ongoing program facilities are updated each year. For facilities newly contaminated since FY 1997, costs are allocated to the periods benefiting from the operations of the facilities. Facilities' cleanup costs allocated to future periods and not included in the liability amounted to \$942 million at September 30, 2020, and \$933 million at September 30, 2019.

Estimating the Department's environmental cleanup liability requires making assumptions about future activities and is inherently uncertain. The future course of the Department's environmental cleanup and disposal will depend on a number of fundamental technical and policy choices, many of which have not been made. The cost and environmental implications of alternative choices can be profound. For example, some contaminated sites and facilities could be restored to a condition suitable for any desired use; they could also be restored to a point where they pose no near-term health risks to surrounding communities but are essentially secured, monitored, and left in place. Achieving the former condition would have a higher cost but may, or may not, warrant the cost or be legally required. The estimates reflect applicable decisions and current expectations as to the extent of cleanup and site and facility reuse, which include consideration of legal requirements and stakeholder input. The environmental liability estimate includes contingency estimates intended to account for the uncertainties associated with the technical cleanup scope of the program. Congressional appropriations at lower-than-anticipated levels or lack of Congressional approval, unplanned delays in project completions including potential delays due to COVID-19, unforeseen technical issues, obtaining regulatory approval, among other things, could cause increases in life-cycle costs. All environmental liabilities as of September 30, 2020, and September 30, 2019, are stated in FY 2020 dollars and FY 2019 dollars, respectively, as required by generally accepted accounting principles for federal entities. Future inflation could cause actual costs to be substantially higher than the recorded liability.

HANFORD SITE

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

- The Waste Treatment Plant is a multi-year construction project that once complete will provide the primary treatment capability to immobilize the radioactive and chemical tank waste at the Hanford site. The estimate for this project is undergoing an Analysis of Alternatives that is expected to continue beyond FY 2020 and may result in revisions to the liability.
- The Tank Farm project includes activities required to manage and stabilize approximately 56 million gallons of radioactive waste stored in 177 underground tanks, including retrieval, treatment, and disposal.
- Waste Treatment Plant Operations is responsible for the operational scope for the Waste Treatment Plant Low-Activity Waste Facility, the Analytical Laboratory, and the Balance of Facilities starting with hot commissioning but after project completion for those facilities.
- The River Corridor Closure Project addresses the remediation of contaminated soils and facilities adjacent to the Columbia River. Much of this work has been completed but remediation activities continue for the 300-296 waste site beneath the 324 Building; the treatment and packaging of radioactive sludge to interim storage; and the high risk 618-11 burial grounds.
- Solid Waste Operations in the central plateau in support of remediation activities on the Hanford Site.
- Soil and groundwater, as well as D&D activities, which addresses the remediation of contaminated soils and facilities in the central plateau.
- Infrastructure services in support of the operations on the Hanford Site including safeguards and security, utility operations, and fire operations.

SAVANNAH RIVER SITE

The Savannah River Site (SRS), located in South Carolina, is 310 square miles in size with 1,000 facilities concentrated within 10 percent of the total land area. The SRS environmental liability estimate reflects the mission of safely storing, treating, and disposing of a variety of radioactive and hazardous waste streams, remediating the environment, deactivating and decommissioning excessed facilities, stabilization and immobilization of high-level waste (HLW), and the secure storage of foreign and domestic nuclear materials including spent nuclear fuel and plutonium at the site. The major activities comprising the environmental liability at SRS include the following:

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- The Radioactive Liquid Waste Stabilization and Disposition project includes safely and effectively treating, stabilizing and disposing of approximately 35 million gallons of legacy radioactive waste stored in 43 of 51 underground storage tanks. To date, eight tanks have achieved regulatory closure and grouted in place. Liquid tank waste is processed through the Salt Waste Processing Facility into two streams, HLW and decontaminated low level salt waste stream (DSS). The HLW stream is sent to the Defense Waste Processing Facility (DWPF) for vitrification and stored in canisters for off-site disposition at a future identified Federal repository. The DSS is sent to the Saltstone Production facility where it is combined with a cementous material and disposed in on-site Saltstone Disposal Units.
- The surplus plutonium disposition program provides the capability to disposition certain inventories of the nations' surplus, weapons-usable plutonium. On October 9, 2018, the U.S. Court of Appeals lifted the Preliminary Injunction, allowing the Department to move forward with termination of construction of the Mixed Oxide (MOX) facility. On January 8, 2019 the U.S. Court of Appeals issued a final ruling holding that the State of South Carolina lacks standing to challenge the decision to terminate the MOX project. In FY 2019, the MOX project was terminated and the Department is pursuing the implementation of the dilute and dispose strategy to fulfill the United States' commitment to dispose of 34 metric tons of plutonium.

IDAHO NATIONAL LABORATORY SITE

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

- The Spent Nuclear Fuel Stabilization and Disposition project includes stabilizing legacy spent nuclear fuel and managing the receipt of off-site spent nuclear fuel from research reactors.
- The Radioactive Liquid Tank Waste Stabilization and Disposition Project will treat, and disposition, the sodium-bearing tank wastes, close the underground waste tanks, as well as maintain the Idaho Nuclear Technology and Engineering Center.
- The Solid Waste Stabilization and Disposition Project disposes stored transuranic waste, low-level radioactive waste, Resource Conservation and Recovery Act hazardous waste, and mixed low-level radioactive waste in compliance with the Idaho Settlement Agreement requirements and; closes on-site low-level radioactive waste disposal facilities at the Radioactive Waste Management Complex.
- The Soil and Water Remediation project is responsible for remediation of contaminated soil and groundwater and closure of legacy Comprehensive Environmental Response, Compensation, and Liability Act sites at the Idaho National Laboratory. Completion of this project will contribute to reducing the footprint and the completion of the Idaho Cleanup Project.

GASEOUS DIFFUSION PLANTS

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

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

ENVIRONMENTAL LIABILITIES ESTIMATE FOR OTHER SITES

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

16. Pension and Other Actuarial Liabilities

(\$ IN MILLIONS)	FY 2020	FY 2019
Contractor pension plans	\$ 20,455	\$ 18,923
Contractor postretirement benefits other than pensions	9,611	9,900
Contractor disability and life insurance plans	29	24
Federal Employees' Compensation Act	101	98
Total pension and other actuarial liabilities ^(Note 11)	\$ 30,196	\$ 28,945

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

CONTRACTOR PENSION PLANS

As of September 30, 2020, the Department reports contractor pension assets (i.e., aggregate of net assets for all contractor plans with plan assets in excess of the projected benefit obligation) of \$71 million and contractor pension liabilities (i.e., aggregate of net liabilities for all contractor plans with projected benefit obligations in excess of the plan assets) of \$20.5 billion. The Department has a continuing obligation to reimburse allowable costs for a variety of contractor-sponsored pension plans (32 qualified and 13 nonqualified).

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

Assumptions and Methods – Contractors use their own actuarial assumptions for determining required contributions to employee pension plans. However, in order to provide consistency among the Department's various contractors, the Department requires the use of

certain standardized actuarial assumptions for financial reporting purposes. These standardized assumptions include the discount rates, mortality assumptions, and an expected long-term inflation rate of 2 percent used consistently in the expected long-term rate of return on assets, salary scale, and other relevant economic assumptions affected by inflation, with adjustments to the 2 percent inflation rate to reflect regional or industry rates as appropriate. In most cases except for the standardized mortality assumption, the demographic assumptions used for the ERISA valuation were used for these purposes.

The following specific assumptions and methods were used to determine the net benefit cost. The weighted average discount rate was 3.00 percent for FY 2020 and 4.00 percent for FY 2019; the weighted average long-term rate of return on assets was 6.17 percent for FY 2020 and 6.38 percent for FY 2019; and the average rate of compensation increase was 3.2 percent for FY 2020 and 3.0 percent for FY 2019. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rates of return on assets based on the specific investment profiles of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for each of the contractors' plans.

The weighted average discount rates used to determine the benefit obligations as of September 30, 2020, and September 30, 2019, were 2.50 percent and 3.00 percent, respectively.

The aggregate accumulated benefit obligation and aggregate fair value of plan assets for plans with accumulated benefit obligations in excess of plan assets are \$59.6 billion and \$43.4 billion as of September 30, 2020, and \$55.5 billion and \$40.1 billion as of September 30, 2019, respectively. The aggregate projected benefit obligation and aggregate fair value of plan assets for plans with projected benefit obligations in excess of plan assets are \$63.9 billion and \$43.4 billion as of September 30, 2020, and \$59.0 billion and \$40.1 billion as of September 30, 2019, respectively.

Because the Department reports under Federal accounting requirements, newly measured net prior service costs/(credits) and net (gains)/losses are recognized immediately as components of net periodic cost rather

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than classified as other comprehensive income under FASB ASC 715 and later amortized and included as components of net periodic cost. All components of the net periodic cost are recognized in the *Consolidated Statements of Net Cost*. Service costs are recorded by program and all other net periodic costs are recorded as costs not assigned (see [Note 21](#)).

CONTRACTOR POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

The Department's contractors sponsor a variety of postretirement benefits other than pensions. As of September 30, 2020, the Department reports contractor PRB assets (i.e., aggregate of net assets for all contractor plans with plan assets in excess of the benefit obligation) of \$16 million and contractor PRB liabilities (i.e., aggregate of net liabilities for all contractor plans with benefit obligations in excess of the plan assets) of \$9.6 billion. The Department accrues the cost of PRB during the years that the employees render service. Generally, the PRB plans are unfunded, and the Department's funding policy is to fund on a pay-as-you-go basis. There are five contractors, however, that are partially prefunding benefits as permitted by law.

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

The following specific assumptions and methods, with respect to trends in the costs of medical and dental benefit plans, were used in determining the PRB estimates. The projected medical trend rates for a point of service plan, Health Maintenance Organization (HMO), Preferred Provider Organization (PPO), or similar plan grade (i.e., decrease or increase) from 6.11 percent in 2020 down to 5.0 percent in 2031 and later for under age 65; and 6.52 percent in 2020 down to 5.0 percent in 2031 and later for age 65 and older. The medical trend rates for a traditional indemnity or similar plan grade from 6.64 percent in 2020 down to 5.0 percent in 2031 and later for under age 65; and 7.05 percent in 2020 down to 5.0 percent in 2031 and later for age 65 and older. Separate trend rates were used for a Medicare Advantage plan, a Part D Prescription Drug Plan (PDP), and a Non-Part D PDP. Trend rates for Medicare Advantage plans at all per member per month levels of employer costs grade from 5.83 percent in 2020 down to 5.0 percent by 2033 and later. The trend rates for a Part D PDP grade from 7.87 percent in 2020 down to 5.0 percent in 2033 and later; and for a Non-Part D PDP grade

from 6.93 percent in 2020 down to 5.0 percent in 2031 and later. The medical trend rates or combination of rates used to determine the PRB estimates are dependent on each of the contractor's specific plan design and impact of health care reform, if applicable. The projected dental trend rates at all ages grade from 3.90 percent in 2020 up to 4.00 percent in 2034 and later.

The weighted average discount rates of 3.00 percent for FY 2020 and 4.00 percent for FY 2019, and the weighted average long-term rate of return on assets of 3.4 percent for FY 2020 and 3.38 percent for FY 2019 were used to determine the net periodic cost. The rate of compensation increase was the same rate as each contractor used to determine pension contributions. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rate of return on assets based on the specific investment profile of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for each of the contractors' plans.

The weighted average discount rates used to determine the benefit obligations as of September 30, 2020, and September 30, 2019, were 2.50 percent and 3.00 percent, respectively.

The aggregate accumulated postretirement benefit obligation and aggregate fair value of plan assets for plans with accumulated postretirement benefit obligations in excess of plan assets are \$9.7 billion and \$123 million as of September 30, 2020, and \$10.0 billion and \$128 million as of September 30, 2019, respectively.

Because the Department reports under Federal accounting requirements, newly measured net prior service costs/(credits) and net (gains)/losses are recognized immediately as components of net periodic cost rather than classified as other comprehensive income under FASB ASC 715 and later amortized and included as components of net periodic cost. All components of the net periodic cost are recognized in the *Consolidated Statements of Net Costs*. Service costs are recorded by program and all other net periodic costs are recorded as costs not assigned (see [Note 21](#)).

The FY 2020 and FY 2019 values reflect the impact of health care reform legislation passed in March 2010. The liabilities reflect the contractors' best estimates given the guidance and regulations available for these laws. Liabilities in future years may need to be adjusted if new health care legislation is passed.

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(\$ IN MILLIONS)	PENSION BENEFITS		OTHER POSTRETIREMENT BENEFITS	
	FY 2020	FY 2019	FY 2020	FY 2019
NET AMOUNT RECOGNIZED IN THE COMBINED BALANCE SHEET				
Accumulated benefit obligation	\$ 60,949	\$ 56,739		
Effect of future compensation increases	4,264	3,549		
Benefit obligation	\$ 65,213	\$ 60,288	\$ 9,739	\$ 10,033
Plan assets	44,829	41,427	144	148
Net amount recognized in the balance sheet (net funded status)	\$ (20,384)	\$ (18,861)	\$ (9,595)	\$ (9,885)
RECONCILIATION OF AMOUNTS RECOGNIZED IN THE COMBINED BALANCE SHEET				
Asset (prepaid plan costs) ^(Note 10)	\$ 71	\$ 62	\$ 16	\$ 15
Liability	(20,455)	(18,923)	(9,611)	(9,900)
Net amount recognized in the balance sheet (net funded status)	\$ (20,384)	\$ (18,861)	\$ (9,595)	\$ (9,885)
COMPONENTS OF NET PERIODIC COSTS				
Service costs	\$ 1,097	\$ 885	\$ 149	\$ 149
Interest costs	1,779	2,030	265	337
Expected return on plan assets	(2,517)	(2,510)	(5)	(5)
(Gain)/loss due to curtailments, settlements or special termination benefits	-	(7)	-	(1)
Net prior service cost/(credit)	11	9	(15)	(24)
Net (gain)/loss	2,412	7,384	(339)	834
Total net periodic costs	\$ 2,782	\$ 7,791	\$ 55	\$ 1,290
CONTRIBUTIONS AND BENEFIT PAYMENTS				
Employer contributions	\$ 1,259	\$ 1,116	\$ 345	\$ 363
Participant contributions	87	91	70	76
Benefit payments	2,472	2,247	425*	449*

* Includes \$10 million paid from plan assets for FY 2020, and \$9 million paid from plan assets for FY 2019. For FY 2020, gross benefit payments were \$437 million including \$2 million of Federal Medicare subsidy. This resulted in net benefit payments of \$425 million for FY 2020. For FY 2019, gross benefit payments were \$460 million including \$2 million of Federal Medicare subsidy. This resulted in net benefit payments of \$449 million for FY 2019.

(\$ IN MILLIONS)	PENSION BENEFITS	OTHER POSTRETIREMENT BENEFITS
Expected contributions for fiscal year ending September 30, 2021		
Employer contributions	\$ 1,339	\$ 407
Participant contributions	92	79

(\$ IN MILLIONS)	PENSION BENEFITS	OTHER POSTRETIREMENT BENEFITS		
		GROSS PAYMENT	LESS FEDERAL MEDICARE PART D SUBSIDY *	NET PAYMENT
ESTIMATED FUTURE BENEFIT PAYMENTS				
FY:				
2021	\$ 2,566	\$ 497	\$ 4	\$ 493
2022	2,665	511	4	507
2023	2,768	517	4	513
2024	2,863	527	4	523
2025	2,918	538	4	534
2026 to 2030	15,618	2,749	19	2,730

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

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The following chart shows the average target allocation for the 32 pension benefit plans and five other postretirement benefit plans with assets. The weighted average actual FY 2020 and FY 2019 allocations of assets are also shown.

ASSET CLASS	PENSION BENEFITS			OTHER POSTRETIREMENT BENEFITS		
	TARGET ALLOCATION	PERCENT OF PLAN ASSETS AT END FY 2020	PERCENT OF PLAN ASSETS AT END FY 2019	TARGET ALLOCATION	PERCENT OF PLAN ASSETS AT END FY 2020	PERCENT OF PLAN ASSETS AT END FY 2019
Cash and Equivalents	1.4%	2.3%	2.9%	0.4%	0.4%	0.2%
US Government Bonds	10.1%	10.1%	10.3%	1.7%	1.7%	3.3%
State and Municipal Government Bonds	0.2%	0.4%	0.4%	1.0%	1.0%	1.0%
Foreign Government Bonds	0.3%	0.4%	0.3%	0.0%	0.0%	0.0%
High-yield Corporate Bonds	1.6%	1.3%	1.1%	0.0%	0.0%	0.0%
Corporate Bonds other than high-yield	19.9%	19.2%	19.0%	5.2%	5.2%	4.0%
Domestic Equities	18.2%	19.0%	15.3%	2.2%	2.2%	1.9%
International Equities	14.7%	13.2%	14.9%	0.8%	0.8%	0.7%
Real Estate Investment Funds	4.8%	4.4%	4.7%	0.0%	0.0%	0.0%
Other Real Estate	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%
Mortgage-Backed Securities	0.5%	0.6%	0.6%	0.3%	0.3%	0.4%
Asset-Backed Commercial Paper	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bonds/Notes Issued by Structured Investment Vehicles	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Derivatives, including Collateralized Debt Obligations and Credit Default Swaps	0.2%	0.2%	0.2%	2.2%	2.2%	1.2%
Private Investment Funds, including Hedge Funds	3.5%	4.6%	3.9%	0.0%	0.0%	0.0%
Insurance Contracts (general accounts)	0.0%	0.2%	0.2%	79.4%	79.4%	80.8%
Insurance Contracts (separate accounts)	0.0%	0.1%	0.1%	6.4%	6.4%	6.0%
Employer Securities	0.3%	0.4%	0.5%	0.0%	0.0%	0.0%
Aggregate Bond Index, Long Bond Index	1.3%	1.2%	1.3%	0.0%	0.0%	0.0%
Other	22.8%	22.3%	24.1%	0.4%	0.4%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Each contractor develops its own investment policies and strategies for the plans it sponsors. Therefore, there is no one overall investment policy for the contractors' plans. Generally, their objectives provide for benefit security for

plan participants through the maximization of total returns while limiting risk and providing liquidity coverage of benefit payments.

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The following chart shows the allocation of the assets for FY 2020 and FY 2019 among the levels in the fair value hierarchy and net asset values (NAV) as a practical expedient for the pension benefit plans with assets. The allocation of assets among the fair value hierarchy reflect the implementation of Accounting Standards Update (ASU) No. 2015-07 for reporting investments using the net asset value per share (or its equivalent) as a practical expedient, as applicable.

(\$ IN MILLIONS)			QUOTED PRICES IN ACTIVE MARKETS FOR IDENTICAL ASSETS		SIGNIFICANT OBSERVABLE INPUTS		SIGNIFICANT UNOBSERVABLE INPUTS		NET ASSET VALUE, AS A PRACTICAL EXPEDIENT	
	Total		Level 1		Level 2		Level 3		NAV	
	FY 2020	FY 2019	FY 2020	FY 2019	FY 2020	FY 2019	FY 2020	FY 2019	FY 2020	FY 2019
Cash and Equivalents	\$ 1,012	\$ 1,193	\$ 108	\$ 433	\$ 659	\$ 379	\$ -	\$ -	\$ 245	\$ 381
US Government Bonds	4,508	4,264	1,758	1,813	2,164	1,892	-	-	586	559
State and Municipal Government Bonds	172	176	-	-	168	163	1	-	3	13
Foreign Government Bonds	186	132	62	14	90	71	-	-	34	47
High-yield Corporate Bonds	571	442	7	6	252	209	-	-	312	227
Corporate Bonds other than high-yield	8,587	7,881	85	230	8,016	7,195	-	-	487	456
Domestic Equities	8,517	6,338	5,145	4,333	938	456	-	-	2,434	1,549
International Equities	5,929	6,187	2,431	2,418	522	956	-	-	2,975	2,813
Real Estate Investment Funds	1,963	1,945	61	88	-	-	-	82	1,901	1,775
Other Real Estate	45	44	-	-	-	-	45	44	-	-
Mortgage-Backed Securities	271	240	10	11	190	199	-	-	71	30
Asset-Backed Commercial Paper	3	-	-	-	-	-	-	-	3	-
Bonds/Notes Issued by Structured Investment Vehicles	21	51	-	-	-	-	-	-	21	51
Derivatives	73	79	-	-	-	7	-	-	73	72
Private Investment Funds	2,073	1,605	21	-	31	44	75	342	1,946	1,219
Insurance Contracts (general accounts)	84	85	-	-	1	1	83	84	-	-
Insurance Contracts (separate accounts)	33	31	-	-	33	31	-	-	-	-
Employer Securities	187	198	187	198	-	-	-	-	-	-
Aggregate Bond Index, Long Bond Index	541	559	-	-	390	559	-	-	150	-
Other	10,053	9,977	86	(170)	96	89	70	63	9,803	9,995
Total Assets	\$ 44,829	\$ 41,427	\$ 9,961	\$ 9,374	\$ 13,550	\$ 12,251	\$ 274	\$ 615	\$ 21,044	\$ 19,187

The following chart shows the reconciliation of the Level 3 assets for FY 2020 and FY 2019 for the pension benefit plans with assets.

(\$ IN MILLIONS)	REAL ESTATE INVESTMENT FUNDS	OTHER REAL ESTATE	PRIVATE INVESTMENT FUNDS	INSURANCE CONTRACTS (GENERAL ACCOUNTS)	OTHER	TOTAL
	FY 2020					
Beginning Balance	\$ 82	\$ 44	\$ 342	\$ 84	\$ 63	\$ 615
Actual return on plan assets:						
Relating to assets still held at the reporting date	-	3	1	1	1	6
Relating to assets sold during the period	-	(2)	-	-	6	4
Purchases, sales, and settlements	-	(4)	45	(2)	1	40
Transfers in and/or out of Level 3	(82)	-	(313)	-	1	(394)
Other	-	4	-	-	(1)	3
Ending Balance	\$ -	\$ 45	\$ 75	\$ 83	\$ 71	\$ 274
	FY 2019					
Beginning Balance	\$ 319	\$ 42	\$ 158	\$ 36	\$ 56	\$ 611
Actual return on plan assets:						
Relating to assets still held at the reporting date	(17)	2	41	1	3	30
Relating to assets sold during the period	1	-	29	-	5	35
Purchases, sales, and settlements	59	2	20	(3)	(2)	76
Transfers in and/or out of Level 3	(280)	-	94	50	-	(136)
Other	-	(2)	-	-	1	(1)
Ending Balance	\$ 82	\$ 44	\$ 342	\$ 84	\$ 63	\$ 615

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Pension assets included in Level 1 of the fair value hierarchy are valued daily based on quoted prices in active markets. Assets included in Level 2 are valued using significant observable inputs other than quoted prices in active markets. US Government Bonds and Corporate Bonds included in Level 2 assets are generally part of collective investment funds valued at the net asset values of the commingled funds based on the quoted prices of the underlying investments as a readily determinable fair value that is published by investors and is the basis for current transactions, or valued based on other observable inputs such as market indices or other comparable investments. Other bonds in these categories are valued based on interest rates and yield curves observable at commonly quoted intervals or at bid evaluation prices for securities traded on Over-The-Counter (OTC) markets as provided by independent pricing vendors. Domestic and International Equities included in Level 2 assets are generally part of collective investment funds valued at the net asset values of the commingled funds based on the quoted prices of the underlying investments as a readily determinable fair value that is published by investors and is the basis for current transactions. Assets included in Level 3 are valued using significant unobservable inputs. Private Investment Funds and Real Estate Funds included in Level 3 assets are generally priced by the fund general partners or investment managers, verified by independent third-party appraisers, and audited by independent auditing firms. The actual market values are generally determinable by investment managers and verified by third parties, or by negotiations between independent parties pursuant to sales transactions. Assets held in Life Insurance Company General Accounts under Level 3 are generally credited guaranteed interest rates under the contracts or are valued based on the values of the underlying asset holdings of the accounts.

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

The \$144 million of assets in the five other postretirement benefit plans include \$114 million of investments in insurance contracts (General Accounts) of which \$83 million is valued using significant unobservable inputs (Level 3). The balance of the Level 3 insurance contracts decreased by \$6 million during FY 2020 from \$89 million to \$83 million. Assets held in Life Insurance Company General and Separate Accounts under Levels 2 and 3 of the fair value hierarchy are generally credited guaranteed interest rates based on customized fixed income indices. The remaining assets in the other postretirement benefit plans are invested in asset classes similar to the assets of the pension plans. None of the other assets in the other postretirement benefit plans were valued using unobservable inputs and none were valued based on the net asset value as a practical expedient of fair value.

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

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17. Leases

Non-Federal Capital Leases:

(\$ IN MILLIONS)	FY 2020	FY 2019
SUMMARY OF ASSETS UNDER CAPITAL LEASE		
Power line equipment	\$ 2,071	\$ 2,046
Buildings	12	-
ADP equipment	300	309
Construction work in progress	124	80
Lease-purchase trust funds	23	54
Total capital lease assets	\$ 2,530	\$ 2,489
Less accumulated depreciation	(398)	(327)
Net assets under capital leases	\$ 2,132	\$ 2,162

(\$ IN MILLIONS)	POWER LINE EQUIPMENT	O THER	TO TAL
FISCAL YEAR 2020			
Future lease payments:			
2021	\$ 644	\$ 43	\$ 687
2022	126	33	159
2023	124	29	153
2024	140	5	145
2025	236	1	237
2026+	1,639	6	1,645
Total future lease payments	\$ 2,909	\$ 117	\$ 3,026
Less imputed interest	(694)	(7)	(701)
Less executory costs	(3)	(3)	(6)
Net capital lease liability	\$ 2,212	\$ 107	\$ 2,319
Capital lease liabilities covered by budgetary resources			\$ (2,223)
Capital lease liabilities not covered by budgetary resources ^(Note 11)			(96)
Total capital lease liability			\$ (2,319)

Federal and Non-Federal Operating Leases:

(\$ IN MILLIONS)	ASSET CATEGORY		TO TAL	
	BUILDINGS/FACILITIES	O THER	FEDERAL	NON-FEDERAL
FISCAL YEAR 2020				
Future lease payments:				
2021	\$ 115	\$ 11	\$ 81	\$ 46
2022	113	7	81	39
2023	103	4	77	30
2024	95	1	70	26
2025	84	1	68	17
2026+	537	1	477	60
Total future lease payments	\$ 1,047	\$ 25	\$ 854	\$ 218

The Department acquires functional use of various buildings/facilities, equipment, and other assets via operating lease instruments. The above table shows the Department's total future lease payments by fiscal year for all federal and non-federal operating leases that have initial or remaining non-cancellable terms in excess of one year as of September 30, 2020. In particular, the bulk of

the Department's \$854 million of total future lease payments for federal non-cancellable operating leases is comprised of two Occupancy Agreements (OA) between DOE and the General Services Administration (GSA) consisting of \$789 million in combined future lease payments. The two OAs have lease terms that expire in FY 2032-2033.

18. Contingencies and Commitments

(\$ IN MILLIONS)	FY 2020	FY 2019
Unfunded contingencies ^(Note 11)		
Spent nuclear fuel litigation	\$ 30,604	\$ 28,537
Other	52	167
Subtotal	\$ 30,656	\$ 28,704
Funded contingencies		
Other	4	2
Total contingencies	\$ 30,660	\$ 28,706

(\$ IN MILLIONS)	ACCRUED LIABILITIES	ESTIMATED RANGE OF LOSS	
		Lower End	Upper End
FY 2020			
Legal Contingencies:			
Probable	\$ 30,608	\$ 30,608	\$ 30,608
Reasonably Possible	-	20	67
	-		
Environmental Contingencies:			
Probable	-	-	-
Reasonably Possible	-	113	432
Other Contingencies:			
Probable	52	52	52
Reasonably Possible	-	-	-
Total Contingencies	\$ 30,660	\$ 30,793	\$ 31,159
FY 2019			
Legal Contingencies:			
Probable	\$ 28,572	\$ 28,572	\$ 28,572
Reasonably Possible	-	337	337
Environmental Contingencies:			
Probable	-	-	-
Reasonably Possible	-	33	362
Other Contingencies:			
Probable	134	134	134
Reasonably Possible	-	-	-
Total Contingencies	\$ 28,706	\$ 29,076	\$ 29,405

The Department is a party in various administrative proceedings, legal actions, and tort claims which may ultimately result in settlements or decisions adverse to the federal government. The Department has accrued contingent liabilities where losses are determined to be probable and the amounts can be estimated. Other significant contingencies exist where a loss is reasonably possible or where the loss is probable and an estimate cannot be determined. In some cases, a portion of any loss

that may occur may be paid from Treasury's Judgment Fund and reported as a Costs Not Assigned (see [Note 21](#)). The Judgment Fund is a permanent, indefinite appropriation available to pay judgments against the government. The following are significant contingencies:

SPENT NUCLEAR FUEL LITIGATION

In accordance with the NWPA, the Department entered into more than 68 Standard Contracts with utilities in

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which, in return for payment of fees into the NWF, the Department agreed to begin disposal of SNF by January 31, 1998. Because the Department has no facility available to receive SNF under the NWPA, it has been unable to begin disposal of the utilities' SNF as required by the contracts. Significant litigation claiming damages for partial breach of contract has ensued as a result of this delay.

To date, 41 suits have been settled involving utilities that collectively own 80 percent of the nuclear reactors subject to litigation for partial breach of contract. Under the terms of the settlements, the Judgment Fund, 31 U.S.C. 1304, paid \$6.3 billion as of September 30, 2020 to the settling utilities for delay damages they have incurred through September 30, 2020. In addition, 63 cases have been resolved by 55 final unappealable judgments and eight voluntary withdrawals with no damages. Eight of the unappealable judgments resulted in an award of no damages by the trial court and the 47 remaining cases resulted in a total of \$2.3 billion in damages that have been paid by the Judgment Fund as of September 30, 2020.

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

An additional 16 cases remain pending the Court of Federal Claims. Liability is probable in these cases, and in many of these cases orders have already been entered establishing the Government's liability and the only outstanding issue to be litigated is the amount of damages to be awarded. Some years ago, the industry was reported to estimate that damages for all utilities with which the Department has contracts ultimately would be at least \$50 billion. The Department believes that the industry's estimate was highly inflated and that the disposition of the 96 cases that have either been settled or subject to a judgment in the trial court suggests that the Government's ultimate liability is likely to be significantly less than that estimate. Accordingly, based on these settlement estimates, the total liability estimate as of September 30, 2020 was \$39.2 billion. After deducting the cumulative amount paid of \$8.6 billion as of September 30, 2020 under these settlements and as a result of final judgments, the remaining liability is estimated to be approximately \$30.6 billion. Under current law, any damages or settlements in this litigation will be paid out of the Judgment Fund. The Department's contingent liability estimate for SNF litigation is reported net of amounts paid to date from the Judgment Fund.

The Department previously reported several developments that made it difficult to reasonably predict the amount of the Government's likely liability. In March

2017, the current Administration submitted *America First – A Budget Blueprint to Make America Great Again* to Congress that included the restart of licensing activities for the Yucca Mountain nuclear waste repository. The Administration requested funds from the Nuclear Waste Fund to restart licensing for Yucca Mountain in the FY 2018 – 2020 Budget Requests. However, no appropriations were received. The Administration is taking a different approach and recently announced its intent to pursue alternatives to Yucca Mountain. The FY2021 budget request included funds to develop and implement an interim storage program as part of an integrated plan. However, the NWPA, as amended, mandates pursuing Yucca Mountain. Thus, amending the NWPA will be necessary to pursue a new approach. The Administration is committed to working with Congress to develop and implement a new integrated plan. The liability estimate assumes activities on a DOE Facility will begin by FY 2023 and that acceptance will begin no later than the timeframes contained in the NWPA and the Yucca Mountain License Application, a reasonable assumption should Congress follow existing law or amend the NWPA to pursue consolidated interim storage.

ALLEGED EXPOSURES TO RADIOACTIVE AND/OR TOXIC SUBSTANCES

A number of class action and/or multiple plaintiff tort suits have been filed against current and former DOE contractors in which the plaintiffs seek damages for alleged exposures to radioactive and/or toxic substances as a result of the historic operations of the Department's nuclear facilities. The most significant of these cases arise out of operations of the facilities at Brookhaven, New York. Collectively, in these cases, damages of \$1.2 billion are currently sought.

In the Brookhaven litigation, two class action cases, *Osarczuk v. Associated Universities and Tarzia v. Associated Universities*, were filed in which residents and property owners near Brookhaven National Laboratory asserted claims for negligence, gross negligence, abnormally dangerous activity, and private nuisance and sought damages, primarily for air and ground water contamination, as a result of the release of hazardous substances stemming from Lab operations. In addition, one toxic tort case, *McGowan, et al. v. Associated Universities*, was filed in which a former worker at Brookhaven National Laboratory asserted claims for negligence, abnormally dangerous activity, gross negligence, and loss of consortium and sought damages as a result of the release of TCE stemming from Lab operations. In *Osarczuk*, the parties have settled all of the cases in the first cohort of 20 bellwether cases and all of the cases in the second cohort of 20 bellwether cases. In addition to the 18 bellwether plaintiff groups, there are 35 remaining bellwether groups in this action. Settlement offers for the third cohort were exchanged, but no agreements have been reached. The trial court is expected to begin setting trial dates for this cohort. In *Tarzia*, the plaintiffs filed on April 6, 2018, with the Appellate Division

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of the New York Supreme Court, a notice of appeal of the trial court's February 22, 2018, Order granting AUI's motion to dismiss with prejudice the plaintiffs' complaint in this action for failure to prosecute, after the plaintiffs failed to comply with the judge's earlier Order requiring them to serve their responses to AUI's discovery demands. The plaintiffs failed to perfect that appeal, and the Appellate Division dismissed the appeal. On February 28, 2019, the plaintiffs filed a separate notice of appeal of the trial court's January 15, 2019, Order denying the plaintiffs' motion to vacate the trial court's February 22, 2018 Order. The plaintiffs filed their appeal brief with the Appellate Division on November 17, 2019 and AUI filed a response brief on December 17, 2019. On March 10, 2020, an oral argument was held on the plaintiff's appeal. On September 23, 2020, the Appellate Division issued an opinion affirming the trial court. Plaintiffs have noticed their intent to file a motion to reargue before the Appellate Division or, in the alternative, leave to appeal to the New York Court of Appeals. In McGowan, a complaint was filed on May 19, 2020. Plaintiffs in the Brookhaven litigation are seeking \$1.2 billion, collectively. However, the Department believes that if any damages are ultimately awarded, the amounts would be significantly less than what plaintiffs seek.

HANFORD SITE NATURAL RESOURCES DAMAGES

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

LOS ALAMOS ENVIRONMENTAL CLEAN-UP COMPLIANCE

Nuclear Watch New Mexico filed suit in May 2016 in the U.S. District Court for the District of New Mexico against DOE and Los Alamos National Security, LLC (LANS), the operating contractor for Los Alamos National Laboratory (LANL), pursuant to the citizen suit provision of the Resource Conservation and Recovery Act (RCRA). Nuclear Watch alleges that DOE and LANS are in violation of a Compliance Order on Consent entered into in 2005 between the New Mexico Environment Department (NMED), DOE, and LANS, which established various milestones for environmental cleanup activity at Los

Alamos. A new Compliance Order on Consent between DOE and NMED was entered into in June 2016, shortly after Nuclear Watch filed its lawsuit, which explicitly supersedes the 2005 order. In its complaint, Nuclear Watch sought declaratory and injunctive relief to bring DOE and LANS into compliance with the 2005 order and sought civil penalties under RCRA, which Nuclear Watch estimated to total up to \$300 million. NMED intervened as a defendant, and Nuclear Watch twice amended its complaint. In late 2016, the defendants moved to dismiss the suit. In July 2018, the district court granted the motions to dismiss in part, dismissing all claims for declaratory and injunctive relief, but denied the motions to dismiss with respect to claims seeking civil penalties for alleged past violations. All parties filed cross-motions for summary judgment, which the court denied for Nuclear Watch and DOE but granted for LANS in November 2019. The court ordered the parties to formulate and submit a discovery plan by November 6, 2020. An initial scheduling conference with the court is scheduled for November 17, 2020.

PADUCAH AND PORTSMOUTH NATURAL RESOURCE DAMAGES

As a result of releases of hazardous substances at the Paducah and Portsmouth Sites, the States of Ohio and Kentucky have potential claims against DOE under the Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA) for damages to natural resources (e.g., ground water) caused by such releases.

At the Paducah site, Kentucky has indicated that it desires a "tolling" agreement with respect to potential claims for natural resource damages. A tolling agreement would suspend the statute of limitations for the filing of the state's claims for a mutually agreeable period of time. As of September 30, 2020, Kentucky has not pursued executing a tolling agreement. It is possible that DOE will be liable for some natural resource damages at this site. DOE is unable to prepare an estimate of such damages and has not included a provision for damages in the consolidated financial statements.

At the Portsmouth site, DOE and Ohio EPA have executed a Director's Final Findings and Order settling the claims for natural resource damages. DOE will continue discussions with the remaining federal trustees to resolve any potential claims for natural resource damages to be pursued by them.

PURCHASE POWER AND TRANSMISSION COMMITMENTS AND IRRIGATION ASSISTANCE

The PMAs have entered into commitments to sell expected generation for future dates. When the PMAs forecast a resource shortage they take a variety of operational and business steps to cover a potential shortage including entering into power purchase commitments. If appropriate, the PMAs will enter into long-term commitments to purchase power for future delivery. The

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

PMA's record expenses associated with these purchases in the periods that power is received.

As directed by law, WAPA and BPA are required to establish rates sufficient to make cash distributions to the Treasury for the portion of BOR's original capital construction costs allocated to irrigation purposes, which were determined by the Secretary of the Interior to be beyond the ability of the irrigation customers to pay. These irrigation distributions do not specifically relate to power generation. In establishing power rates, particular statutory provisions guide the assumptions that WAPA and BPA makes as to the amount and timing of such distributions. As a result, WAPA and BPA include a schedule of irrigation assistance costs in each respective power system's power repayment study to demonstrate repayment of principal within the allowable repayment period. These repayment amounts do not incur or accumulate interest from the date that BOR determines the irrigators' inability to pay. Future irrigation assistance payments are scheduled for BPA to total \$281 million over a maximum of 66 years since the time the irrigation facilities were completed and placed in service, and WAPA's payments are scheduled to total \$1.8 billion over a maximum of 50 years since the time the irrigation facilities and additions were completed and placed in service.

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

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

(\$ IN MILLIONS) FISCAL YEAR	PURCHASE POWER AND TRANSMISSION (ALL PMA'S)	IRRIGATION ASSISTANCE (BPA and WAPA)
2021	122	48
2022	96	16
2023	91	35
2024	74	9
2025	68	130
2026+	127	1,842
Total	\$ 578	\$ 2,080

INTEGRATED FISH AND WILDLIFE PROGRAM

The Northwest Power Act directs BPA to protect, mitigate and enhance fish and wildlife and their habitats to the extent they are affected by the federal hydroelectric projects on the Columbia River and its tributaries from which BPA markets power. BPA makes expenditures and incurs other costs for fish and wildlife protection and mitigation that are consistent with the purposes of the Northwest Power Act and the Pacific Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program. In addition, certain fish and wildlife species that inhabit the Columbia River Basin are listed under the Endangered Species Act (ESA) as threatened or endangered. BPA makes expenditures and incurs other costs related to power purchases to comply with the ESA and implement certain biological opinions (BiOp) prepared by the National Oceanic and Atmospheric Administration Fisheries Service and the U.S. Fish and Wildlife Service in furtherance of the ESA, including results from the Columbia River System Operations Environmental Impact Statement (CRSO EIS). BPA's total commitment including timing of payments under the Northwest Power Act, ESA, and BiOp, including CRSO EIS impacts, is not fixed or determinable.

In October 2018, BPA and its federal partners USACE and BOR signed extension agreements with current Accords partners, namely certain states and tribes, to extend the Columbia Basin Fish Accords. The previous agreements expired September 30, 2018, and were extended from October 2018 until September 30, 2022, at the latest. The extension agreements, in addition to a similar new agreement signed later in FY 2019, commit \$502 million for fish and wildlife protection and mitigation, which is likely to result in future expenses or regulatory assets.

As of September 30, 2020, BPA has long-term fish and wildlife agreements with estimated contractual commitments of \$629 million, which includes the \$502 million referenced above. These long-term fish and wildlife agreements are likely to result in future expenses or regulatory assets. These agreements will expire at various dates through FY 2027 and include the Columbia Basin Fish Accords extension agreements, which are described above.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

19. Dedicated Collections

(\$ IN MILLIONS)	FY 2020					
	NUCLEAR WASTE FUND	D&D FUND	PMA's	OTHER	ELIMINATIONS	TOTAL
BALANCE SHEET						
ASSETS						
Intragovernmental:						
Fund Balance with Treasury	\$ 2	\$ 30	\$ 4,432	\$ 1,463	\$ -	\$ 5,927
Investments and related interest, net	42,649	860	491	1,736	-	45,736
Accounts receivable, net	-	-	145	-	(7)	138
Loans receivable, amounts loaned from Reclamation Fund	-	-	2,916	-	(2,916)	-
Other intragovernmental assets	-	23	-	-	(23)	-
Total intragovernmental assets	\$ 42,651	\$ 913	\$ 7,984	\$ 3,199	\$ (2,946)	\$ 51,801
Accounts receivable, net	\$ 2,418	\$ -	\$ 511	\$ -	\$ -	\$ 2,929
Direct loans and loan guarantees, net	-	-	1	-	-	1
Inventory, net	-	-	135	179	-	314
General property plant and equipment, net	-	23	10,565	124	-	10,712
Regulatory assets	-	-	9,656	-	-	9,656
Other assets	-	(23)	4,390	-	-	4,367
Total Assets	\$ 45,069	\$ 913	\$ 33,242	\$ 3,502	\$ (2,946)	\$ 79,780
LIABILITIES AND NET POSITION						
Intragovernmental:						
Accounts payable	\$ -	\$ 14	\$ 94	\$ -	\$ (21)	\$ 87
Debt	-	-	12,286	-	(2,916)	9,370
Deferred revenues and other credits	-	-	5	-	-	5
Other intragovernmental liabilities	-	24	92	1	(9)	108
Total intragovernmental liabilities	\$ -	\$ 38	\$ 12,477	\$ 1	\$ (2,946)	\$ 9,570
Accounts payable	\$ -	\$ 149	\$ 453	\$ 11	\$ -	\$ 613
Debt	-	-	5,078	-	-	5,078
Deferred revenues and other credits	45,069	-	1,441	11	-	46,521
Environmental cleanup and disposal liabilities	-	25,651	20	-	-	25,671
Pensions and other actuarial liabilities	-	33	43	-	-	76
Obligations under capital leases	-	-	2,211	-	-	2,211
Other liabilities	-	-	2,919	54	-	2,973
Total liabilities	\$ 45,069	\$ 25,871	\$ 24,642	\$ 77	\$ (2,946)	\$ 92,713
Unexpended appropriations	\$ -	\$ -	\$ -	\$ 9	\$ -	\$ 9
Cumulative results of operations	-	(24,958)	8,600	3,416	-	(12,942)
Total Liabilities and Net Position	\$ 45,069	\$ 913	\$ 33,242	\$ 3,502	\$ (2,946)	\$ 79,780
STATEMENT OF NET COST						
Program costs	\$ 1	\$ 620	\$ 4,478	\$ 169	\$ (289)	\$ 4,979
Less earned revenues	(5)	(27)	(5,042)	(667)	289	(5,452)
Net program costs	\$ (4)	\$ 593	\$ (564)	\$ (498)	\$ -	\$ (473)
Costs not assigned	-	-	-	37	-	37
Net cost of operations	\$ (4)	\$ 593	\$ (564)	\$ (461)	\$ -	\$ (436)
STATEMENT OF CHANGES IN NET POSITION						
Net position beginning of period	\$ -	\$ (24,365)	\$ 8,463	\$ 2,924	\$ -	\$ (12,978)
Taxes and nonexchange revenue	-	-	-	30	-	30
Budgetary financing sources	(4)	-	(275)	11	-	(268)
Other financing sources	-	-	(152)	(1)	-	(153)
Net cost of operations	4	(593)	564	461	-	436
Change in net position	\$ -	\$ (593)	\$ 137	\$ 501	\$ -	\$ 45
Net position end of period	\$ -	\$ (24,958)	\$ 8,600	\$ 3,425	\$ -	\$ (12,933)

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

Dedicated Collections (continued)

(\$ IN MILLIONS)	FY 2019					
	NUCLEAR WASTE FUND	D&D FUND	PMA's	OTHER	ELIMINATIONS	TOTAL
BALANCE SHEET						
ASSETS						
Intragovernmental:						
Fund Balance with Treasury	\$ 2	\$ 22	\$ 4,349	\$ 973	\$ -	\$ 5,346
Investments and related interest, net	40,904	1,699	137	1,705	-	44,445
Accounts receivable, net	-	-	143	-	(7)	136
Loans receivable, amounts loaned from Reclamation Fund	-	-	2,893	-	(2,893)	-
Other intragovernmental assets	-	23	-	-	(23)	-
Total intragovernmental assets	\$ 40,906	\$ 1,744	\$ 7,522	\$ 2,678	\$ (2,923)	\$ 49,927
Accounts receivable, net	\$ 2,576	\$ -	\$ 510	\$ 5	\$ -	\$ 3,091
Direct loans and loan guarantees, net	-	-	1	-	-	1
Inventory, net	-	-	133	185	-	318
General property plant and equipment, net	-	21	10,418	81	-	10,520
Regulatory assets	-	-	9,898	-	-	9,898
Other assets	-	(23)	4,663	-	-	4,640
Total Assets	\$ 43,482	\$ 1,742	\$ 33,145	\$ 2,949	\$ (2,923)	\$ 78,395
LIABILITIES AND NET POSITION						
Intragovernmental:						
Accounts payable	\$ -	\$ 15	\$ 96	\$ -	\$ (21)	\$ 90
Debt	-	-	11,873	-	(2,893)	8,980
Deferred revenues and other credits	-	-	3	-	-	3
Other intragovernmental liabilities	-	9	13	-	(9)	13
Total intragovernmental liabilities	\$ -	\$ 24	\$ 11,985	\$ -	\$ (2,923)	\$ 9,086
Accounts payable	\$ -	\$ 145	\$ 464	\$ 8	\$ -	\$ 617
Debt	-	-	5,479	-	-	5,479
Deferred revenues and other credits	43,481	-	1,504	1	-	44,986
Environmental cleanup and disposal liabilities	1	25,907	20	-	-	25,928
Pensions and other actuarial liabilities	-	31	45	1	-	77
Obligations under capital leases	-	-	2,170	-	-	2,170
Other liabilities	-	-	3,015	15	-	3,030
Total liabilities	\$ 43,482	\$ 26,107	\$ 24,682	\$ 25	\$ (2,923)	\$ 91,373
Unexpended appropriations	\$ -	\$ -	\$ -	\$ 7	\$ -	\$ 7
Cumulative results of operations	-	(24,365)	8,463	2,917	-	(12,985)
Total Liabilities and Net Position	\$ 43,482	\$ 1,742	\$ 33,145	\$ 2,949	\$ (2,923)	\$ 78,395
STATEMENT OF NET COST						
Program costs	\$ 4	\$ 222	\$ 4,470	\$ 141	\$ (298)	\$ 4,539
Less earned revenues	(8)	(48)	(4,989)	(1,155)	298	(5,902)
Net program costs	\$ (4)	\$ 174	\$ (519)	\$ (1,014)	\$ -	\$ (1,363)
Costs not assigned	-	(15)	-	(7)	-	(22)
Net cost of operations	\$ (4)	\$ 159	\$ (519)	\$ (1,021)	\$ -	\$ (1,385)
STATEMENT OF CHANGES IN NET POSITION						
Net position beginning of period	\$ -	\$ (24,208)	\$ 8,245	\$ 2,603	\$ -	\$ (13,360)
Taxes and nonexchange revenue	-	-	(1)	43	-	42
Budgetary financing sources	(4)	-	(123)	10	-	(117)
Other financing sources	-	2	(177)	(753)	-	(928)
Net cost of operations	4	(159)	519	1,021	-	1,385
Change in net position	\$ -	\$ (157)	\$ 218	\$ 321	\$ -	\$ 382
Net position end of period	\$ -	\$ (24,365)	\$ 8,463	\$ 2,924	\$ -	\$ (12,978)

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

NUCLEAR WASTE FUND

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

DECONTAMINATION AND DECOMMISSIONING FUND

The Energy Policy Act of 1992 established the D&D Fund to pay for the costs of decontamination and decommissioning of gaseous diffusion facilities through collection of revenues derived from domestic utility assessments and government appropriations. As part of that Act, funds in excess of current needs are invested in Treasury securities and the interest earned is available to

pay the costs of the environmental remediation. On December 20, 2019, the President signed into law the Further Consolidated Appropriations Act, 2020, which authorized the EM Program to spend \$881 million in D&D activities.

POWER MARKETING ADMINISTRATIONS

The PMAs have been funded primarily from four sources. These have included contract authority, borrowing authority, direct receipts generated from the sale of power and transmission services, and annual appropriations. SEPA and SWPA receive an annual appropriation from Treasury's General Fund. WAPA receives an annual appropriation from a receipt fund within the Reclamation Fund. These appropriated funds are repaid to Treasury's General Fund and the Reclamation Fund from the revenues generated from power sales.

20. Program Costs and Earned Revenues by Major Program

(\$ IN MILLIONS)	FY 2020	FY 2019
Nuclear Security and NNSA		
Program Costs	\$ 12,953	\$ 11,690
Earned Revenues	(18)	(18)
Changes to environmental cleanup and disposal liability estimates ^(Note 15)	1,564	(15,068)
Net Cost (+/-) of Nuclear Security and NNSA	\$ 14,499	\$ (3,396)
Science		
Program Costs	\$ 10,837	\$ 10,874
Earned Revenues	(94)	(122)
Changes to environmental cleanup and disposal liability estimates ^(Note 15)	12,444	33,577
Net Cost (+/-) of Science	\$ 23,187	\$ 44,329
Energy		
Program Costs	\$ 10,079	\$ 9,389
Earned Revenues	(5,621)	(6,001)
Changes to environmental cleanup and disposal liability estimates ^(Note 15)	477	130
Net Cost (+/-) of Energy	\$ 4,935	\$ 3,518
Net Cost of Major Programs	\$ 42,621	\$ 44,451
Other Programs		
Reimbursable programs		
Program Costs	\$ 5,160	\$ 4,877
Earned Revenues	(5,057)	(4,780)
Net Costs of Reimbursable Programs	\$ 103	\$ 97
Other programs		
Program Costs	\$ 1,803	\$ 1,680
Earned Revenues	(399)	(379)
Net Costs of Other Programs	\$ 1,404	\$ 1,301
Costs applied to reduction of legacy environmental liabilities ^(Note 15)	\$ (6,310)	\$ (6,083)
Costs not assigned to programs ^(Note 21)	\$ 17,191	\$ 13,285
Net Cost of Operations	\$ 55,009	\$ 53,051

MAJOR PROGRAMS

Nuclear Security and NNSA

The general program costs and revenues related to Nuclear Security and NNSA allow the Department to strengthen national security by maintaining a safe, secure, and effective nuclear weapons stockpile that will deter any adversary and guarantee the defense of the Nation and its allies; managing the research, development, and production activities and associated infrastructure needed to meet national nuclear 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.

Additionally, for the Department's environmental cleanup and disposal liability cost estimates attributable to the Nuclear Security and NNSA program, the increase between FY 2020 and FY 2019 is due to the inflation adjustments to reflect constant dollars for the current year; improved and updated estimates for the same scope of work, including changes resulting from deferral or acceleration of work; and revisions in technical approach or scope, including additional contamination. The FY 2019 amount was a decrease due to the change of methodology for disposition of surplus plutonium in FY 2019 (see [Note 15](#)).

Science

The general program costs and revenues related to Science enable the Department to lead the world in research in the physical, chemical, biological, and computational sciences; contribute fundamental scientific discoveries and technological solutions that support American pre-eminence in science and innovation; and lead the national effort to maintain primacy in high-performance computing.

For the Department's environmental cleanup and disposal liability cost estimates attributable to the Science program, the change between FY 2020 and FY 2019 resulted from inflation adjustments to reflect constant dollars for the current year; improved and updated estimates for the same scope of work, including changes resulting from deferral or acceleration of work; revisions in technical approach or scope, including additional contamination; updated estimates of projected waste volumes; changes in the Department's allocable percentage share of future costs; legal and regulatory changes; and cleanup activities performed (see [Note 15](#)).

Energy

The general program costs and revenues related to Energy allow the Department to lead the nation in cutting-edge research and development of an extensive range of energy technologies and identify and promote transformational technological advances to increase energy affordability and efficiency. The Energy program also enables the Department to lead national efforts to develop technologies to modernize the electric grid to improve its

reliability and resilience; enhance the security, reliability, and resilience of energy infrastructure; improve domestic fossil energy production and use; and expedite recovery from energy supply disruptions.

The earned revenues within the Energy program are primarily made up of PMA revenue from selling power and transmission services. Preference for the sale of power and transmission services is given to public bodies and cooperatives. The revenue is used to repay Treasury annual appropriations, interest on capital investment repayment, borrowings from Treasury, and operation and maintenance costs as well as other payment obligations.

For the Department's environmental cleanup and disposal liability cost estimates attributable to the Energy program, the change between FY 2020 and FY 2019 resulted from improved and updated estimates for the same scope of work, including changes resulting from deferral or acceleration of work; revisions in technical approach or scope, including additional contamination; updated estimates of projected waste volumes; changes in the Department's allocable percentage share of future costs; legal and regulatory changes; and cleanup activities performed (see [Note 15](#)).

OTHER PROGRAMS

Reimbursable Programs

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

For research and other activities, including the provision of materials and services for the benefit of non-DOE entities, the Department's general pricing policy is to charge full cost as defined in section 3137 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, 42 U.S.C. § 7259a. The general pricing policy does not apply when prices or charges are otherwise established or prohibited by statute or regulation, and in some cases the full cost information provided by the Department in accordance with SFFAS 4, *Managerial Cost Accounting Concepts and Standards for the Federal Government*, may exceed revenues.

Other Programs

The Department's other programs allow the agency to employ effective management and refine operational and support capabilities to support Departmental missions. Costs included in the Other Programs line support the activities reported in all of the Department's major programs.

Costs Applied to Reduction of Legacy Environmental Liabilities

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

21. Costs Not Assigned to Programs

(\$ IN MILLIONS)	FY 2020	FY 2019
Spent nuclear fuel contingency ^(Note 18)		
Judgment Fund payments	\$ 656	\$ 558
Change in estimates	2,068	425
Current year spent nuclear fuel contingency costs	\$ 2,724	\$ 983
Changes in contractor pension and PRB estimates	1,591	8,050
Change in unfunded safety and health liabilities ^(Notes 11 and 14)	-	161
Change in occupational illness program	12,426	4,096
Other Judgment Fund payments	676	11
Other	(227)	(16)
Total Costs Not Assigned to Programs ^(Note 20)	\$ 17,191	\$ 13,285

CHANGES IN CONTRACTOR PENSION AND PRB ESTIMATES

The changes in contractor pension and PRB estimates are comprised of all the components of contractor pension and PRB net periodic costs except for service costs [i.e., interest costs; expected return on plan assets; (gain)/loss due to curtailments, settlements, or special termination benefits; net prior service cost/(credit); and net (gain)/loss including impacts of changes in actuarial assumptions]. Service costs are not included since they are recorded by program (see [Notes 16](#) and [22](#)).

COMPENSATION PROGRAM FOR OCCUPATIONAL ILLNESSES

The Energy Employees Occupational Illness Compensation Program Act (EEOICPA) authorized compensation for certain illnesses suffered by employees of the Department, its predecessor agencies, and contractors who performed work for the nuclear weapons program (see [Note 22](#)). EEOICPA covers illnesses associated with exposure to radiation, beryllium, or silica. In general, each eligible employee and survivors of deceased employees will receive compensation for the disability or death of that employee in the amount of \$150,000 plus the costs of medical care.

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

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

The large increase in FY 2020 is primarily due to an increase in the year-end discounted liability estimate for future EEOICPA benefit payments. This substantial increase was largely driven by the continued rise of new cases and expansion of benefits due to increase in acceptances of consequential conditions in existing cases.

22. Inter-Entity Costs

Goods and services are received from other federal entities at no cost or at a cost less than the full cost to the providing federal entity. Consistent with accounting standards, certain costs of the providing entity that are not fully reimbursed by the Department are recognized as imputed cost in the Statement of Net Cost and are offset by imputed financing in the Statement of Changes in Net Position. Such imputed costs and financing relate to

EEOICPA payments by the Department of Labor (see [Note 21](#)), Treasury borrowing costs during construction of WAPA plant assets recoverable by the Bureau of Reclamation, employee benefits, and claims paid by the Treasury Judgment Fund (see [Note 21](#)). Unreimbursed costs of goods and services other than those identified above are not included in our financial statements.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

23. Combined Statements of Budgetary Resources

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

NET ADJUSTMENTS TO UNOBLIGATED BALANCE, BROUGHT FORWARD, OCTOBER 1

(\$ IN MILLIONS)	FY 2020	FY 2019
Unobligated balance brought forward, Oct 1	\$ 10,164	\$ 9,655
Unobligated balance transferred to other accounts	(3)	(7)
Unobligated balance transferred from other accounts	14	69
Recoveries of prior year unpaid obligations	547	1,327
Unobligated balances applied to repay debt	(239)	(217)
Unobligated balance of borrowing authority withdrawn	-	(4)
Other balances withdrawn to Treasury	(25)	(27)
Recoveries of prior year paid obligations	13	56
Total Unobligated Balance	\$ 10,471	\$ 10,852

BORROWING AUTHORITY

The Department's borrowing authority reflected in the *Combined Statements of Budgetary Resources* represents the amount of borrowing authority for the current Fiscal Year's obligations, which may or may not have been converted to cash. The amount of borrowing authority available for the Department's loan program has decreased from \$4.4 billion as of September 30, 2019, to \$2.4 billion as of September 30, 2020, BPA has decreased from \$2.4 billion as of September 30, 2019, to \$2.1 billion as of September 30, 2020, while the amount of borrowing authority available for WAPA has remained unchanged at \$3.2 billion. The amounts available are authority that has not been converted to cash.

CONTRACT AUTHORITY

Congress intended BPA to operate in a businesslike manner and to carry out its mission free from the uncertainty inherent in the annual appropriations process.

Therefore, Congress permitted BPA to enter into (multi-year) contracts (including when BPA received annual appropriations.) The Bonneville Project Act provides the following authority:

832a(f) - Subject only to the provisions of this chapter, the Administrator is authorized to enter into such contracts, agreements and arrangements, including the amendment, modification, adjustment, or (cancellation) thereof and the compromise or final settlement of any claim arising thereunder, and to make such expenditures, upon, such terms and conditions and in such manner as he may deem necessary.

The amount of contract authority reflected as available in the *Combined Statements of Budgetary Resources* has decreased from \$2.9 billion as of September 30, 2019 to \$2.5 billion as of September 30, 2020.

UNDELIVERED ORDERS AT THE END OF THE PERIOD

(\$ IN MILLIONS)	FY 2020		FY 2019	
	Federal	Non-Federal	Federal	Non-Federal
Undelivered orders - unpaid	\$ 1,846	\$ 31,655	\$ 931	\$ 31,500
Undelivered orders - paid	26	358	29	345
Total undelivered orders	\$ 1,872	\$ 32,013	\$ 960	\$ 31,845

PERMANENT INDEFINITE APPROPRIATIONS

(\$ IN MILLIONS)	FY 2020	FY 2019
Definite appropriations	\$ 38,729	\$ 36,003
Permanent indefinite mandatory appropriations	113	12
Total Appropriations	\$ 38,842	\$ 36,015

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

that are available until expended. The permanent indefinite mandatory appropriations are attributable to the Title 17 Innovative Technology Loan Guarantee Program.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

LEGAL ARRANGEMENTS AFFECTING THE USE OF UNOBLIGATED BALANCES

(\$ IN MILLIONS)	FY 2020	FY 2019
Loan funds reserved for future defaults	\$ 1,062	\$ 1,005
Unexpired appropriations that did not receive apportionments	10	10
Prior year deobligations in excess of apportioned amount	38	23
Non-expenditure transfers not apportioned	2	-
Actual unobligated carryover greater than estimated amounts on the apportionments	1	3
Expired appropriations	71	75
Total unobligated balances not available	\$ 1,184	\$ 1,116

EXPLANATION OF DIFFERENCES BETWEEN THE SBR AND THE BUDGET OF THE U.S. GOVERNMENT

(\$ IN MILLIONS)	BUDGETARY RESOURCES	NEW OBLIGATIONS & UPWARD ADJUSTMENTS (TOTAL)	DISTRIBUTED OFFSETTING RECEIPTS	NET OUTLAYS
Combined Statements of Budgetary Resources as published	\$ 62,135	\$ 51,971	\$ (3,716)	\$ 34,087
OMB adjustments made to exclude:				
U.S. Enrichment Corporation Fund	-	-	-	25
Non-budgetary Credit Reform Financing Accounts	(5,539)	(4,515)	-	(1,455)
Expired accounts	(75)	-	-	-
Budgetary prior year adjustments immaterial to the SBR	(5)	(5)	-	-
Other	(4)	(5)	1	(2)
Budget of the United States Government	\$ 56,512	\$ 47,446	\$ (3,715)	\$ 32,655

The FY 2019 *Combined Statements of Budgetary Resources* are reconciled to the President's Budget that was published in February 2020. The President's Budget containing actual FY 2020 balances is expected to be published and available on the OMB website in February 2021. Budgetary resources, new obligations and upward adjustments, and net outlays are reconciled to the departmental balances as published in the Appendix to the Budget; distributed offsetting receipts is reconciled to the

departmental balances in the Federal Budget by Agency and Account section of the Analytical Perspectives Volume of the President's Budget.

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

24. Custodial Activities

POWER MARKETING ADMINISTRATIONS

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

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

FEDERAL ENERGY REGULATORY COMMISSION

FERC is responsible for billing regulated companies annual charges as a custodian for certain federal agencies. These

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

25. Reconciliation of Net Cost to Net Outlays

(\$ IN MILLIONS)	FY 2020			FY 2019		
	Intragovernmental	With the Public	Total	Intragovernmental	With the Public	Total
Net Operating Cost	\$ 9,563	\$ 45,446	\$ 55,009	\$ 605	\$ 52,446	\$ 53,051
Components of Net Operating Cost Not Part of the Budgetary Outlays						
Property, plant, and equipment depreciation	\$ -	\$ (1,964)	\$ (1,964)	\$ -	\$ (1,868)	\$ (1,868)
Property, plant, and equipment disposal & reevaluation	-	(61)	(61)	-	(53)	(53)
Year-end credit reform subsidy re-estimates	168	-	168	192	-	192
Adjustments to credit reform subsidy re-estimates	(117)	-	(117)	(46)	-	(46)
Modification adjustment transfer	11	-	11	(2)	-	(2)
Other	-	(767)	(767)	-	(1,260)	(1,260)
Increase (decrease) in assets:						
Accounts receivable	\$ (314)	\$ (147)	\$ (461)	\$ (60)	\$ (136)	\$ (196)
Other assets	(5)	(491)	(496)	(43)	16	(27)
Investments	(1,593)	(25)	(1,618)	(1,510)	(60)	(1,570)
(Increase)/decrease in liabilities not affecting Budget Outlays:						
Accounts payable	\$ (2)	\$ (222)	\$ (224)	\$ (96)	\$ (545)	\$ (641)
Salaries and benefits	(7)	(328)	(335)	(2)	(40)	(42)
Environmental and disposal liabilities	-	(6,955)	(6,955)	-	(11,342)	(11,342)
Pension and PRB	-	(1,251)	(1,251)	-	(7,543)	(7,543)
Other liabilities (unfunded leave, unfunded FECA, actuarial FECA)	(171)	(1,390)	(1,561)	467	(909)	(442)
Other financing sources:						
Imputed financing from costs absorbed by others	\$ (13,844)	\$ -	\$ (13,844)	\$ (4,778)	\$ -	\$ (4,778)
Transfers out (in) without reimbursement	235	-	235	252	-	252
Other	(82)	-	(82)	(185)	-	(185)
Total Components of Net Operating Cost Not Part of Budget Outlays	\$ (15,721)	\$ (13,601)	\$ (29,322)	\$ (5,811)	\$ (23,740)	\$ (29,551)
Components of the Budget Outlays That Are Not Part of Net Operating Cost						
Effect of prior year agencies credit reform subsidy re-estimate	\$ (55)	\$ -	\$ (55)	\$ (285)	\$ -	\$ (285)
Acquisition of capital assets	16	5,183	5,199	95	4,623	4,718
Acquisition of inventory	7	1,384	1,391	4	1,522	1,526
Loans receivable	-	-	-	-	3	3
Other	(73)	(147)	(220)	(170)	(335)	(505)
Total Components of the Budget outlays That Are Not Part of Net Operating Cost	(105)	6,420	6,315	(356)	5,813	5,457
Other Temporary Timing Differences	-	\$ -	-	-	\$ (41)	(41)
Net Outlays (Calculated Total)	(6,263)	38,265	32,002	(5,562)	34,478	28,916
Related Amounts on the Statement of Budgetary Resources						
Outlays, net (SBR 4210) ^(Note 23)			\$ 34,970			\$ 32,632
Distributed offsetting receipts ^(Note 23)			(2,968)			(3,716)
Agency Outlays, Net			\$ 32,002			\$ 28,916

This reconciliation explains the relationship between the entity's net outlays on a budgetary basis and the net cost of operations during the reporting period. It serves not only to identify costs paid for in the past, and those that will be paid for in the future, but also to assure integrity between budgetary and financial accounting.

In FY 2020, OMB Circular A-136 required a change in the presentation as it relates to loans receivable under FCRA. Disbursements and collections on existing FCRA loans are recorded in the "Non-Budgetary Credit Reform Financing Account" column of the Statement of Budgetary Resources as disbursements, net, and not as agency outlays, net. Since these disbursements and collections affect neither net cost of operations nor agency outlays, net, they are

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

excluded from this reconciliation in addition to any increases or decreases in the FCRA loan receivable balances. In addition, the current year accrual subsidy cost was included in the year's components of net operating cost not part of the budgetary outlays section and is displayed in three line items: (1) Year-end credit reform subsidy re-estimates, (2) Adjustments to credit reform subsidy re-estimates, and (3) Modification adjustment transfer. The current year budget subsidy cost is included in the components of the budget outlays that are not part of net operating cost section and is displayed as a single line item: Effect of prior year credit reform subsidy re-estimates. Certain FY 2019 amounts have been reclassified to conform to the FY 2020 presentation.

The table illustrates the key reconciling items between net operating cost and net outlays which includes three sections. 1) The components of net operating cost not part of budgetary outlays includes proprietary accounts that do not result in net outlays during the current fiscal year. This includes depreciation, credit reform items, changes to certain assets and liabilities, transfers, and imputed financing. 2) The components of the budget outlays that are not part of net operating cost accounts for budgetary outlays that do not result in proprietary costs for the current fiscal year. This includes acquisition of capitalized assets, and inventory, both of which have disbursements without associated costs, as well as the effect of prior year agencies credit reform subsidy re-estimates.

26. COVID-19 Activity

In March 2020, the Department received an appropriation of \$128 million under the Coronavirus Aid, Relief, and Economic Security (CARES) Act, P.L. 116-136 to prevent, prepare for, and respond to coronavirus for necessary expenses. The Department also performed other COVID-19 related work using previously appropriated amounts.

Total obligations incurred by the Department were \$686 million as of September 30, 2020. The Department's COVID-19 obligations are primarily attributable to environmental management personnel costs, updated biosecurity, and other miscellaneous obligations.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

27. Reclassification of Balance Sheet, Statement of Net Cost, and Statement of Changes in Net Position for FR Compilation Process

(\$ IN MILLIONS)						
FY 2020 Balance Sheet	FY 2020	FY 2020 Reclassified				Line Items Used to Prepare FY 2020 Governmentwide Balance Sheet
Financial Statement Line	Amounts	Dedicated Collections Combined	Dedicated Collections Eliminations	All Other Amounts (with Eliminations)	Total	Reclassified Financial Statement Line
ASSETS:						ASSETS:
Intragovernmental Assets:						Intragovernmental Assets:
Fund Balance with Treasury ^(Note 3)	\$ 45,857	\$ 5,927	\$ -	\$ 39,930	\$ 45,857	Fund Balance with Treasury
Investments and Related Interest, Net ^(Note 4)	45,736	45,593	-	-	45,593	Federal Investments
		143	-	-	143	Interest Receivable – Investments
<i>Total Investments, Net</i>	45,736	45,736	-	-	45,736	<i>Total Reclassified Investments, Net</i>
Accounts Receivable, Net ^(Note 5)	532	145	(7)	394	532	Accounts Receivable, Net
Loans receivable, amounts loaned from Reclamation Fund		2,916	(2,916)	-	-	
Other Assets	32	23	(23)	32	32	Advances to Others and Prepayments
Total Intragovernmental Assets	\$ 92,157	\$ 54,747	\$ (2,946)	\$ 40,356	\$ 92,157	Total Intragovernmental Assets
Accounts Receivable, Net ^(Note 5)	3,034	2,929	-	105	3,034	Accounts Receivable, Net
Direct Loans and Loan Guarantees, Net ^(Note 7)	15,161	1	-	15,160	15,161	Direct Loans and Loan Guarantees Receivable, Net
Inventory, Net ^(Note 8)	48,849	314	-	48,535	48,849	Inventory and Related Property, Net
General Property, Plant, & Equipment, Net ^(Note 9)	40,413	10,712	-	29,701	40,413	Property, plant, and equipment, net
Regulatory Assets ^(Note 6)	9,656	9,656	-	-	9,656	Other Assets
Other Non-Intragovernmental Assets ^(Note 10)	4,709	4,067	-	342	4,409	Other Assets
		300	-	-	300	Cash and Other Monetary Assets
<i>Total Other Assets</i>	4,709	4,367	-	342	4,709	<i>Total Reclassified Other Assets</i>
Total Assets	\$ 213,979	\$ 82,726	\$ (2,946)	\$ 134,199	\$ 213,979	Total Assets
LIABILITIES: ^(Note 11)						LIABILITIES:
Intragovernmental Liabilities:						Intragovernmental Liabilities:
Accounts Payable	\$ 173	\$ 41	\$ (21)	\$ 86	106	Accounts Payable
	-	40	-	-	40	Transfers Payable
	-	27	-	-	27	Interest Payable – Loans and Not Otherwise Classified
<i>Total Accounts Payable</i>	173	108	(21)	86	173	<i>Total Reclassified Accounts Payable</i>
Debt ^(Note 12)	25,725	5,725	-	16,355	22,080	Loans Payable
		-	-	-	-	Interest Payable – Loans and Not Otherwise Classified
		6,561	(2,916)	-	3,645	Other Liabilities
<i>Total Debt</i>	25,725	12,286	(2,916)	16,355	25,725	<i>Total Reclassified Debt</i>
Deferred Revenues and Other Credits ^(Note 13)	239	5	-	234	239	Advances from Others and Deferred Credits
Other Liabilities ^(Note 14)	889	-	-	181	181	Liability to General Fund for Custodial and Other Non-Entity Assets
		24	(9)	543	558	Accounts Payable
		14	-	24	38	Benefit Program Contributions Payable
		78	-	14	92	Liability to Agency Other than the General Fund for Custodial and Other Non-Entity assets
		-	-	-	-	Other Liabilities
		1	-	19	20	Other Liabilities without Reciprocity
<i>Total Other Liabilities</i>	889	117	(9)	781	889	<i>Total Reclassified Miscellaneous Liabilities</i>
Total Intragovernmental Liabilities	\$ 27,026	\$ 12,516	\$ (2,946)	\$ 17,456	\$ 27,026	Total Intragovernmental Liabilities
Accounts Payable	4,341	613	-	3,728	4,341	Accounts Payable
Loan Guarantee Liability ^(Note 7)	117	-	-	117	117	Loan Guarantee Liabilities
Environmental and Disposal Liabilities ^(Note 15)	512,257	25,671	-	486,586	512,257	Environmental and Disposal Liabilities
Pension and Other Actuarial Liabilities ^(Note 16)	30,196	43	-	57	100	Federal Employee and Veteran Benefits Payable
		33	-	30,063	30,096	Other Liabilities
Debt Held by the Public ^(Note 12)	5,078	5,078	-	-	5,078	Federal Debt and Interest Payable
Deferred Revenues and Other Credits ^(Note 13)	47,057	46,521	-	536	47,057	Other Liabilities
Obligations Under Capital Leases ^(Note 17)	2,319	2,211	-	108	2,319	Other Liabilities
Other Non-Intragovernmental Liabilities ^(Note 14)	7,030	2,952	-	3,895	6,847	Other Liabilities
		21	-	162	183	Federal Employee and Veteran Benefits Payable
<i>Total Miscellaneous Liabilities</i>	7,030	2,973	-	4,057	7,030	<i>Total Reclassified Miscellaneous Liabilities</i>
Contingent Liabilities ^(Note 18)	30,660	-	-	30,660	30,660	Other Liabilities
Total Liabilities	\$ 666,081	\$ 95,659	\$ (2,946)	\$ 573,368	\$ 666,081	Total Liabilities
NET POSITION:						NET POSITION:
Unexpended Appropriations – Funds from Dedicated Collections ^(Note 19)	9	9	-	-	9	Net Position – Funds from Dedicated Collections
Unexpended Appropriations – All Other Funds	32,757	-	-	32,757	32,757	Net Position – Funds Other than those from Dedicated Collections
Cumulative Results of Operations – Funds from Dedicated Collections ^(Note 19)	(12,942)	(12,942)	-	-	(12,942)	Net Position – Funds from Dedicated Collections
Cumulative Results of Operations – All Other Funds	(471,926)	-	-	(471,926)	(471,926)	Net Position – Funds Other than those from Dedicated Collections
Total Net Position	\$ (452,102)	\$ (12,933)	\$ -	\$ (439,169)	\$ (452,102)	Total Net Position
Total Liabilities & Net Position	\$ 213,979	\$ 82,726	\$ (2,946)	\$ 134,199	\$ 213,979	Total Liabilities & Net Position

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

(\$ IN MILLIONS)						
FY 2020 Statement of Net Cost	FY 2020			FY 2020 Reclassified		Line Items Used to Prepare FY 2020 Governmentwide Statement of Net Cost
Financial Statement Line	Amounts	Dedicated Collections Combined	Dedicated Collections Eliminations	All Other Amounts (with Eliminations)	Total	Reclassified Financial Statement Line
Gross Costs ^(Note 20)	\$ 66,198	\$ 4,489	\$ -	\$ 45,555	\$ 50,044	Non-Federal Gross Cost
						Intragovernmental Costs
		126	-	299	425	Benefit Program Costs
		8	-	13,835	13,843	Imputed Costs
		332	(289)	1,049	1,092	Buy/Sell Costs
			-	10	10	Purchase of Assets
		326	-	356	682	Borrowing and Other Interest Expense
		-	-	-	-	Borrowing Losses
		24	-	89	113	Other Expenses (w/o Reciprocals)
		816	(289)	15,638	16,165	Total Intragovernmental Costs
Total Gross Costs	\$ 66,198	\$ 5,305	\$ (289)	\$ 61,193	\$ 66,209	Total Reclassified Gross Costs
Earned Revenue ^(Note 20)	\$ 11,189	\$ 3,585	\$ -	\$ 1,385	\$ 4,970	Non-Federal Earned Revenue
						Intragovernmental Revenue
		457	(186)	4,285	4,556	Buy/Sell Revenue
		1,596	-	-	1,596	Federal Securities Interest Revenue Including Associated Gains/Losses (Exchange)
		103	(103)	68	68	Borrowing and Other Interest Revenue
		-	-	10	10	Purchase of Asset Offset
		2,156	(289)	4,363	6,230	Total Intragovernmental Revenues
Total Earned Revenue	\$ 11,189	\$ 5,741	\$ (289)	\$ 5,748	\$ 11,200	Total Reclassified Earned Revenue
Net Cost	\$ 55,009	\$ (436)	\$ -	\$ 55,445	\$ 55,009	
Exchange Statement of Custodial Activity						
Exchange Custodial Collections from the SCA		\$ 512	\$ -	\$ -	512	Non-Federal Earned Revenue
<i>Total Exchange Custodial Collections</i>		402	-	110	512	<i>Total Reclassified Exchange Custodial Collections</i>
		(392)	-	-	(392)	Custodial Collections Transferred to a TAS Other Than the General Fund - Exchange
Disposition of Exchange Custodial Collections from SCA		(97)	-	-	(97)	Accrual of Custodial Collections Yet to be Transferred to a TAS Other Than the General Fund - Exchange
<i>Total Disposition of Exchange Custodial Collections</i>		(489)	-	-	(489)	<i>Total Reclassified Disposition of Custodial Collections</i>
		(87)	-	110	23	Net Custodial Activity
		(349)	-	55,335	54,986	Total Reclassified Net Cost

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

(\$ IN MILLIONS)					
FY 2020 Statement of Changes in Net Position	FY 2020		FY 2020 Reclassified		Line Items Used to Prepare FY 2020 Governmentwide Statements of Changes in Net Position
Financial Statement Line	Amounts	Dedicated Collections Combined	All Other Amounts (with Eliminations)	Total	Reclassified Financial Statement Line
UNEXPENDED APPROPRIATIONS					UNEXPENDED APPROPRIATIONS
Beginning Balances	\$ 29,456	\$ 7	\$ 29,449	\$ 29,456	Net Position, Beginning of Period
Budgetary Financing Sources:					
Appropriations Received ^(Note 23)	\$ 37,929	\$ 10	\$ 37,919	\$ 37,929	Appropriations Received as Adjusted
Appropriations Transferred In/(Out)	9	-	9	9	Non-Expenditure Transfers-In of Unexpended Appropriations and Financing Sources
Other Adjustments	(97)	-	(97)	(97)	Appropriations Received as Adjusted
Appropriations Used	(34,531)	(8)	(34,523)	(34,531)	Appropriations Used
Total Budgetary Financing Sources	\$ 3,310	\$ 2	\$ 3,308	\$ 3,310	
Total Unexpended Appropriations	\$ 32,766	\$ 9	\$ 32,757	\$ 32,766	
CUMULATIVE RESULTS OF OPERATIONS					CUMULATIVE RESULTS OF OPERATIONS
Beginning Balances	\$ (477,718)	\$ (12,985)	\$ (464,733)	\$ (477,718)	Net Position, Beginning of Period
Budgetary Financing Sources:					Budgetary Financing Sources:
Appropriations Used	\$ 34,531	\$ 8	\$ 34,523	\$ 34,531	Appropriations Used
Non-Exchange Revenues	30	30	-	30	Federal Securities Interest Revenue Including Associated Gains/Losses (Non-Exchange)
Donations and Forfeitures of Cash	13	-	13	13	Other Taxes and Receipts
Transfers - In/(Out) Without Reimbursement	\$ (321)	\$ (112)	\$ -	\$ (112)	Appropriation of Unavailable Special/Trust Fund Receipts Transfers-Out
		-	46	46	Collections Transferred into a T AS Other Than the General Fund
		(25)	-	(25)	Non-Expenditure Transfers-Out of Unexpended Appropriations and Financing Sources
		(230)	-	(230)	Expenditure Transfers-Out of Financing Sources
<i>Total Transfers In/Out Without Reimbursement</i>	<i>\$ (321)</i>	<i>\$ (367)</i>	<i>\$ 46</i>	<i>\$ (321)</i>	
Other Budgetary Financing Sources	89	89	-	89	Other Budgetary Financing Sources
Other Financing Sources (Non-Exchange):					
Donations and Forfeitures of Property	21	19	2	21	Other Taxes and Receipts
Transfers-In/Out Without Reimbursement	\$ (155)	\$ -	(8)	(8)	Transfers-In w/o Reimbursement
		(136)	(11)	(147)	Transfers-Out w/o Reimbursement
<i>Total Transfers In/Out w/o Reimbursement- Other</i>	<i>\$ (155)</i>	<i>\$ (136)</i>	<i>\$ (19)</i>	<i>\$ (155)</i>	
Imputed Financing from Costs Absorbed by Others	13,843	8	13,835	13,843	Imputed Financing Sources
Other	\$ (192)	\$ (40)	\$ (149)	\$ (189)	Non-entity Collections Transferred to the General Fund
		-	3	3	Accrual for Non-entity Amounts to be Collected and Transferred to the General Fund
		(4)	(2)	(6)	Other Non-Budgetary Financing Sources
	\$ (192)	\$ (44)	\$ (148)	\$ (192)	
Total Financing Sources	\$ 47,859	\$ (257)	\$ 48,263	\$ 47,859	
Net Cost of Operations	(55,009)	436	(55,445)	(55,009)	
Total Cumulative Results of Operations	\$ (484,868)	\$ (12,942)	\$ (471,926)	\$ (484,868)	
Net Position	\$ (452,102)	\$ (12,933)	\$ (439,169)	\$ (452,102)	
Non-Exchange Custodial Collections from the SCA		\$ 159	-	\$ 159	Other Taxes and Receipts
Disposition of Non-Exchange Custodial Collections from the SCA		\$ (18)	-	\$ (18)	Collections Transferred to a T AS Other Than the General Fund
		(164)	-	(164)	Non-entity Collections Transferred to the General Fund
		\$ (182)	-	\$ (182)	<i>Total Reclassified Disposition of Non-Exchange Custodial Collections</i>
				\$ (23)	Net Custodial Activity
				\$ (452,079)	Total Reclassified Net Position

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

To prepare the Financial Report (FR) of the U.S. Government, Treasury requires agencies to submit an adjusted trial balance, which is a listing of amounts by U.S. Standard General Ledger (USSGL) account that appear in the financial statements. Treasury uses the trial balance information reported in the Government Treasury Account Symbol Adjusted Trial Balance System (GTAS) to develop a Reclassified Balance Sheet, a Reclassified Statement of Net Cost, and a Reclassified Statement of Changes in Net Position for each agency, which are accessed using GTAS.

Treasury eliminates all intragovernmental balances from the reclassified statements and aggregates lines with the same title to develop the FR statements. This note shows the Department's financial statements and the Departments reclassified statements prior to elimination of the intragovernmental balances and prior to aggregation of repeated FR line items. The 2019 FR is posted online at <https://www.fiscal.treasury.gov/reports-statements/>, and the 2020 FR will be posted when it is released.

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

Consolidating and Combining Schedules

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

As of September 30, 2020 and 2019

(See independent auditors' report)

(\$ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2020					
ASSETS:					
Intragovernmental Assets:					
Fund Balance with Treasury	\$ 166	\$ 4,438	\$ 41,253	\$ -	\$ 45,857
Investments and Related Interest, Net	-	491	45,245	-	45,736
Accounts Receivable, Net	-	138	1,197	(803)	532
Other Assets	1	-	193	(162)	32
Total Intragovernmental Assets	\$ 167	\$ 5,067	\$ 87,888	\$ (965)	\$ 92,157
Accounts Receivable, Net	7	520	2,507	-	3,034
Direct Loans and Loan Guarantees, Net	-	1	15,160	-	15,161
Inventory, Net:	-	135	48,714	-	48,849
General Property, Plant, and Equipment, Net	15	10,565	29,833	-	40,413
Regulatory Assets	-	9,656	-	-	9,656
Other Non-Intragovernmental Assets	-	4,390	319	-	4,709
Total Assets	\$ 189	\$ 30,334	\$ 184,421	\$ (965)	\$ 213,979
LIABILITIES:					
Intragovernmental Liabilities:					
Accounts Payable	\$ 1	\$ 87	\$ 638	\$ (553)	\$ 173
Debt	-	9,370	16,355	-	25,725
Deferred Revenues and Other Credits	-	5	336	(102)	239
Other Liabilities	12	107	1,080	(310)	889
Total Intragovernmental Liabilities	\$ 13	\$ 9,569	\$ 18,409	\$ (965)	\$ 27,026
Accounts Payable	19	453	3,869	-	4,341
Loan Guarantee Liability	-	-	117	-	117
Debt Held by the Public	-	5,078	-	-	5,078
Deferred Revenues and Other Credits	-	1,441	45,616	-	47,057
Environmental Cleanup and Disposal Liabilities	-	20	512,237	-	512,257
Pension and Other Actuarial Liabilities	3	43	30,150	-	30,196
Obligations Under Capital Leases	-	2,211	108	-	2,319
Other Non-Intragovernmental Liabilities	34	2,919	4,077	-	7,030
Contingencies and Commitments	-	-	30,660	-	30,660
Total Liabilities	\$ 69	\$ 21,734	\$ 645,243	\$ (965)	\$ 666,081
NET POSITION:					
Unexpended Appropriations					
Unexpended Appropriations- Dedicated Collections	\$ -	\$ -	\$ 9	\$ -	9
Unexpended Appropriations- Other Funds	-	-	32,757	-	32,757
Cumulative Results of Operations					
Cumulative Results of Operations - Dedicated Collections	-	8,600	(21,542)	-	\$ (12,942)
Cumulative Results of Operations - Other Funds	120	-	(472,046)	-	(471,926)
Total Net Position	\$ 120	\$ 8,600	\$ (460,822)	\$ -	\$ (452,102)
Total Liabilities and Net Position	\$ 189	\$ 30,334	\$ 184,421	\$ (965)	\$ 213,979

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2019				
\$ 156	\$ 4,356	\$ 36,856	\$ -	\$ 41,368
-	137	44,308	-	44,445
-	136	977	(540)	573
1	-	151	(115)	37
\$ 157	\$ 4,629	\$ 82,292	\$ (655)	\$ 86,423
2	521	2,659	-	3,182
-	1	14,412	-	14,413
-	133	47,212	-	47,345
12	10,418	27,690	-	38,120
-	9,898	-	-	9,898
-	4,663	301	-	4,964
\$ 171	\$ 30,263	\$ 174,566	\$ (655)	\$ 204,345
\$ 8	\$ 89	\$ 281	\$ (208)	\$ 170
-	8,980	15,170	-	24,150
-	3	335	(92)	246
8	31	1,078	(355)	762
\$ 16	\$ 9,103	\$ 16,864	\$ (655)	\$ 25,328
16	464	3,702	-	4,182
-	-	174	-	174
-	5,479	-	-	5,479
-	1,504	44,017	-	45,521
-	20	505,282	-	505,302
3	45	28,897	-	28,945
1	2,170	120	-	2,291
26	3,015	3,638	-	6,679
-	-	28,706	-	28,706
\$ 62	\$ 21,800	\$ 631,400	\$ (655)	\$ 652,607
\$ -	\$ -	\$ 7	\$ -	\$ 7
-	-	29,449	-	29,449
-	8,463	(21,448)	-	(12,985)
109	-	(464,842)	-	(464,733)
\$ 109	\$ 8,463	\$ (456,834)	\$ -	\$ (448,262)
\$ 171	\$ 30,263	\$ 174,566	\$ (655)	\$ 204,345

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

U.S. Department of Energy Consolidating Schedules of Net Cost For the Years Ended September 30, 2020 and 2019

(See independent auditors' report)

(\$ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2020				
MAJOR PROGRAMS:					
Nuclear Security and NNSA					
Program Costs	\$ -	\$ -	\$ 14,517	\$ -	\$ 14,517
Less: Earned Revenues	-	-	(18)	-	(18)
Net Cost (+/-) of Nuclear Security and NNSA	\$ -	\$ -	\$ 14,499	\$ -	\$ 14,499
Science					
Program Costs	\$ -	\$ -	\$ 23,344	\$ (63)	\$ 23,281
Less: Earned Revenues	-	-	(157)	63	(94)
Net Cost (+/-) of Science	\$ -	\$ -	\$ 23,187	\$ -	\$ 23,187
Energy					
Program Costs	\$ -	\$ 3,967	\$ 6,589	\$ -	\$ 10,556
Less: Earned Revenues	-	(4,534)	(1,087)	-	(5,621)
Net Cost (+/-) of Energy	\$ -	\$ (567)	\$ 5,502	\$ -	\$ 4,935
Net Cost of Major Programs	\$ -	\$ (567)	\$ 43,188	\$ -	\$ 42,621
OTHER PROGRAMS:					
Reimbursable Programs					
Program Costs	\$ -	\$ 285	\$ 4,879	\$ (4)	\$ 5,160
Less: Earned Revenues	-	(282)	(4,779)	4	(5,057)
Net Cost (+/-) of Reimbursable Programs	\$ -	\$ 3	\$ 100	\$ -	\$ 103
Other Programs:					
Program Costs	\$ 386	\$ -	\$ 1,661	\$ (244)	\$ 1,803
Less: Earned Revenues	(386)	-	(257)	244	(399)
Net Cost (+/-) of Other Programs	\$ -	\$ -	\$ 1,404	\$ -	\$ 1,404
Costs Applied to Reduction of Legacy Environmental Liabilities	\$ -	\$ -	\$ (6,310)	\$ -	\$ (6,310)
Costs Not Assigned to Programs	\$ -	\$ -	\$ 17,191	\$ -	\$ 17,191
Net Cost of Operations	\$ -	\$ (564)	\$ 55,573	\$ -	\$ 55,009

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2019				
\$ -	\$ -	\$ (3,378)	\$ -	\$ (3,378)
-	-	(18)	-	(18)
\$ -	\$ -	\$ (3,396)	\$ -	\$ (3,396)
\$ -	\$ -	\$ 44,498	\$ (47)	\$ 44,451
-	-	(169)	47	(122)
\$ -	\$ -	\$ 44,329	\$ -	\$ 44,329
\$ -	\$ 3,961	\$ 5,558	\$ -	\$ 9,519
-	(4,482)	(1,519)	-	(6,001)
\$ -	\$ (521)	\$ 4,039	\$ -	\$ 3,518
\$ -	\$ (521)	\$ 44,972	\$ -	\$ 44,451
\$ -	\$ 259	\$ 4,621	\$ (3)	\$ 4,877
-	(257)	(4,526)	3	(4,780)
\$ -	\$ 2	\$ 95	\$ -	\$ 97
\$ 373	\$ -	\$ 1,554	\$ (247)	\$ 1,680
(373)	-	(253)	247	(379)
\$ -	\$ -	\$ 1,301	\$ -	\$ 1,301
\$ -	\$ -	\$ (6,083)	\$ -	\$ (6,083)
\$ -	\$ -	\$ 13,285	\$ -	\$ 13,285
\$ -	\$ (519)	\$ 53,570	\$ -	\$ 53,051

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

U.S. Department of Energy Consolidating Schedules of Changes in Net Position

For the Years Ended September 30, 2020 and 2019

(See independent auditors' report)

(\$ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2020				
UNEXPENDED APPROPRIATIONS:					
Beginning Balances	\$ -	\$ -	\$ 29,456	\$ -	\$ 29,456
Budgetary Financing Sources:					
Appropriations Received	\$ -	\$ -	\$ 37,929	\$ -	\$ 37,929
Appropriations Transferred - In/(Out)	-	-	9	-	9
Other Adjustments	-	-	(97)	-	(97)
Appropriations Used	-	-	(34,531)	-	(34,531)
Total Budgetary Financing Sources	\$ -	\$ -	\$ 3,310	\$ -	\$ 3,310
Total Unexpended Appropriations	\$ -	\$ -	\$ 32,766	\$ -	\$ 32,766
CUMULATIVE RESULTS OF OPERATIONS:					
Beginning Balances	\$ 109	\$ 8,463	\$ (486,290)	\$ -	\$ (477,718)
Budgetary Financing Sources:					
Appropriations Used	\$ -	\$ -	\$ 34,531	\$ -	\$ 34,531
Non-Exchange Revenue	-	-	30	-	30
Donations and Forfeitures of Cash	-	-	13	-	13
Transfers - In/(Out) Without Reimbursement	-	(364)	32	11	(321)
Other Budgetary Financing Sources	-	89	-	-	89
Other Financing Sources (Non-Exchange):					
Donations and Forfeitures of Cash	-	19	2	-	21
Transfers - In/(Out) Without Reimbursement	-	(146)	2	(11)	(155)
Imputed Financing from Costs Absorbed by Others	12	8	13,823	-	13,843
Other	(1)	(33)	(158)	-	(192)
Total Financing Sources	\$ 11	\$ (427)	\$ 48,275	\$ -	\$ 47,859
Net Cost of Operations	-	564	(55,573)	-	(55,009)
Net Change	\$ 11	\$ 137	\$ (7,298)	\$ -	\$ (7,150)
Total Cumulative Results of Operations	\$ 120	\$ 8,600	\$ (493,588)	\$ -	\$ (484,868)
Net Position	\$ 120	\$ 8,600	\$ (460,822)	\$ -	\$ (452,102)

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2019				
\$ -	\$ -	\$ 26,896	\$ -	\$ 26,896
\$ -	\$ -	\$ 34,795	\$ -	\$ 34,795
-	-	62	-	62
-	-	(52)	-	(52)
-	-	(32,245)	-	(32,245)
\$ -	\$ -	\$ 2,560	\$ -	\$ 2,560
\$ -	\$ -	\$ 29,456	\$ -	\$ 29,456
\$ 93	\$ 8,245	\$ (468,778)	\$ -	\$ (460,440)
\$ -	\$ -	\$ 32,245	\$ -	\$ 32,245
-	(1)	43	-	42
-	-	5	-	5
-	(308)	(4)	-	(312)
-	185	-	-	185
-	9	1	-	10
-	(170)	1	-	(169)
16	11	4,751	-	4,778
-	(27)	(984)	-	(1,011)
\$ 16	\$ (301)	\$ 36,058	\$ -	\$ 35,773
-	519	(53,570)	-	(53,051)
\$ 16	\$ 218	\$ (17,512)	\$ -	\$ (17,278)
\$ 109	\$ 8,463	\$ (486,290)	\$ -	\$ (477,718)
\$ 109	\$ 8,463	\$ (456,834)	\$ -	\$ (448,262)

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

U.S. Department of Energy Combining Schedules of Budgetary Resources
For the Years Ended September 30, 2020 and 2019

(See independent auditors' report)

	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED
(\$ IN MILLIONS)				
FY 2020				
BUDGETARY RESOURCES :				
Unobligated Balance from Prior Year Budget Authority, Net	\$ 50	\$ 990	\$ 9,431	\$ 10,471
Appropriations	3	100	38,739	38,842
Borrowing Authority	-	765	46	811
Contract Authority	-	2,519	-	2,519
Spending Authority from Offsetting Collections	383	1,386	6,071	7,840
Total Budgetary Resources	\$ 436	\$ 5,760	\$ 54,287	\$ 60,483
STATUS OF BUDGETARY RESOURCES :				
New Obligations and Upward Adjustments (Total)	\$ 384	\$ 4,758	\$ 44,772	\$ 49,914
Unobligated Balance, End of Year:				
Apportioned, Unexpired Accounts	\$ 47	\$ 987	\$ 8,337	\$ 9,371
Exempt from Apportionment, Unexpired Accounts	-	11	3	14
Unapportioned, Unexpired Accounts	5	4	1,104	1,113
Unexpired, Unobligated Balance, End of Year	\$ 52	\$ 1,002	\$ 9,444	\$ 10,498
Expired, Unobligated Balance, End of Year	-	-	71	71
Unobligated Balance, End of Year (Total)	\$ 52	\$ 1,002	\$ 9,515	\$ 10,569
Total Budgetary Resources	\$ 436	\$ 5,760	\$ 54,287	\$ 60,483
Outlays, Net (Total)				
Outlays, Net (Total)	\$ (4)	\$ 71	\$ 36,028	\$ 36,095
Distributed Offsetting Receipts (-)	(13)	(439)	(2,516)	(2,968)
Agency Outlays, Net	\$ (17)	\$ (368)	\$ 33,512	\$ 33,127
Disbursements, Net (Total)(Mandatory)	\$ -	\$ -	\$ 1,125	\$ 1,125

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	COMBINED
FY 2019			
\$ 39	\$ 820	\$ 9,993	\$ 10,852
4	100	35,911	36,015
-	255	3,990	4,245
-	2,850	-	2,850
370	1,561	6,242	8,173
\$ 413	\$ 5,586	\$ 56,136	\$ 62,135
\$ 373	\$ 4,599	\$ 46,999	\$ 51,971
\$ 39	\$ 965	\$ 8,028	\$ 9,032
-	11	5	16
1	11	1,029	1,041
\$ 40	\$ 987	\$ 9,062	\$ 10,089
-	-	75	75
\$ 40	\$ 987	\$ 9,137	\$ 10,164
\$ 413	\$ 5,586	\$ 56,136	\$ 62,135
\$ (7)	\$ 12	\$ 34,082	\$ 34,087
(17)	(550)	(3,149)	(3,716)
\$ (24)	\$ (538)	\$ 30,933	\$ 30,371
\$ -	\$ -	\$ 1,455	\$ 1,455

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

U.S. Department of Energy Consolidating Schedules of Custodial Activities

For the Years Ended September 30, 2020 and 2019

(See independent auditors' report)

(\$ IN MILLIONS)	FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
	FY 2020				
SOURCES OF COLLECTIONS:					
Cash Collections:					
Power Marketing Administrations	\$ -	\$ 638	\$ -	\$ -	\$ 638
Federal Energy Regulatory Commission	34	-	-	-	34
Total Cash Collections	\$ 34	\$ 638	\$ -	\$ -	\$ 672
Accrual Adjustment	1	(2)	-	-	(1)
Total Custodial Revenue	\$ 35	\$ 636	\$ -	\$ -	\$ 671
DISPOSITION OF REVENUE:					
Transferred to Others:					
Bureau of Reclamation	\$ (7)	\$ (193)	\$ -	\$ -	\$ (200)
Department of the Treasury	(13)	(150)	-	-	(163)
Army Corps of Engineers	(11)	(298)	-	-	(309)
Others	(3)	-	-	-	(3)
(Increase)/Decrease in Amounts to be Transferred	(1)	5	-	-	4
Net Custodial Activity	\$ -	\$ -	\$ -	\$ -	\$ -

CONSOLIDATED AND COMBINED FINANCIAL STATEMENTS

FEDERAL ENERGY REGULATORY COMMISSION	POWER MARKETING ADMINISTRATIONS	ALL OTHER DOE PROGRAMS	ELIMINATIONS	CONSOLIDATED
FY 2019				
\$ -	\$ 725	\$ -	\$ -	\$ 725
52	-	-	-	52
\$ 52	\$ 725	\$ -	\$ -	\$ 777
-	(8)	-	-	(8)
\$ 52	\$ 717	\$ -	\$ -	\$ 769
\$ (9)	\$ (265)	\$ -	\$ -	\$ (274)
(21)	(246)	-	-	(267)
(18)	(214)	-	-	(232)
(4)	-	-	-	(4)
-	8	-	-	8
\$ -	\$ -	\$ -	\$ -	\$ -

Required Supplementary Information (RSI)
UNAUDITED – See accompanying Auditors’ Report

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

Deferred Maintenance

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

Estimates were developed for:

	(Dollars in Millions)
Buildings and Other Structures and Facilities	\$9,133
Capital Equipment	\$ 206
Total	\$9,339

Deferred Maintenance and Repairs – Buildings and Other Structures and Facilities

The Department has custody of over 22,000 real property assets, with an estimated 131 million gross square feet of building area; buildings, real property trailers and structures with a \$228 billion replacement value; and a total of 2.55 million acres of land in 41 different states and territories, the District of Columbia, and Germany. The Department’s portfolio of property, plant, and equipment (PP&E) supports preeminent Federal research laboratory campuses; user facilities; production, special purpose, and legacy clean-up activities; and facilities used predominantly for office space and warehousing. Departmental policy is to maintain real property assets in a manner that promotes operational safety, worker health, environmental protection and compliance, property preservation, and cost-effectiveness, while meeting program missions. Estimates reported include DM&R for capitalized or not capitalized, and fully depreciated and not fully depreciated buildings, structures, and heritage assets owned by the Department. The Department categorizes assets designated as a National Historic Landmark, or listed in the National Register of Historical Places, or those included in the Manhattan Project National Historic Park as a Heritage Asset or Stewardship Land. The Department does not accrue DM&R on general or stewardship land parcels.

Defining and Implementing M&R Policies in Practice

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

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

The National Nuclear Security Administration (NNSA) estimates DM&R costs for its sites using the National Academy of Sciences recommended system, BUILDER Sustainment Management System (SMS). The BUILDER SMS compares field inspection data with engineered lifecycle curves to calculate a condition score for each asset component, using a 0-to-100 point scale. By weighting the 0-to-100 component condition scores by the unit replacement costs of the components, the BUILDER SMS calculates the system and asset (or building) condition scores using a 0-to-100 point scale. This is the Building Condition Index (BCI), which defines the current condition of each asset. NNSA uses standards and policies to define the acceptable condition for each asset. The NNSA BUILDER DM&R costs rely on cost data available from R.S. Means, adjusted by site-specific cost factors. The BUILDER SMS calculates the cost to restore each asset component’s condition to a condition standard considered acceptable in the current year. This cost includes repair and replacement of existing deficiencies and repair or replacement of components projected to fall below an acceptable condition level during the fiscal year.

Ranking and Prioritizing M&R Activities

The Department does not rank or prioritize the maintenance and repair activities of its component

programs and sites. Instead, it relies on the site manager to apply the maintenance budget based on the role each asset has in supporting the site's various missions. Ranking factors include mission dependency, status, use, ownership, and risks presented by any noted deficiencies, among other considerations. For all NNSA sites, the Associate Administrator for Safety, Infrastructure and Operations established a single set of standards and policies for prioritizing maintenance and repair activities using similar factors.

The Department has begun implementation of Office of Management and Budget (OMB) Memorandum M-20-03, *Implementation of Agency-wide Real Property Capital Planning* by undertaking a Fiscal Year 2020 Real Property Portfolio Review.

Factors Considered in Setting Acceptable Condition

The DOE Asset Management Plan identifies Asset Condition Index (ACI) as a real property portfolio performance measure. ACI equals one less the sum of the DM&R of a portfolio of assets, divided (normalized) by the replacement value of that same portfolio of assets. Internal reporting guidance assigns qualitative labels to ACI ranges and considers assets with an ACI equal to or greater than 0.95 in at least adequate condition. For this purpose, the Department equates the terms "adequate" and "acceptable." As of September 24, 2020, the percentage of active buildings in a condition at or above acceptable is approximately 73 percent.

NNSA sets five qualitative ranges for condition based on the BUILDER Building Condition Index: Very Good, Good, Fair, Poor, and Failed. NNSA equates the terms "Very Good" or "Good" with "acceptable."

Significant Changes from Prior Year and Related Events

As of September 24, 2020, an estimated amount of \$8,014 million of deferred maintenance and repair was required to return active real property assets to acceptable operating condition. This is an overall increase of \$957.7 million from FY 2019.

The Department applies a year-to-year variance threshold of 10 percent, and considers a greater increase or decrease as significant. The Department recorded significant variances in estimated DM&R estimates for Active

Buildings as well as for Inactive Buildings and Structures. Changes result from several sources. The Department continued initiatives to strengthen cost-estimating procedures, and to review categorization of deficiencies as DM&R considering factors such as operational status, mission dependency, and acceptability to management revising estimates when appropriate. NNSA's use of the BUILDER SMS and updated site factors to calculate DM&R resulted in an increase of \$1,003 million for owned and operating buildings and an increase of \$18 million for owned and inactive buildings. NNSA used existing processes to estimate DM&R for other asset classes. Management review of maintenance requirements at several Office of Environmental Management's sites resulted in a 30 percent reduction in the reported DM&R estimates for active structures, or \$180.9 million. Restrictions on travel imposed by COVID-19 delayed completion of major repair projects planned at remote Legacy Management sites resulting in an increase of \$37.7 million. Final disposal of 285 assets resulted in a decrease of \$55 million. Nearly one percent of assets changed status from active to inactive and excess resulting in a reduction in the DM&R estimate by over \$143 million.

Capital Equipment

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

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

An amount of \$206 million of deferred maintenance was estimated to be needed as of September 30, 2020, to return capital equipment assets to acceptable operating condition.

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

Deferred Maintenance and Repair Costs

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

(\$ IN MILLIONS)	2020 Ending Balance DM&R	2020 Beginning Balance DM&R
ACTIVE:		
General PP&E:		
Buildings & Trailers	\$ 5,786	\$ 4,716
Structures	2,222	2,335
Subtotal - General PP&E Active	\$ 8,008	\$ 7,051
Heritage Assets	\$ 6	\$ 6
Subtotal - All Active	\$ 8,014	\$ 7,057
INACTIVE AND EXCESS:		
General PP&E:		
Buildings & Trailers	\$ 949	\$ 1,154
Structures	160	34
Subtotal - General PP&E Inactive and Excess	\$ 1,109	\$ 1,188
Heritage Assets	\$ 9	\$ 8
Subtotal - All Inactive and Excess	\$ 1,118	\$ 1,196
Total Deferred Maintenance and Repair Cost	\$ 9,132	\$ 8,253

FINANCIAL STATEMENTS, FOOTNOTES, AND CONSOLIDATING SCHEDULES

Budgetary Resources by Major Account For the Year Ended September 30, 2020

(\$ IN MILLIONS)	Weapons Activities 019 05 0240	Science 019 20 0222	Defense Environmental Cleanup 019 10 0251	Advanced Technology Vehicles Manufacturing Loan Program Account 019 20 0322	Energy Efficiency and Renewable Energy 019 20 0321
BUDGETARY RESOURCES:					
Unobligated Balance from Prior Year Budget Authority,	\$ 268	\$ 107	\$ 455	\$ 4,339	\$ 886
Appropriations	12,457	7,233	6,254	5	2,700
Borrowing Authority	-	-	-	-	-
Contract Authority	-	-	-	-	-
Spending Authority from Offsetting Collections	1,946	560	-	-	155
Total Budgetary Resources	\$ 14,671	\$ 7,900	\$ 6,709	\$ 4,344	\$ 3,741
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments (Total)	\$ 14,533	\$ 7,834	\$ 6,253	\$ 5	\$ 3,014
Unobligated Balance, End of Year:					
Apportioned, Unexpired Accounts	\$ 136	\$ 40	\$ 451	\$ 4,338	\$ 720
Exempt from Apportionment, Unexpired Accounts	-	-	-	-	-
Unapportioned, Unexpired Accounts	-	26	-	-	-
Unexpired, Unobligated Balance, End of Year	\$ 136	\$ 66	\$ 451	\$ 4,338	\$ 720
Expired, Unobligated Balance, End of Year	1	1	5	-	6
Unobligated Balance, End of Year (Total)	\$ 137	\$ 67	\$ 456	\$ 4,338	\$ 726
Total Budgetary Resources	\$ 14,670	\$ 7,901	\$ 6,709	\$ 4,343	\$ 3,740
Agency Outlays, Net	\$ 11,484	\$ 6,057	\$ 5,980	\$ 4	\$ 2,039
Disbursements, net (total)(mandatory)	\$ -	\$ -	\$ -	\$ -	\$ -
	Bonneville Power Administration Fund 019 50 4045	Other Defense Activities 019 10 0243	Defense Nuclear Nonproliferation 019 05 0309	Nuclear Energy 019 20 0319	Other Budgetary Accounts
BUDGETARY RESOURCES:					
Unobligated Balance from Prior Year Budget Authority,	\$ 11	\$ 129	\$ 382	\$ 135	\$ 2,974
Appropriations	-	906	2,153	1,560	5,574
Borrowing Authority	765	-	-	-	-
Contract Authority	2,519	-	-	-	-
Spending Authority from Offsetting Collections	400	1,968	13	177	1,865
Total Budgetary Resources	\$ 3,695	\$ 3,003	\$ 2,548	\$ 1,872	\$ 10,413
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments (Total)	\$ 3,685	\$ 2,943	\$ 2,097	\$ 1,558	\$ 7,478
Unobligated Balance, End of Year:					
Apportioned, Unexpired Accounts	\$ -	\$ 55	\$ 451	\$ 309	\$ 2,860
Exempt from Apportionment, Unexpired Accounts	11	-	-	-	3
Unapportioned, Unexpired Accounts	-	2	-	-	23
Unexpired, Unobligated Balance, End of Year	\$ 11	\$ 57	\$ 451	\$ 309	\$ 2,886
Expired, Unobligated Balance, End of Year	-	4	-	5	49
Unobligated Balance, End of Year (Total)	\$ 11	\$ 61	\$ 451	\$ 314	\$ 2,935
Total Budgetary Resources	\$ 3,696	\$ 3,004	\$ 2,548	\$ 1,872	\$ 10,413
Agency Outlays, Net	\$ 44	\$ 919	\$ 2,048	\$ 1,384	\$ 2,043
Disbursements, net (total)(mandatory)	\$ 44	\$ -	\$ -	\$ -	\$ (44)
	Subtotal of Budgetary Accounts	Title 17 Innovative Technology Direct Loan Financing Account 019 20 4455	Title 17 Innovative Loan Guaranteed Loan Financing Account 019 20 4577	Advanced Technology Vehicles Manufacturing Direct Loan Financing Account 019 20 4579	Combined Statement of Budgetary Resources Total
BUDGETARY RESOURCES:					
Unobligated Balance from Prior Year Budget Authority,	\$ 9,686	\$ 624	\$ 135	\$ 26	\$ 10,471
Appropriations	38,842	-	-	-	38,842
Borrowing Authority	765	46	-	-	811
Contract Authority	2,519	-	-	-	2,519
Spending Authority from Offsetting Collections	7,084	647	61	48	7,840
Total Budgetary Resources	\$ 58,896	\$ 1,317	\$ 196	\$ 74	\$ 60,483
STATUS OF BUDGETARY RESOURCES:					
New Obligations and Upward Adjustments (Total)	\$ 49,400	\$ 457	\$ 3	\$ 54	\$ 49,914
Unobligated Balance, End of Year:					
Apportioned, Unexpired Accounts	\$ 9,360	\$ -	\$ 11	\$ -	\$ 9,371
Exempt from Apportionment, Unexpired Accounts	14	-	-	-	14
Unapportioned, Unexpired Accounts	51	860	182	20	1,113
Unexpired, Unobligated Balance, End of Year	\$ 9,425	\$ 860	\$ 193	\$ 20	\$ 10,498
Expired, Unobligated Balance, End of Year	71	-	-	-	71
Unobligated Balance, End of Year (Total)	\$ 9,496	\$ 860	\$ 193	\$ 20	\$ 10,569
Total Budgetary Resources	\$ 58,896	\$ 1,317	\$ 196	\$ 74	\$ 60,483
Agency Outlays, Net	\$ 32,002	\$ 1,556	\$ (58)	\$ (373)	\$ 33,127
Disbursements, net (total)(mandatory)	\$ -	\$ 1,556	\$ (58)	\$ (373)	\$ 1,125

Auditors' Report

Memorandum from the Inspector General



DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL

MEMORANDUM

DATE: November 16, 2020

REPLY TO:
ATTN OF: IG-50 (A20FN010)

SUBJECT: Audit Report on the "Department of Energy's Fiscal Year 2020 Consolidated Financial Statements"

TO: Acting Under Secretary of Energy, S3
Under Secretary for Science, S4
Deputy Chief Financial Officer, CF-2
Director, Office of Audits and Internal Affairs, NA-MB-1.1

The attached report presents the results of the independent certified public accountants' audit of the Department of Energy's consolidated financial statements as of September 30, 2020, and 2019, and the related consolidated statements of net cost, changes in net position, custodial activity, and combined statements of budgetary resources for the years then ended.

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

KPMG audited the consolidated financial statements of the Department as of September 30, 2020, and 2019, and the related consolidated statements of net cost, changes in net position, custodial activity, and combined statements of budgetary resources for the years then ended. KPMG concluded that these consolidated financial statements are presented fairly, in all material respects, in conformity with United States generally accepted accounting principles and had issued an unmodified opinion based on its audits and the reports of other auditors for the years ended September 30, 2020, and 2019.

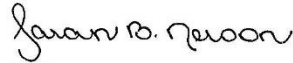
As part of this audit, auditors also considered the Department's internal controls over financial reporting and tested for compliance with certain provisions of laws, regulations, contracts, and grant agreements that could have a direct and material effect on the consolidated financial statements. The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

The Office of Inspector General issued notices of findings and recommendations to management throughout the audit. In nearly all instances, management concurred with the findings and

AUDITORS' REPORT

recommendations. All findings will be detailed in management letters that are provide to the Department at a later date. The audit disclosed no instances of noncompliance or other matters required to be reported under applicable audit standards and requirements.

We appreciated the cooperation of your staff during the audit.



Sarah B. Nelson
Assistant Inspector General
for Technology, Financial, and Analytics
Office of Inspector General

Attachment

cc: Deputy Director, Office of Enterprise Assessment, EA-1
Director, Office of Finance and Accounting, CF-10
Director, Office of Financial Policy and Audit Resolution, CF-20
Audit Resolution Specialist, Office of Financial Policy and Audit Resolution, CF-20
Audit Liaison, Office of the Under Secretary of Energy, S3
Audit Liaison, Office of the Under Secretary for Science, SC-4



Office of Inspector General

OFFICE OF TECHNOLOGY,
FINANCIAL, AND ANALYTICS

AUDIT REPORT -
DEPARTMENT OF ENERGY'S FISCAL YEAR 2020
CONSOLIDATED FINANCIAL STATEMENTS

DOE-OIG-21-03
NOVEMBER 2020

AUDITORS' REPORT



Department of Energy
Washington, DC 20585

November 16, 2020

MEMORANDUM FOR THE SECRETARY

A handwritten signature in cursive script, appearing to read "Teri L. Donaldson".

FROM: Teri L. Donaldson
Inspector General

SUBJECT: INFORMATION: Audit Report on the "Department of Energy's Fiscal Year 2020 Consolidated Financial Statements"

Pursuant to requirements established by the *Government Management Reform Act of 1994*, the Office of Inspector General engaged the independent public accounting firm of KPMG LLP (KPMG) to perform the audit of the Department of Energy's Fiscal Year 2020 Consolidated Financial Statements.

KPMG audited the consolidated financial statements of the Department as of September 30, 2020, and 2019, and the related consolidated statements of net cost, changes in net position, custodial activity, and combined statements of budgetary resources for the years then ended. KPMG concluded that these consolidated financial statements are presented fairly, in all material respects, in conformity with United States generally accepted accounting principles and has issued an unmodified opinion based on its audits and the reports of other auditors for the years ended September 30, 2020, and 2019.

The Office of Inspector General issued notices of findings and recommendations to management throughout the audit. In nearly all instances, management concurred with the findings and recommendations. All findings will be detailed in management letters. The audit disclosed no instances of noncompliance or other matters required to be reported under applicable audit standards and requirements.

KPMG is responsible for the attached auditors' report and the opinions and conclusions expressed therein. The Office of Inspector General is responsible for technical and administrative oversight regarding KPMG's performance under the terms of the contract. Our review was not intended to enable us to express, and accordingly, we do not express, an opinion on the Department's financial statements, management's assertions about the effectiveness of its internal controls over financial reporting, or the Department's compliance with laws and regulations. Our monitoring review disclosed no instances where KPMG did not comply with applicable auditing standards.

I would like to thank all participating Department elements for their courtesy and cooperation during the review.

AUDITORS' REPORT

Attachment

cc: Deputy Secretary
Chief of Staff
Acting Under Secretary of Energy
Under Secretary for Science
Acting Administrator for the National Nuclear Security Administration
Deputy Chief Financial Officer

Audit Report: DOE-OIG-21-03

Department financial reports are available for download on the Office of the Chief Financial Officer website: <https://www.energy.gov/cfo/listings/agency-financial-reports>

AUDITORS' REPORT

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INDEPENDENT AUDITORS' REPORT



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

Independent Auditors' Report

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

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of the United States (U.S.) Department of Energy (Department), which comprise the consolidated balance sheets as of September 30, 2020 and 2019, and the related consolidated statements of net cost, and changes in net position, and custodial activity, and combined statements of budgetary resources for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America, in accordance with the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, and in accordance with Office of Management and Budget (OMB) Bulletin No. 19-03, *Audit Requirements for Federal Financial Statements*. Those standards and OMB Bulletin No. 19-03 require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

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

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

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Department as of September 30, 2020 and 2019, and its net costs, changes in net position, and budgetary resources, and custodial activity for the years then ended in accordance with U.S. generally accepted accounting principles.

KPMG LLP, a Delaware limited liability partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.

AUDITORS' REPORT

Attachment



Emphasis of Matters

As discussed in Note 7 to the consolidated financial statements, the Department has total direct loans and loan guarantees, net, of \$17 billion and \$16 billion as of September 30, 2020 and 2019, respectively, which are issued under the *Federal Credit Reform Act of 1990*. Subsidy costs of the direct loans and loan guarantees are intended to estimate the long-term cost to the U.S. Government of its loan program and include interest rate differentials, delinquencies, defaults, fees, and other cash flow items. A subsidy re-estimate is performed annually at September 30. Any adjustment resulting from the re-estimate is recognized as subsidy expense. Our opinion is not modified with respect to this matter.

As discussed in Note 15 to the consolidated financial statements, the cost estimates supporting the Department's environmental cleanup and disposal liabilities of \$512 billion and \$505 billion as of September 30, 2020 and 2019, respectively, are based upon assumptions regarding funding and other future action and decisions, many of which are beyond the Department's control. Our opinion is not modified with respect to this matter.

As discussed in Note 18 to the consolidated financial statements, the Department is involved as a defendant in several matters of litigation relating to its inability to accept commercial spent nuclear fuel by January 1, 1998, the date specified in the *Nuclear Waste Policy Act of 1982, as amended*. The Department has recorded liabilities for likely damages of \$31 billion and \$29 billion as of September 30, 2020 and 2019, respectively. Our opinion is not modified with respect to this matter.

Other Matters

Interactive Data

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

Required Supplementary Information

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

Other Information

Our audits were conducted for the purpose of forming an opinion on the basic consolidated financial statements as a whole. The information in the About This Report, Table of Contents, Message from the Secretary, Message from the Deputy Chief Financial Officer, Introduction to Principal Statements, Memorandum from Inspector General, and Other Information sections of the Department's Fiscal Year 2020 Agency Financial Report is presented for purposes of additional analysis and is not a required part of the basic consolidated

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financial statements. Such information has not been subjected to the auditing procedures applied in the audits of the basic consolidated financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Other Reporting Required by Government Auditing Standards

Internal Control over Financial Reporting

In planning and performing our audit of the consolidated financial statements as of and for the year ended September 30, 2020, we considered the Department's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the consolidated financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Department's internal control. Accordingly, we do not express an opinion on the effectiveness of the Department's internal control. We did not test all internal controls relevant to operating objectives as broadly defined by the *Federal Managers' Financial Integrity Act of 1982*.

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

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

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Department's consolidated financial statements as of and for the year ended September 30, 2020 are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards* or OMB Bulletin No. 19-03.

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

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Purpose of the Other Reporting Required by Government Auditing Standards

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

KPMG LLP

Washington, D.C.
November 16, 2020

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AUDITORS' REPORT

FEEDBACK

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

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

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

If you want to discuss this report or your comments with a member of the Office of Inspector General staff, please contact our office at (202) 256-1818. For media related inquiries, please call (202) 586-7406.

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Other Information

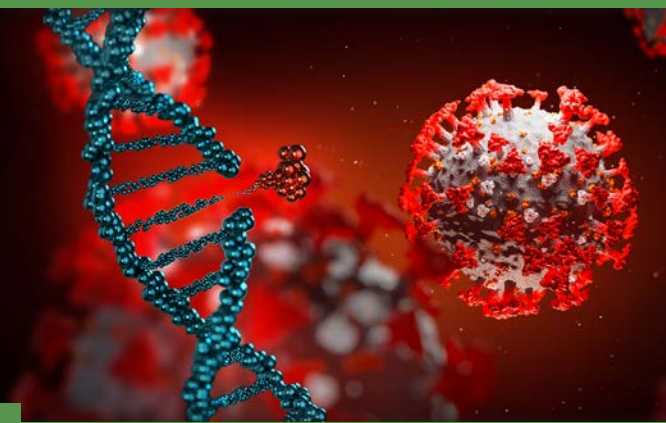


Photo 2



Photo 3

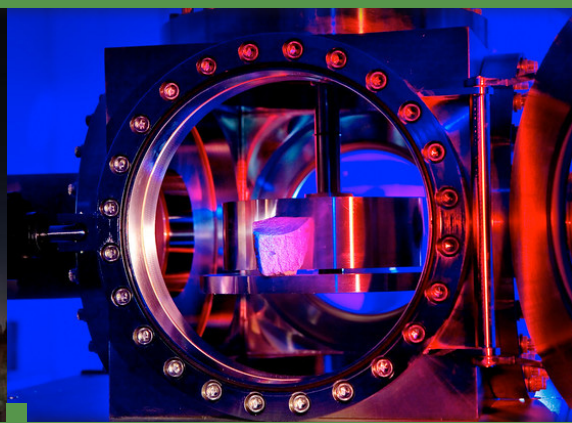


Photo 4

Photo 1

Department of Energy's Management Challenges – Report of the Inspector General

Congress requires that Inspectors General annually identify the most significant management challenges facing their agencies and report those challenges to Congress and the Agency head. Congress intended that Inspectors General focus attention on significant management issues, with the objective of working with Agency managers to enhance the effectiveness of Agency programs and operations.

Historically, the Department of Energy's Office of Inspector General (OIG) focused on broad categories of management challenges. This year, the OIG, in coordination with Department mission elements, identified the Department's most pressing management challenges, focusing on more specific issues where near-term progress is measurable and achievable. The following issues were identified pertaining to key mission elements:

- Office of Science/Artificial Intelligence and Technology Office - Establishing the Department as a Federal Enterprise Leader in Developing and Deploying Artificial Intelligence
- National Nuclear Security Administration - Restoring Plutonium Pit Production Capability
- Environmental Management - Managing Tank Waste

In addition, the OIG has identified certain "cross-cutting" management challenges that may impact the Department more generally and may promote all the Department's mission elements by lessening fraud, waste, and abuse. These specific issues are:

- Modernizing Oversight by Continuing to Access Department and Contractor Systems For the Purpose of Running Data Analytics
- Improving Audits of Costs Incurred and Claimed
- Building a Stronger Suspension and Debarment Program
- Enforcing the Mandatory Disclosure Rule
- Using All Available Tools to Combat the Theft of Intellectual Property

Office of Science/Artificial Intelligence and Technology Office - Establishing the Department as a Federal Enterprise Leader in Developing and Deploying Artificial Intelligence

In February 2019, the President directed the Department and other Federal agencies to pursue several strategic objectives to promote and protect American advancements in Artificial Intelligence (AI). These objectives include, among others, sustained investment in AI research and

development (R&D) in collaboration with industry; enhanced access to high-quality and fully traceable Federal data, models, and computing resources; and minimized vulnerability to AI-enabled attacks from malicious actors. The Executive Order states:

Maintaining American leadership in AI requires a concerted effort to promote advancements in technology and innovation, while protecting American technology, economic and national security, civil liberties, privacy, and American values and enhancing international and industry collaboration with foreign partners and allies.

As an emerging strategic technology, AI has the potential to transform many aspects of discovery and applied technology science; manufacturing, infrastructure, finance, and commerce; government operations; and national security. For example, the Department's Summit supercomputer at the Oak Ridge National Laboratory, which has unsurpassed AI capabilities, has played an important role in the Department's urgent COVID-19 pandemic investigations of the virus and potential therapeutic responses. Maintaining American leadership in AI will require a "whole-of-government approach" that will include meaningful contributions from Department and other Federal agencies working in partnership with private and academic sector experts.

As the custodians of the most advanced high-performance supercomputers and massive multimodal data sets stemming from diverse research, the Department is well-situated, working in conjunction with its national laboratories, to take a leading role in developing and deploying AI. Moreover, because the Department is charged with wide-ranging and complex missions in environmental stewardship, energy infrastructure, and national security, the deployment of advanced AI technologies is vital to enhancing its operations and resisting threats arising from adversarial use of AI. Meeting these goals will require a coherent, enterprise-wide strategy, excellent intradepartmental collaboration, and large-scale investments.

The Department's investment in AI research, development, and demonstration has been largely uncoordinated. Such efforts have been made by various Departmental elements drawing on their respective resources for research or operations, which are not dedicated exclusively to AI. This has meant that choices for AI investment have competed with other important initiatives sharing the same resource pools, such as quantum information science and the Exascale Computing Initiative. While investments in those projects can further AI development, those benefits are

often incidental to the primary purpose of the projects. Likewise, some of the Department's investments in cybersecurity R&D encompass elements of AI technology, but not exclusively so. Such a balkanized approach to AI investment poses the risk that the Department will miss opportunities to leverage all of its resources strategically.

Realizing the Department's goal of AI leadership will require cross-cutting, enterprise-wide efforts, with contributions from such diverse elements as the Office of Science; the Office of Cybersecurity, Energy Security, and Emergency Response; the Power Marketing Administrations; the Office of the Chief Information Officer; and, among others, the National Nuclear Security Administration (NNSA) and the Department's national laboratories. Achieving success in such an effort is inherently challenging given the scope of the subject matter and the manner in which the Department conventionally operates.

As part of the Department's efforts, in September 2019, the Secretary of Energy established the Artificial Intelligence and Technology Office (AITO) as a new element reporting directly to the Under Secretary for Science. The secretarial order establishing AITO specifies that this new office will foster the strategic coordination and development of AI activities across the Departmental complex by serving as a central point of coordination. In addition, AITO is tasked with enhancing the Department's sector-specific agency role and responsibility, and providing support to its national security platforms. As its vision, AITO has adopted the goal of transforming the Department into the U.S. Government's lead agency in the civilian use of AI by accelerating its research, development, delivery, and application. The first Director of AITO was recruited from industry and joined the Department in February 2020.

In order to coordinate strategic research priorities and ensure investment decisions were effectively leveraged, the Deputy Secretary established the Research and Technology Investment Committee (RTIC) to convene the principal leaders of the Department's R&D activities on a regular basis. At the RTIC's quarterly meeting in November 2019, AITO demonstrated that the AI data available to leaders responsible for coordination was incomplete. Specifically, AITO presented data showing that the sum of Department-wide AI investments increased from \$102.8 million in fiscal year (FY) 2019 to an estimated \$161.9 million in FY 2020. Notably, these amounts did not include investments at the Department's national laboratories funded either by laboratory-directed R&D (LDRD) or by third parties through collaborative R&D agreements and partnerships. Additionally, although AITO identified almost 300 distinct AI projects, it estimated that these represented only about half of all AI projects by various Departmental elements that were planned, underway, or recently completed. As a result of these shortcomings, and in accordance with RTIC guidance, AITO is establishing a comprehensive database, the AI Exchange (AIX), to provide a complete picture of the Department's AI

projects and to facilitate their coordination for strategic advantage. Additionally, AITO has assigned an AI Exchange coordinator to manage the comprehensive database and has proposed a directive to Department leadership to require enhanced reporting of data on AI projects through that database.

Between July and October 2019, the Office of Science organized a series of AI for Science town hall meetings at three national laboratories and in Washington D.C., which were attended by over 1,300 scientists from the Department's 17 national laboratories, 39 private enterprises, and over 90 universities. The goal of these meetings was to examine scientific opportunities in the coming decade in the areas of AI, big data, and high-performance computing. Scientific opportunities resulting from those discussions were captured in a report published in March 2020 outlining the research and infrastructure needed to advance AI methods and techniques for science applications.

Achieving the ambitious goal of establishing the Department as a leader among Federal agencies in developing and deploying AI technology will require well-coordinated initiatives including focused cross-cutting investments. One such initiative is the Exascale Computing Project, which is a collaboration among Oak Ridge, Argonne, Lawrence Livermore, Los Alamos, Sandia, and Lawrence Berkeley National Laboratories. The laboratories and the Department (including NNSA) are working to bring the next-generation of world-leading, AI-optimized supercomputers online. One of these, the Frontier supercomputer, is scheduled to be commissioned in calendar year 2021.

Additionally, in September 2020, the Advanced Scientific Computing Advisory Committee recommended a major strategic initiative for AI research, which would be a 10-year "AI for Science" plan that emulates the Department's Exascale Computing Initiative. The recommended initiative would be structured around four major R&D themes: AI enabled applications, AI algorithms and foundational research, AI software infrastructure, and new hardware technologies for AI. It is anticipated that the recommended initiative would include a near-term incubation phase that would coincide with the expected commissioning of the Department's latest supercomputing resources (including exascale machines), followed by the pursuit of the resulting AI R&D goals over the remainder of the decade.

Despite the recommended initiative for AI research, it represents just one arena for Departmental leadership in AI. The Department's full potential as a leader in AI will be realized only if it develops and deploys the technology in a wide range of its missions. For example, opportunities exist for the Department to deploy advanced AI technology to optimize its power marketing operations, such as the Bonneville Power Administration; to enhance the defense of agency, national laboratory systems, and infrastructure

against cyberthreats; to monitor financial records to detect potential waste or improper billings by Departmental contractors; and so forth.

The Department also needs to identify and consider making investments in cross-cutting AI opportunities that do not fall solely within the arena of a single program yet have the potential to benefit several Departmental elements and stakeholders. While the Department plans to continue addressing these challenges, resources for AITO staff and sponsorship of cross-cutting AI R&D projects are necessary in order to mitigate these challenges.

National Nuclear Security Administration - Restoring Plutonium Pit Production Capability

NNSA is responsible for maintaining a safe, secure, reliable, and effective nuclear weapons stockpile. During the Cold War, more than 1,000 plutonium pits, a critical component in nuclear warheads, were produced at various facilities across the United States per year. However, after the Cold War ended, sites refocused their missions on other areas critical to national security, with the exception of the Rocky Flats Plant, which eventually halted pit production in 1989 as a result of environmental and regulatory concerns. Due to factors such as aging, safety and security advancements, global risk, and weapons modernization, these pits periodically need to be replaced. For three decades, the U.S. Government has not had the capability to produce pits in the quantities required for the nuclear weapons stockpile.

The Department's FY 2020 Stockpile Stewardship and Management Plan addresses pit production requirements found in the 2018 Nuclear Posture Review, which tasked the Department with establishing an enduring capability and capacity to produce pits at a rate of no fewer than 80 per year during 2030. To provide resiliency for pit production operations and to mitigate risk in the event of a shutdown or disruption, the Department plans to utilize a two-site approach producing 30 pits per year during 2026 at the Los Alamos National Laboratory and no fewer than 50 pits per year during 2030 at the Savannah River Site.

In an effort to meet these quantities, the Department faces challenges associated with staffing, and the construction and modernization of required facilities. Currently, the Nuclear Security Enterprise only has one plutonium facility which is located at the Los Alamos National Laboratory. Due to the significant lapse in pit production, the nation lost much of its expertise in pit manufacturing following the closure of Rocky Flats. The Department must develop and maintain an expert workforce of sufficient size and quality to meet the challenging and changing needs of new processes, prototype demonstrations, capacity production, and the building of special items for the growing subcritical plutonium experiment program. Additionally, the Department must simultaneously complete the modernization of the Plutonium Facility

within the Los Alamos Plutonium Pit Production Project at the Los Alamos National Laboratory, while repurposing the former Mixed Oxide Fuel Fabrication Facility at the Savannah River Site.

To exemplify the magnitude of this undertaking, the Department's FY 2021 budget request has projected current and outyear funding (through FY 2025) for the Plutonium Modernization Program, including the Chemistry and Metallurgy Research Replacement project, at \$10.3 billion, which will provide resources for efforts across the National Security Enterprise to restore the Nation's capability to produce 80 pits per year during 2030.

While the Department has until the end of 2030 to ramp up pit production to the required 80 pits per year, interim milestones will need to be met to remain on schedule. Complicating this mission-critical initiative, the Department must manage extensive modernization and expansion of the pit production capability at Los Alamos, and repurposing the former Mixed Oxide Fuel Fabrication Facility at the Savannah River Site.

At Los Alamos, the Department continues to fabricate development pits to support a transition to the prove-in phase, which is when all production activities are verified to prove that a product can be mass produced. In order to manufacture and qualify the first war reserve pit in 2023, the Department has also continued addressing aging infrastructure and systems by recapitalizing facilities and equipment (i.e., acquiring, installing, configuring, and authorizing equipment for operation). Additionally, the Department has approved baselines and is on schedule to complete the first two subprojects (by 2022) of the Chemistry and Metallurgy Research Replacement project, which will replace Cold War-era facilities while maintaining continuity in analytical chemistry and materials characterization capabilities.

At the Savannah River Site, the Department has begun developing design documentation to create a pit production capability to meet the requirements of the 2018 Nuclear Posture Review. To this end, the Department has developed and submitted a Final Environmental Impact Statement for the plutonium pit production at the Savannah River Site in South Carolina. The Environmental Impact Statement includes analyses of proposed actions and alternatives, and the associated potential direct and indirect environmental impacts related to geology and soils, water resources, air quality, waste management, and human health.

According to the 2020 Stockpile Stewardship and Management Plan, a modern, responsive, and resilient capability to process and handle plutonium is essential to assessing and maintaining the nuclear weapons stockpile. A responsive plutonium infrastructure requires proper storage facilities, safe and secure disposal pathways, and unique equipment and facilities for R&D activities. In

order to provide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year during 2030, the Department must take significant action.

As a path forward, the Department intends to fabricate 5 process prove-in pits at the Los Alamos National Laboratory, while continuing to invest in equipment to achieve 10 pits per year production capability by 2024.

In FY 2021, the Department plans to complete the conceptual design and Critical Decision 1 for both the Savannah River Plutonium Processing Facility and the Los Alamos Plutonium Pit Production Project. This vital decision point serves as a determination that the selected alternative and approach is optimized to meet the mission need. Key elements of the evaluation include the project's conceptual design, cost and schedule range, and general acquisition approach. The results of this evaluation will assist the Department in determining the necessary investments in pit production equipment required to meet the 30 pits per year production requirement capability in 2026 at the Los Alamos National Laboratory, as well as the 50 pits per year requirement in 2030 at the Savannah River Site.

Environmental Management – Managing Tank Waste

The Department's Office of Environmental Management (EM) is responsible for addressing the environmental legacy of decades of nuclear weapons production and government-sponsored nuclear energy research. This mission includes the safe, effective, and cost-efficient management, treatment and disposition of waste (known as "tank waste") generated through legacy spent nuclear fuel reprocessing and other plutonium processing activities. EM manages a total inventory of approximately 91 million gallons of tank waste, which is a primary environmental risk at most of the sites where it is located. At the Hanford, Savannah River, and Idaho sites, the remaining tank waste is stored in aging underground tanks, many of which are well past their design life. At the Hanford Site, as many as 58 tanks are believed to have leaked into the underlying soil.

In addition to the environmental risks, tank waste also represents a significant financial burden to the U.S. Government. The Department is the top contributor to the Federal Government's overall environmental liabilities. EM's current total environmental liability is approximately \$406 billion (in current year dollars), according to the Department's FY 2020 Agency Financial Report. As such, the Department expends significant resources to safely and effectively treat the nation's tank waste.

Since EM was established, the Department has taken noteworthy steps to address tank waste at sites across the U.S. For instance, at the West Valley Demonstration

Project, the Department has vitrified 600,000 gallons of reprocessing waste into 275 canisters for long-term storage and eventual disposal. Additionally, in 2019, the Department successfully completed the demolition of the West Valley site's Vitrification Facility, marking the first time in the Department's history that such a facility has been successfully constructed, operated, and demolished. At the Savannah River Site, the Defense Waste Processing Facility has produced approximately 4,200 canisters of vitrified tank waste, representing half of the anticipated total. Further, approximately 18 million gallons of decontaminated salt solution taken from Savannah River's underground tanks has been processed for onsite disposal through stabilization via grout.

In addition to actions taken thus far, the Department continues to push forward with constructing and commissioning a complex, first-of-a-kind, multi-billion-dollar facilities to treat tank waste. The Department successfully completed verification of operational readiness, obtained CD-4 and Authorization to Operate the Salt Waste Processing Facility in August 2020, and began initial radiological operations. This facility will significantly ramp up the ability to treat the remaining tank waste at the site. At the Idaho National Laboratory Site, the Department is in the final stages of startup and commissioning of the Integrated Waste Treatment Unit, which will treat the remaining liquid tank waste at the site. The Department anticipates that this facility, which was completed in 2012, will be operational in 2021, with waste treatment expected to take 5-to-7 years to complete. In August 2020, the Hanford Waste Treatment and Immobilization Plant's Analytical Laboratory was transitioned from startup to commissioning. Additionally, construction on the Waste Treatment and Immobilization Plant's Low-Activity Waste Facility is due to be completed by the end of the calendar year.

Along with ensuring the completion and commission of the necessary tank waste treatment facilities, the Department has instituted new policies and approaches that have the potential to open new disposition pathways for tank waste. In 2019, the Department issued its new interpretation of the term, "high-level waste." This interpretation represents a science-driven approach to managing tank waste via its radioactive constituents, and not by how it was generated, as was the previous practice. The high-level waste interpretation will enable the Department to more appropriately manage and disposition tank waste in a risk-based and more cost-effective manner that remains fully protective of human health and the environment. The first application of the high-level waste interpretation was completed in September 2020, with eight gallons of Savannah River Site Defense Waste Processing Facility recycle wastewater shipped to the Waste Control Specialists, LLC low-level radioactive waste disposal facility in Andrews Texas.

The safe and efficient management and disposition of tank waste will require sustained commitment and leadership

by the Department. While progress has been made in establishing the capabilities to treat tank waste for final disposition, significant work remains. At the Hanford Site, the Department will need to complete the construction, startup, and commissioning of those facilities involved in the Direct Feed Low-Activity Waste approach. In addition, with the Direct Feed Low-Activity Waste approach estimated to treat approximately 40 percent of the low-activity inventory of tank waste, the Department will need to identify and select additional treatment options to fully address this inventory. The Department also needs to identify and develop technically achievable, cost-effective, and viable approaches for treating the high-activity inventory of tank waste at the Hanford Site for disposition. The current program of record would use the Waste Treatment and Immobilization Plant's Pretreatment and High-Level Waste facilities to prepare and vitrify the high-level waste for eventual final disposition. However, work on those sections was suspended due to the need to resolve remaining technical issues, and analyses performed by the Department and the Army Corps of Engineers have determined that it is unlikely the Pretreatment and High-Level Waste facilities will be completed and in operation in time to meet current commitments. Currently, the Department is finalizing an Analysis of Alternatives on potential options for high-level tank waste treatment as efficiently as possible.

At the Savannah River Site, the Department will need to continue operations of the Defense Waste Processing Facility and demonstrate the long-term reliability and availability of the Salt Waste Processing Facility. To enable completion of the bulk of the tank waste mission at the site in the next decade, the Department will need effective management of the spent nuclear fuel processing mission at the Savannah River H-Canyon facility, which contributes to the tank waste mission at the site.

At the Idaho National Laboratory Site, the Department will need to complete facility modifications, startup testing, commissioning the Integrated Waste Treatment Unit, and initiate operations. When the facility has confirmed its ability to treat the remaining tank waste at the Idaho National Laboratory Site, the Department will also need to demonstrate the reliability and availability of this facility as the startup and commissioning process has encountered challenges. Finally, the Department will need to identify a pathway for the disposal of the calcined material currently stored at the Idaho National Laboratory Site.

In addition to the remaining efforts outlined above, the Department will also need to work to identify and develop final disposition pathways for all types of treated tank waste.

Cross-Cutting Challenges – Reducing Fraud, Waste and Abuse

As the largest civilian contracting agency in the Federal Government, the Department spends approximately 90 percent of its annual budget on contracts to operate its scientific laboratories, engineering and production facilities, and environmental restoration sites. Due to the Department's reliance on contractors to execute much of its mission, the OIG focused its efforts this year on cross-cutting management challenges in order to modernize and improve the Department's oversight of its contractors. Realizing improvements within these areas will help protect the Department from fraud, waste, and abuse.

Modernizing Oversight by Continuing to Access Department and Contractor Systems for the Purpose of Running Data Analytics

The Fraud Reduction and Data Analytics Act of 2015 (FRDAA) was passed to improve Federal agency financial and administrative controls, and procedures to assess and mitigate fraud risks. Additionally, the FRDAA was enacted to improve agencies' development and use of data analytics for the purpose of identifying, preventing, and responding to fraud, including improper payments. To comply with the FRDAA, the Department has undertaken the development and implementation of a Fraud Risk and Data Analytics Framework (Framework). Using a three-phased approach, the Department plans to establish this Framework over the next five years.

An immediate challenge complicating the Department's implementation of the Framework is its limited oversight resources, including limited personnel with the associated skill sets needed to operate a data analytics program. To address these immediate challenges, the Department intends to leverage industry best practices through contracting services.

Another significant challenge facing the Department is to identify the various data systems in use by the Department and its contractors. Once the relevant data systems are identified, the next set of challenges will be accessing the data and determining the strategy for analyzing it. The potential use of AI in this area is an exciting prospect which could save the taxpayers millions and perhaps billions of dollars in the long term.

Although much work remains, the Department has taken initial steps towards establishing and implementing the Framework. Officials have defined the purpose of the Framework and its placement within the organization, and established a leadership hierarchy to guide the effort. To assist in the development of the Framework, the Department has awarded a contract to ensure the incorporation and use of industry best practices, and has begun to establish collaborative relationships with its management and operating contractors to identify the available data. Moving forward, the Department plans to

utilize current year fraud risk occurrences and control test failures to update and refine their Fraud Risk Profile. Further, the Department proposes to construct an Antifraud Strategy considering recommended actions from risk owners and supporting offices, annual updates to the Fraud Risk Profile, and newly confirmed fraud activities.

On a parallel track, the OIG is moving swiftly into the area of data analytics. Over the past two years, the OIG has developed and implemented a data analytics function focusing on two initial goals: (1) to identify and directly access relevant Department and contractor systems, and (2) to analyze high-risk areas, such as labor, pay, and contract charges.

Historically, the OIG, despite having the clear legal right to directly access Federally-owned systems, relied on Federal and contractor employees to provide records and data to support audits, inspections, and investigations. This hands-off approach resulted in a lack of complete knowledge by the OIG as to the systems being utilized and the data available. Since its inception in 2019, the OIG's Office of Technology, Financial, and Analytics has been gradually gaining direct "read only" access to Federal and contractor systems. Notably, direct access is the only path that has the potential to identify fraud, waste, and abuse in real time. Real time or near-immediate detection of fraud is the most powerful use of data analytics.

Moving forward, the OIG's Data Analytics team will continue to identify and obtain direct access to relevant systems, and implement risk models to identify adverse trends and possible fraud, waste, and abuse. During FY 2020, the OIG Data Analytics team supported more than 20 ongoing audits, inspections, and investigations, including the analysis of the largest fraud investigation in the Department's history.

Improving Audits of Costs Incurred and Claimed

The Cooperative Audit Strategy adopted by the Department in 1994 gives management and operating (M&O) contractors the responsibility to perform the required incurred cost audit work, with minimal oversight from both the Federal Contracting Officer and the OIG. Over the course of the 25 years that the Cooperative Audit Strategy has been in place, stakeholders such as the U.S. General Accountability Office and Department of Defense have expressed concerns about independence, conflict of interest, and the appropriateness of contractors auditing their own incurred costs.

For several years, the OIG has been evaluating whether the Cooperative Audit Strategy has been functioning as intended. Beginning in 2016, the OIG performed a number

of audits of incurred costs, essentially performing the work that would normally be performed by the M&O contractor's internal audit groups. In FY 2020, the OIG performed additional audits of M&O contractors and non-M&O prime contractors. The results of these audits identified significant findings which question the functioning of the Cooperative Audit Strategy.

For example, the OIG found that not all internal audit groups adequately evaluated incurred costs for allowability, allocability, and reasonableness. Additionally, the OIG noted weaknesses in internal audit's design of the audit risk assessment and sampling approach. We also found that M&O contractors were not always compliant with Cost Accounting Standards. We are currently drafting a Special Project Report on this subject.

Building a Stronger Suspension and Debarment Program

Federal contractors may be suspended or debarred from entering into new Federal contracts for a period of time in order to protect the U. S. Government from conducting new business with contractors lacking business integrity. The most typical use of these remedies would be based upon a criminal conviction or a serious civil offense. The Department of Energy is second only to the Department of Defense in the amount of Federal dollars annually spent on contractors. The Department spent more than \$30 billion on contractors in FY 2019.

Other Federal agencies with a smaller contracting presence operate robust suspension and debarment programs. These programs protect the rest of the Government from continuing to do business with contractors that have committed criminal or civil offenses, or otherwise lost the trust of the Federal Government. In FY 2019, for example, the General Services Administration suspended 49 parties and debarred 84. Likewise, the Department of Housing and Urban Development suspended 40 parties and imposed 97 debarments. The only Department with a larger contracting budget than the Department, the Department of Defense, suspended 267 parties and debarred 442 in FY 2019.

In comparison, the Department issued only five suspensions and 19 debarments in FY 2019.¹ Along the same lines, the Department issued only 25 suspensions and 30 debarments in FY 2018.² These numbers are lower than one would expect from a Federal agency with the Department's contracting presence. Notably, within this same time period from 2018 through 2019, the OIG experienced an approximated 30 percent increase in the volume of criminal investigations being conducted within the Department's contractor complex. Several of these investigations involve substantially larger alleged losses

¹ The Department of Energy self-reported these suspension and debarment numbers to the Interagency Suspension and Debarment Committee.

² Interagency Suspension and Debarment Committee FY 2018 report issued under Section 873 of P.L. 110-417.
https://www.acquisition.gov/sites/default/files/page_file_uploads/FY2020_18%20873%20Report%20-%20Final%2010%2030%202019.pdf

when compared to historic investigations. These are troubling trends. As these ongoing matters continue to be resolved, the Department should be prepared to timely consider and process suspension and debarment referrals in order to protect the U.S. Government from continuing to give new business to contractors lacking business integrity.

A lack of detailed policy and procedures may be contributing to the Department pursuing a lower than expected number of suspensions and debarments. Both the U.S. Government Accountability Office and the Council of Inspectors General on Integrity and Efficiency have identified several elements of robust suspension and debarment programs. Two key elements of active programs are full-time staff dedicated to suspension and debarment actions, and the publishing of detailed policies and procedures. The Department has neither. Suspending and Debarring Officials at the Department have substantial competing duties. Likewise, staff assisting with suspension and debarment matters at the Department also have multiple priorities that may crowd out suspension and debarment work. While the Department has put some suspension and debarment procedures in place, those procedures do not provide guidance on many of the essential subjects included in the procedures that are used by other agencies with more robust programs.

For these reasons, the OIG began an audit of the Department's suspension and debarment programs in 2018. That audit has concluded and will be the subject of an upcoming OIG Special Report in the coming months. The OIG has also undertaken a strategic initiative to enhance its own capabilities in the making of timely referrals for suspension and debarment. In conclusion, it should be noted that the Department has made some progress in 2020, according to the latest informal statistics. We look forward to reporting additional successes in FY 2021.

Enforcing the Mandatory Disclosure Rule

Given the Department's reliance on contractors to execute its mission, it's imperative that the Department's contractors conduct their business operations with integrity. For this reason, the Federal Acquisition Regulation requires contractors' internal programs to include an ethics and compliance system with practices aimed at preventing and detecting misconduct, and promoting an organizational culture that encourages ethical conduct and a commitment to compliance with the law. Contractors who conduct work for the Department must establish and maintain an Employee Concerns Program suitable for the organization to accept, process, and resolve employee concerns related, but not limited to, fraud, waste, and abuse. A critical feature of this compliance strategy is the Mandatory Disclosure Rule.

The Mandatory Disclosure Rule requires Government contractors and subcontractors to disclose in writing to the Inspector General any matter where there is credible evidence of certain criminal violations, a violation of the civil False Claims Act, or a significant overpayment in connection with the award, performance, or closeout of a Government contract or subcontract. Of particular interest to Inspectors General are any credible allegations of fraud, waste, or abuse. Inspectors General across the Federal government rely on these timely written mandatory disclosures to protect Government interests and taxpayer funds.

In early 2020, the OIG examined its own records to determine the volume and sufficiency of any written mandatory disclosures filed by the Department's contractors during the preceding 5-year period. Fewer than ten such mandatory disclosures had been made in writing to the OIG during the 5-year period. Furthermore, many of those disclosures did not contain the information required by the Mandatory Disclosure Rule. These early results were troubling.

In order to follow up on the issue, the OIG next conducted an informal benchmarking exercise. In order to benchmark the volume of mandatory disclosures that a Federal OIG might reasonably expect to receive, the OIG examined the volume of mandatory disclosures received by the Department of Defense over the same period of time, and adjusted that volume for dollars spent in order to benchmark an anticipated volume of mandatory disclosures for the Department. The result of this informal benchmarking effort indicated that the Department should have approximately received a 90 percent higher volume of written mandatory disclosures during the 5-year period. While this informal benchmarking was not intended to produce a scientifically sound result, it informed our decision to further evaluate the matter.

In July of 2020, the OIG initiated an inspection to acquire some preliminary data about how eight of the Department's contractors have been managing specific employee concerns that would appear to trigger the Mandatory Disclosure Rule requirements. This inspection work is ongoing, but the OIG has already discovered numerous violations of the Mandatory Disclosure Rule. For example, the OIG located data commemorating fraud activities where contractors terminated employees. It's unlikely that contractors would terminate employees based on incredible evidence. By not reporting these issues, the contractors withheld information that may have prompted an OIG investigation revealing more substantial problems. Such violations of the Mandatory Disclosure Rule may expose the Department to fraud, waste and abuse. As a result of our ongoing work, the OIG will make specific recommendations to improve the enforcement of this important rule.

Using All Available Tools to Combat the Theft of Intellectual Property

The Department of Energy is the largest Federal sponsor of basic research in the physical sciences, and awards approximately \$6.6 billion in grants and contracts annually that support 25,000 researchers at over 300 institutions and its 17 National Laboratories. The Department funds cutting-edge research and the deployment of innovative technologies, and encourages collaboration and cooperation between industry, academia, and government to create a vibrant scientific ecosystem.

The Department's prominent role in advanced research and development across multiple scientific disciplines, combined with its key role in nuclear weapons development, makes it particularly attractive to theft from foreign governments. Due to the economic and scientific value of the research and intellectual property developed within the Department, foreign governments have intensified their efforts to extract information from our institutions.

Foreign governments attempt to acquire U.S.-funded research through "talent recruitment" programs, targeting scientists, engineers, academics, researchers, and entrepreneurs working or being educated in the United States. Targeted individuals are offered rewarding and prominent opportunities at leading foreign research institutions in exchange for transferring their knowledge and expertise to foreign countries, which is often funded with Departmental dollars. Talent recruitment programs are sponsored by many countries designated by the

Department as "countries of risk." Such programs threaten the economic interests of the U.S. Government by steering cutting-edge, taxpayer-funded research to foreign adversaries for the benefit of their economies.

To highlight the magnitude of this challenge, the OIG currently has numerous active investigations directly involving threats to intellectual property by foreign adversaries. The OIG has seen an increase in caseload of 114 percent since 2016 regarding instances of the theft of intellectual property. In response, the OIG has been aggressive in the enforcement of this crime, working with our partners in the law enforcement community, and in concert with the Department of Justice, to carry out a variety of enforcement actions nationwide.

Due to the open nature of the scientific community, research and development conducted on behalf of the Department is inherently vulnerable to the unauthorized transfer of intellectual property to foreign governments. It is critical that the Department takes appropriate actions to mitigate these risks. For this reason, the OIG has initiated a Special Project, led by the OIG's Office of Counsel, to review the most effective legal and practical strategies being used by other Federal agencies vulnerable to this type of theft. In the coming months, the OIG will issue a Special Project Report which will include recommendations to ensure that the Department is using a "whole-of-government" approach to improve its management of these issues, and to utilize the full range of available tools, including criminal, civil, and administrative remedies.

FY 2020 Summary of Financial Statement Audit and Management Assurances

Audit Opinion	Unmodified				
Restatement	No				
Material Weaknesses	Beginning Balance	New	Resolved	Consolidated	Ending Balance
<i>TOTAL Material Weaknesses</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Effectiveness of Internal Control Over Financial Reporting (FMFIA Section II) – Statement of Assurance	Unmodified					
Material Weaknesses	Beginning Balance	New	Resolved	Consolidated	Reassessed	Ending Balance
<i>TOTAL Material Weaknesses</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Effectiveness of Internal Control Over Operations (FMFIA Section II) – Statement of Assurance	Unmodified					
Material Weaknesses	Beginning Balance	New	Resolved	Consolidated	Reassessed	Ending Balance
<i>TOTAL Material Weaknesses</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Conformance with Federal Financial Management System Requirements (FMFIA Section IV) – Statement of Assurance	Federal Systems conform to financial management system requirements					
Non-Compliance	Beginning Balance	New	Resolved	Consolidated	Reassessed	Ending Balance
<i>TOTAL Non-Conformance</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

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

Financial Management Systems Plan

Corporate Business Systems

The Department's enterprise-wide Corporate Business Systems (information technology systems) consist of financial, budgetary, procurement, and personnel systems. These systems are supported by a data warehouse linking common data elements from each of the Department's business systems, and support external and internal reporting. The major business systems include:

- Budget: Funds Distribution System (FDS 2.0)
- Financial: Standard Accounting and Reporting System (STARS)
- Personnel: Corporate Human Resource Information System (CHRIS)
- Procurement: Strategic Integrated Procurement Enterprise System (STRIPES)
- Data Linking: Integrated Data Warehouse (IDW)/iPortal
- Travel Processing: Services outsourced through the General Services Administration (GSA) eTravel Services contract, using a system called Concur Government Edition
- Payroll Processing: Services outsourced to the Defense Finance and Accounting Service (DFAS)

Current Systems

Funds Distribution System (FDS 2.0) – FDS 2.0 is the Department's budgetary funds distribution system, providing the capability to record, distribute, and execute appropriations, apportionments, allotments, allocations, and ancillary processes such as reprogramming and appropriation transfers. FDS 2.0 integrates with STARS, IDW, and field office systems to capture reimbursable work transactions. FY 2020 FDS 2.0 activities include:

- Completed efforts for Budget Formulation Phase II, allowing Program Offices to submit allotment requests within FDS 2.0
- Completed migration of the FDS sandbox environments into the cloud
- Provided training for users on the budget formulation functionality
- Upgraded to latest release of Oracle Data Integrator (ODI)
- Implemented user-requested enhancements and additional functionality
- Actively maintained the required security posture and upgraded to the most current quarterly Oracle patch set

Looking forward to FY 2021, FDS 2.0 will focus largely on the migration of QA and Production environments to the cloud and completing the interface between FDS 2.0 and PSO formulation systems. System functionality and

technical enhancements will continue, and will include recommendations collected through user feedback sessions.

Standard Accounting and Reporting System (STARS) – STARS is the Department's financial management system, providing accounting, reporting, and performance measurement services. STARS integrates with procurement, funds distribution, travel, and human resources systems. FY 2020 STARS activities include:

- Coordinated with the Governance, Risk and Compliance (GRC) team for a successful implementation
- Completed migration of the STARS and Southeastern Power Administration (SEPA) sandbox environments into the cloud
- Completed SEPA application upgrade from 12.1.3 to 12.2.8
- Migrated both the STARS and SEPA applications from the AIX platform to the new Linux environment
- Created framework for TBM in STARS to track IT internal labor costs
- Further enhanced the Trading Partner reporting capability

Future STARS activities include migrating QA, DEV and Production environments into the cloud. Additional coordination of the GRC Phase II efforts and analysis of G-Invoicing efforts, and assessing vendor deliverables.

Corporate Human Resource Information System (CHRIS) – CHRIS is DOE's Human Resources (HR) system. CHRIS improves operational HR efficiencies, reduces paperwork, and provides the strategic information needed to make informed human resource management decisions. FY 2020 CHRIS activities include:

- Finalized the charter to conduct an Analysis of Alternatives to replace CHRIS
- Supported and enhanced functionality and reporting based on user requirements
- Initiated the upgrade to PeopleSoft 9.2
- Completed a server upgrade from Windows 2012 to Windows 2016
- Completed the upgrade to People Tools 8.57

In FY 2021, CHRIS will continue the upgrade process for PeopleSoft 9.2, conduct the Analysis of Alternatives to replace CHRIS, and migrate to the cloud.

OTHER INFORMATION (Unaudited)

Strategic Integrated Procurement Enterprise System (STRIPES) – STRIPES is DOE’s procurement and contracts management system, automating all procurement and contract activities associated with planning, awarding, and administering various unclassified acquisition and financial assistance instruments. STRIPES is integrated with STARS and IDW, and connects DOE with the General Services Administration (GSA) Integrated Acquisition Environment, which includes the System for Award Management (SAM), Federal Procurement Data System – Next Generation (FPDS-NG), and Beta.SAM.gov’s Contracts Opportunities. STRIPES also interfaces with Grants.gov and FedConnect. FY 2020 STRIPES activities include:

- Completed migration of the STRIPES sandbox environment into the cloud
- Upgraded the STRIPES software from PRISM version 7.2 to PRISM version 7.4
- Evaluated FITARA functionality, configured STRIPES to accommodate the new OCIO/MA FITARA Business workflow and implemented the new FITARA business process within STRIPES
- Supported the FBO decommissioning and transition to Beta.SAM.gov’s Contracts Opportunities
- Supported and provided the initial analysis of GSA DUNS to Unique Entity Identifier (UEI) replacement effort

In FY 2021, STRIPES plans to analyze, configure, test, and enable the Unison Market Place module within STRIPES (Reverse Auction functionality), perform various Federal Acquisition Regulations (FAR) and Department of Energy Acquisition Regulations (DEAR) updates, review G-Invoicing requirements and assess vendor deliverables, migrate all STRIPES databases to Oracle version 19C, continue the records retention and destruction activities, and migrate all environments to the cloud.

Integrated Data Warehouse (IDW)/iPortal – IDW is a central data warehouse linking common data elements from multiple DOE corporate business applications, providing reporting to DOE executives, managers, and staff, including access to business applications, personalized dashboards, messaging, discussion boards, collaboration capabilities, news, reporting, web conferencing, graphing, and data exchange capabilities. FY 2020 IDW activities include:

- Completed migration of the IDW sandbox environments into the cloud
- Supported the procurement community by adding numerous data fields to the STRIPES subject areas
- Provided continuing support for the Grants Oversight & New Efficiency (GONE) Act
- Performed annual subject area and reports cleanup and simplification
- Deployed numerous enhancements to CF in house tools such as AMERICA, iBenefits, Advanced Notification of Award system, Small Business Goaling and Conferencing Management Tool, and MOSRC
- Completed migration of the remaining systems to Linux
- Continued to support more than 14,000 customers

In FY 2021, IDW will migrate remaining environments to the cloud, work on Phase II of the Research and Innovation Act, and gather final requirements to deploy a new Record Retention and Destruction tool.

Additional Efforts Underway

In FY 2021, in coordination with OCIO, Corporate Business Systems will migrate on-premises infrastructure to a cloud service provider or another location.

Payment Integrity Reporting

The Payment Integrity Information Act (PIIA) of 2019, Public Law (P.L.) 116-117 enacted March 2, 2020, repeals the Improper Payments Information Act (IPIA) of 2002, Public Law (P.L.) No. 107-300, as amended by the Improper Payments Elimination and Recovery Act (IPERA) of 2010, and the Improper Payments Elimination and Recovery Improvement Act (IPERIA) of 2012. PIIA requires Federal agencies to annually review their programs and activities to identify those susceptible to significant improper payments, and to measure and report improper payment rates and amounts for programs that are found to be susceptible to improper payments.

Detailed information on improper payments and information reported in prior AFRs can be found on the Payment Accuracy website, <https://paymentaccuracy.gov/>.

Risk Assessments

When performing risk assessments, the Department evaluates OMB's seven suggested risk assessment factors, plus three other risk factors:

1. Evaluate whether the payment process(es) over the payment category is new, or whether there have been any major changes in program funding, authorities, practices, or procedures. (OMB A-123, Appendix C, risk factors i. and v.)
2. Evaluate the complexity of the payment process for each type of payment, especially with respect to determining correct payment amounts. (OMB risk factor ii.)
3. Evaluate the volume and dollar amount of payments for FY 2019. (OMB risk factor iii.)
4. Evaluate whether payments or payment eligibility decisions are made by those outside of the payment reporting site. (OMB risk factor iv.)
5. Evaluate the level, experience, and quality of training of personnel responsible for determining program eligibility, certifying that payments are accurate, and conducting post-payment reviews. (OMB risk factor vi.)
6. Evaluate inherent risk. (other risk factor)
7. Evaluate the results of Office of Inspector General (IG), Government Accountability Office (GAO), Defense Contract Audit Agency (DCAA), and other External Audits/Reviews or management findings that might hinder accurate payment certifications. (OMB risk factor vii.)
8. Evaluate the results of OMB Circular A-123 assessments and other internal reviews designed to prevent or detect improper payments. (other risk factor)
9. Evaluate contractor payment processing oversight. (other risk factor)

10. Evaluate for proper segregation of duties and responsibilities. (other risk factor)

In accordance with the requirement to perform a risk assessment at least once every three years, the Department performed a risk assessment in FY 2018. In FY 2020, the Department's payment reporting sites were not required to perform a risk assessment unless there were significant: (1) changes in legislation, including legislation related to COVID-19; (2) increase in site outlays (10 percent or more compared to last fiscal year), including increases in funding related to COVID-19; or (3) changes to the site's payment processes, including processes created in response to COVID-19, occurred that would make the site susceptible to significant improper payments.

In FY 2020, 35 of the 48 payment reporting sites performed a risk assessment. Thirty-three sites met one or more of the three criteria and performed a risk assessment. Two additional reporting sites performed a risk assessment as part of the sites' annual reporting process, although not required. Based on the site risk assessments performed in FY 2020, and consolidated at the Departmental level, it was determined that the Department was not susceptible to significant improper payments. DOE is considered one program for improper payment reporting and assesses its program by payment types identified in the table on the next page.

DOE continues to maintain a <1 percent overall erroneous payment rate (.07 percent), and actual improper payments for payments made in FY 2019 are below OMB's \$100 million threshold. The Departmental erroneous payment rate has remained below 1 percent since the inception of its program in FY 2002. For FY 2019 information reported in FY 2020, the Department's total payment outlays were \$44.32 billion, and identified improper payments were \$31.65 million, including underpayments of \$0.65 million and lost discounts of \$0.33 million, neither of which can be recaptured.

Recapture of Improper Payments Reporting

The Department's low improper payment rate of .07 percent reported in FY 2020 for FY 2019 payments, and the high recapture rate of 93 percent reported for the same period, support the Department's determination that it is not cost-effective to employ traditional payment recapture audit contracts, and the Department notified OMB of this fact in September 2015. For FY 2020, \$0.58 million is deemed uncollectible due to amounts being below the threshold minimum established for pursuing recapture or due to lost prompt payment discounts, or fraud amounts that cannot be recovered.

OTHER INFORMATION (Unaudited)

The Department conducts site-specific reviews and analysis of accounting and financial records, supporting documentation, and other pertinent information supporting payments. These activities are detective and corrective in nature, and are designed to identify and recapture overpayments. Activities include prepayment review and approval of invoices, performing quarterly prompt-payment reviews, post-payment reviews, contractor internal audits, leveraging the results of cost allowability audits of integrated contractors and interim and close-out reviews of contracts and grants, reviews of grant credits in ASAP (Automated Standard Application for Payments), and results from travel audits. The

Department will continue to scrutinize improper payment activity and controls through its internal control program by emphasizing, evaluating, and strengthening controls as needed to maintain the Department's record of low payment errors and to continue the effective stewardship of public funds.

Table 1 identifies FY 2019 overpayments identified and recaptured outside of payment recapture audits reported in FY 2020, and **Table 2** identifies root causes of overpayments identified for recapture in FY 2019.

Table 1

FY 2019 Overpayments Identified and Recaptured Outside of Payment Recapture Audits Reported in FY 2020 (\$ in millions)¹						
PROGRAM/ PAYMENT TYPE	Amounts Identified For Recapture of Payments Made in FY2019	Amounts Identified For Recapture of Payments Made in FY2018 & Prior	TOTAL Amounts Identified For Recapture of Payments Made in FY2019 & Prior	AMOUNTS RECAPTURED FOR FY 2019 AND REPORTED IN FY 2020 ²	AMOUNTS RECAPTURED FOR FY 2018 AND PRIOR YEARS AND REPORTED IN FY 2020 ²	TOTAL AMOUNTS RECAPTURED FOR FY 2019 AND PRIOR AND REPORTED IN FY 2020 ²
Vendors/Contracts	21.19	11.93	33.12	19.45	10.94	30.39
Benefits - Payroll	2.37	2.32	4.69	1.98	2.13	4.11
Benefits - Travel	0.50	0.30	0.80	0.46	0.28	0.75
Grants	5.98	8.64	14.61	5.98	0.38	6.35
Loans	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.86	0.34	1.20	0.82	0.34	1.16
TOTAL	30.90	23.52	54.43	28.69	14.07	42.76

¹ DOE reports prior year payment activity in its current year Agency Financial Report (AFR), per OMB approval received on May 25, 2011. In addition, DOE is considered one program for improper payment reporting, and assesses the payment types included in this table for its 48 payment reporting sites, per OMB approval received on August 10, 2011.

² In FY 2019, a total of \$42.76 million was recaptured, including \$28.69 million associated with FY 2019 payments, and \$14.07 million associated with payments made in FY 2018 and prior.

Table 2

Root Causes of Overpayments Identified for Recapture in FY 2019 (\$ in millions)	
ROOT CAUSE OF IMPROPER PAYMENTS	TOTAL IDENTIFIED FOR RECAPTURE
Confirmed Fraud	14.83
Duplicate Payment	5.75
Funds used for Purposes other than allowed by law or Departmental Policies	0.02
Goods or Services Not Received	1.99
Incorrect Amount	15.25
Ineligible Good or Service	1.79
Ineligible Recipient	4.09
Insufficient Documentation	1.85
Other Reason	1.29
Settlement as the Result of Litigation	1.27
Unallowable Cost	6.30
TOTAL	54.43

Grant Programs

All reporting entities with grant programs must submit a brief high-level summary of expired, but not closed, grants. A summary table of the total number of Federal grant and cooperative agreement awards and balances for which closeout has not yet occurred, but for which the period of performance has elapsed by two years or more prior to September 30, 2020, is below.

Eleven grants/cooperative agreements remain open for the following reasons:

- One cooperative agreement and one grant remain open due to outstanding collections from the awardee. The cooperative agreement and grant

will be closed after collections have been received and the issues have been resolved;

- One cooperative agreement remains open as a result of property issues and is expected to be closed in Fiscal Year 2021;
- One cooperative agreement was not closed by September 30, 2020, but was closed in October of Fiscal Year 2021;
- Three cooperative agreements are undergoing an audit and will be closed after the audit is complete; and
- Four cooperative agreements remain open due to final patent clearances. They will be closed after the patent issues are resolved.

CATEGORY	2-3 Years	>3-5 Years	>5 Years
Number of Grants/Cooperative Agreements with Zero Dollar Balances	8	0	2
Number of Grants/Cooperative Agreements with Undisbursed Balances	1	0	0
Total Amount of Undisbursed Balances (Dollars in Millions)	\$0.29	\$0.00	\$0.00

Civil Monetary Penalty Adjustment for Inflation

FERC Civil Monetary Penalty Adjustment for Inflation						
Statutory Authority	Description of Penalty	Year Enacted	Latest Year of Adjustment	Current Penalty Level	Sub-Agency/Bureau/Unit	Location for Penalty Update
16 U.S.C. § 825o-1(b), Sec. 316A of the Federal Power Act	Violation of any provision of Part II of the FPA or related rule or order.	2005	2020	\$1,291,894 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
16 U.S.C. § 823b(c), Sec. 31(c) of the Federal Power Act	Violation of or failure/refusal to comply with any rule or regulation issued under Part I of the FPA or any related order or term of a license, permit, or exemption.	1986	2020	\$23,331 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
16 U.S.C. § 825n(a), Sec. 315(a) of the Federal Power Act	Violation of or willful failure to comply with any order of the Commission; file any report required under the FPA; or submit any information or document or respond to subpoena required by the Commission in the course of an investigation conducted under the FPA.	1935	2020	\$3,047 per violation	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
15 U.S.C. § 717t-1, Sec. 22 of the Natural Gas Act	Violation of any provision of the NGA or any related rule, regulation, restriction, condition, or order.	2005	2020	\$1,291,894 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
15 U.S.C. § 3414(b)(6)(A)(i), Sec. 504(b)(6)(A)(i) of the Natural Gas Policy Act of 1978	Violation of any provision of the NGPA or any related rule or order.	2005	2020	\$1,291,894 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
49 App. U.S.C. § 6(10) (1988), Sec. 6(10) of the Interstate Commerce Act	Violation of or failure/refusal to comply with regulations or orders concerning posting and filing rate schedules issued by the Commission under section 6 of the ICA.	1910	2020	\$1,352 per offense and \$68 per day after the first day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
49 App. U.S.C. § 16(8) (1988), Sec. 16(8) of the Interstate Commerce Act	Violation of or failure to comply orders issued by the Commission under sections 3, 13, or 15 of the ICA.	1910	2020	\$13,525 per violation, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
49 App. U.S.C. § 19a(k) (1988), Sec. 19a(k) of the Interstate Commerce Act	Violation of or failure to comply with Commission's requirements to provide information in connection with the Commission's valuation of a pipeline carrier's property under section 19(a) of the ICA.	1913	2020	\$1,352 per offense, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments
49 App. U.S.C. § 20(7)(a) (1988), Sec. 20(7)(a) of the Interstate Commerce Act	Violation of or failure to keep or submit certain accounts, records, or memoranda required by the Commission under authority granted in section 20 of the ICA.	1940	2020	\$1,352 per offense, per day	Federal Energy Regulatory Commission/Office of Enforcement	Federal Register Vol. 85, No. 9 (January 14, 2020) 2016-2018 https://www.federalregister.gov/documents/2020/01/14/2020-00239/civil-monetary-penalty-inflation-adjustments

OTHER INFORMATION (Unaudited)

DOE Civil Monetary Penalty Adjustment for Inflation						
Authority	Description of Penalty	Year Enacted	Latest Year of Adjustment	Current Penalty Level	Sub-Agency/Bureau/Unit	Location for Penalty Update
Energy Supply and Environmental Coordination Act of 1974, 10 CFR 207.7	Enforcement/Sanctions	1974	2020	\$10,821	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Energy Policy and Conservation Act, 10 CFR 218.42	Enforcement/Sanctions	1975	2020	\$23,437	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Energy Policy and Conservation Act, 10 CFR 429.120	Enforcement/Maximum civil penalty	1975	2020	\$468	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Energy Policy and Conservation Act, 10 CFR 431.382	Enforcement/Prohibited Acts	1975	2020	\$468	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Energy Policy Act of 1992, 10 CFR 490.604	Enforcement/Penalties and Fines	1992	2020	\$9,073	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Powerplant and Industrial Fuel Use Act of 1978, 10 CFR 501.181	Civil penalties/Sanctions	1978	2020	\$95,881; \$8/mcf; \$39/bbl	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
31 U.S.C. 1352(c), 10 CFR 601.400 and App A	Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions/Penalties	1989	2020	\$20,489 (minimum); \$204,892 (maximum)	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Price-Anderson Amendments Act of 1988, 10 CFR 820.81	Civil monetary penalties for violation of DOE safety regulations/Amount of penalty	1988	2020	\$214,097	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Atomic Energy Act of 1954, 10 CFR 824.1 and App A	Civil monetary penalties for violations of DOE Regulations regarding security of classified or sensitive information or data/Purpose and scope	1999	2020	\$152,998	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Atomic Energy Act of 1954, 10 CFR 824.4 and App A	Civil monetary penalties for violations of DOE Regulations regarding security of classified or sensitive information or data/Civil penalties	1999	2020	\$152,998	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Atomic Energy Act of 1954, 10 CFR 851.5 and App B	Worker health and safety rules for DOE nuclear facilities/Enforcement	2002	2020	\$99,361	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Program Fraud Civil Remedies Act of 1986, 10 CFR 1013.3	False claims and statements; liability/Basis for civil penalties and assessments	1986	2020	\$11,665	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
Atomic Energy Act of 1954, 10 CFR 1017.29	Dissemination of unclassified information/Civil penalty	1981	2020	\$275,529	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
5 U.S.C. 7342(h), 10 CFR 1050.303	Receipt and disposition of foreign gifts and decorations/Enforcement	1977	2020	\$20,888	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
42 U.S.C. 2282(a)	Violations of licensing requirements	2018	2020	\$104,330	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf
50 U.S.C. 2731(b)(2)	Worker protection at nuclear weapons facilities	1991	2020	\$9,365	N/A	https://www.govinfo.gov/content/pkg/FR-2020-01-08/pdf/2019-27802.pdf

Fraud Reduction Report

The *Fraud Reduction and Data Analytics Act of 2015* (FRDAA) requires the Department to establish financial and administrative controls relating to fraud and improper payments. In addition, OMB Circular No. A-123, *“Management’s Responsibility for Enterprise Risk Management and Internal Control,”* requires DOE to consider fraud when evaluating risks, and to use the results of the evaluations to improve fraud prevention and detection. The Circular also mandates the incorporation of the leading practices identified in the Government Accountability Office’s *“Framework for Managing Fraud Risks in Federal Programs”* (GAO Framework) into internal control systems. In March 2020, the President signed a new law called the *Payment Integrity Information Act of 2019* (PIIA) that incorporated select provisions from FRDAA, the *Improper Payments Information Act of 2002*, and the *Improper Payments Elimination and Recovery Act of 2010* (IPERA) into a single subchapter in the US Code.

In FY 2020, DOE continued adoption of leading practices as part of the evaluation of fraud risks, including identifying inherent fraud risks, involving stakeholders in the risk assessment process, and analyzing data from reporting mechanisms on confirmed fraud to identify risks. The Department also sustained efforts to increase fraud awareness through training and outreach consistent with the GAO Framework. As part of the Department’s efforts to improve its fraud risk mitigation activities since 2017, DOE is developing a fraud risk framework. DOE is structuring the framework as a phased approach. It will manage and integrate the fraud risk framework with internal control activities at all levels throughout the Department.

Senior management are engaged in the overall fraud risk management as the roles and responsibilities of the *Department Internal Control and Assessment Review Council* (DICARC) was expanded to perform additional duties as the *Senior Risk Management Council* (SRMC). A DOE *Senior Assessment Team* (SAT), a subset group of DICARC/SRMC, will implement DOE’s fraud risk framework and recommendations from staff level working groups. The DICARC/SRMC and the SAT, coupled with CFO’s *Internal Controls & Fraud Risk Management Division* (ICFRMD), will serve as the designated entities to lead fraud risk management activities for the Department.

The Department’s internal control program uses a risk-based approach in the design and implementation of financial and administrative control activities to mitigate

identified risks. In FY 2020, the Department identified and assessed risks, including the risk of fraud related specifically to payroll, grants, beneficiary payments, contract management, purchase cards, travel cards, funds management, acquisition management, cost management, inventory management, payables management, project cost management, and property management. DOE evaluates financial and non-financial fraud-related risks on an annual basis as part of its risk assessment and Risk Profile development processes. Based on the risk assessments, DOE designs and implements control activities to mitigate identified fraud risks. DOE also evaluated adherence to GAO’s *“Standards for Internal Control in the Federal Government”* (Green Book) in FY 2020 through the internal control program. As part of the annual evaluation of internal controls for the 17 principles, the Department evaluated Principle 8, *“Assess Fraud Risk”* of the Green Book, which requires management to consider the potential for fraud when identifying, analyzing, and responding to risks. During this assessment, DOE evaluated management’s consideration of various fraud types, fraud risk factors, and responses to identified fraud risks. The Department concluded that activities addressing Principle 8 were designed, implemented, and operating effectively in FY 2020.

In FY 2020, DOE sustained efforts to reduce fraud across the Department. While significant progress was made, challenges remain, especially in the area of contract oversight. DOE, which is the largest civilian contracting workforce agency in the Federal Government, has identified contracting – specifically in the areas of procurement and contractor/subcontractor oversight – as a significant fraud risk. DOE also assessed elevated fraud risks related to purchase/travel cards, payroll, and grants/financial assistance payments. The Department continues to enhance and improve control activities to mitigate fraud risks in these challenging areas.

In FY 2020, DOE continued to analyze data on confirmed fraud as part of efforts to monitor fraud trends. The Department uses this data and information, including the results of GAO and OIG audits, evaluations, and examinations, to continuously improve control activities and to prevent fraud. DOE’s CFO partnered with OIG in presenting a fraud awareness webinar to staff, and the Department continues to improve fraud risk strategies and expand fraud awareness outreach efforts as part of its strategy to deter fraud attempts within DOE.

Other Statutory Reporting – Management’s Response to Audit Reports

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

This report also contains information on the closure of Government Accountability Office (GAO) audits. There are no unresolved GAO audit reports as of September 30, 2020, according to the definition of resolution in OMB Circular A-50, *Audit Follow Up*.

Inspector General Audit Reports

The Department resolves IG audit reports by evaluating the recommendations they contain, formally responding to the IG, and implementing agreed-upon corrective actions. In some instances, DOE takes corrective action immediately, and in others, longer-term action plans are developed and implemented. Actions taken by management on audit recommendations increase the efficiency and effectiveness of operations, and strengthen standards of accountability.

At the beginning of FY 2020, there were 57 IG reports awaiting final action. In FY 2020, the Department received 58 IG reports, of which 37 contained recommendations for corrective actions, and 21 had no recommendations. Thus, there were 94 IG reports pending final action during FY 2020, of which Department took final action on 32 IG reports. Six of the reports for which the Department took final action identified cost impacts, including questioned contract or grant costs and recommended cost avoidance (funds put to better use). At the end of FY 2020, 62 IG reports awaited final action. Taking final action on a report includes the development of an agreed-upon management decision and completion of the corrective actions.

Government Accountability Office Audit Reports

GAO audits also are included in the Department’s audit follow-up program. At the beginning of FY 2020, there were 54 GAO reports awaiting final action. In FY 2020, the Department received 70 additional final GAO audit reports, of which 19 contained recommendations for corrective actions by the DOE, and 51 had no recommendations to DOE. The Department completed agreed-upon corrective actions for 17 audits during FY 2020, leaving 56 GAO reports awaiting final action at year-end.

Status of Final Action on IG and GAO Audit Reports for FY 2020

The following chart provides a summary of closure actions for IG and GAO audit and inspection reports during FY 2020.

AUDIT REPORTS	NUMBER OF IG REPORTS	NUMBER OF GAO REPORTS
Reports Pending Final Action at the end of FY 2019*	57	54
Reports Issued in FY 2020 Requiring Corrective Actions	37	19
Total Reports Pending Final Action During FY 2020	94	73
Reports Closed During FY 2020	32	17
Total Reports Pending Final Action as of the End of FY 2020	62	56

*Reflects adjustments to previously reported amounts for GAO Reports Pending Final Actions at the end of FY 2019.

Real Property

OMB OMB Circular A-136, *Financial Reporting Requirements*, requires all agencies to provide a link to their FY 2019 Reduce the Footprint (RtF) results on the “Performance.gov” website. In addition, Circular A-136 requires a description of the real property portfolio to

provide context for the data found at “Performance.gov.” The Department of Energy’s real property metrics area is accessible at <https://www.performance.gov/real-property-metrics/>.

Glossary of Acronyms and Abbreviations

ACI	Asset Condition Index	BOD	Binding Operational Directive
AFFF	Aqueous Film Forming Foam	BOR	Bureau of Reclamation
AFR	Agency Financial Report	BPA	Bonneville Power Administration
AGA	Association of Government Accountants	BUILDER	BUILDER Sustainment Management System
AI	Artificial Intelligence	C2M2	Cybersecurity Capability Maturity Model
AITO	Artificial Intelligence and Technology Office	CAP	Corrective Action Plan (page 41)
AIX	Artificial Intelligence Exchange	CAP	Cross-Agency Priority (page 40)
AMERICA	A-123 Management of Entity Risk and Internal Controls Application	CARES	Coronavirus Aid, Relief, and Economic Security Act
ANDP	Advanced Network and Data Protections	CATS	Clearance Action Tracking System
APG	Agency Priority Goal	CDM	Continuous Diagnostics and Mitigation
APPR	Annual Performance Report/Annual Performance Plan	CDST	Cybersecurity Data Stewardship Team
ARIES	Advanced Research on Integrated Energy Systems	CEAR	Certificate of Excellence in Accountability Reporting
ARO	Asset Retirement Obligation	CEDS	Cybersecurity for Energy Delivery System
ASAP	Automated Standard Application for Payments	CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
ASC	Accounting Standards Codification	CERN	European Organization for Nuclear Research
ASU	Accounting Standards Update	CESER	Office of Cybersecurity, Energy Security, and Energy Response
ATF	Accident Tolerant Fuel	CFO	Chief Financial Officer
ATVM	Advanced Technology Vehicles Manufacturing	CFR	Code of Federal Regulations
AUI	Associated Universities, Inc.	CGS	Columbia Generating Station
BCI	Building Condition Index	CHRIS	Corporate Human Resource Information System
BDP	Big Data Platform	CIO	Chief Information Officer
BFS	Bureau of the Fiscal Service	CISA	Cybersecurity & Infrastructure Security Agency
BIC	Best-in-Class	CO₂	Carbon Dioxide
BiOp	Biological Opinion	COA	Commonwealth of Australia

OTHER INFORMATION (Unaudited)

COU	Consumer-Owned Utilities	DNN	Defense Nuclear Nonproliferation
COVID-19	Novel Coronavirus	DoD	Department of Defense
CR	Continuing Resolution	DOE	Department of Energy (or Department)
CRSO EIS	Columbia River System Operations Environmental Impact Statement	DOI	Department of the Interior
CSI WG	Control Systems Interagency Working Group	DOJ	Department of Justice
CSRS	Civil Service Retirement System	DOS	Department of State
CSWG	Control System Working Group	DOT	Department of Transportation
CTAP	COVID-19 Technical Assistance Program	DSS	Decontaminated Low Level Salt Waste Stream
CUAS	Counter Unmanned Aircraft Systems	DUF6	Depleted Uranium Hexafluoride
CUI	Controlled Unclassified Information	DWPF	Defense Waste Processing Facility
Cures Act	21st Century Cures Act of 2015	e.g.	For Example
D&D	Deactivation and Decommissioning	EAGLE-I	Environment for Analysis of Geo-Located Energy Information
D&D Fund	Uranium Enrichment Decontamination and Decommissioning Fund	EBR-II	Experimental Breeder Reactor-II
DAC	Direct Air Capture	ECDT	Enterprise Cybersecurity Data Taxonomy
DATA Act	Digital Accountability and Transparency Act of 2014	ECFWG	Excess Contaminated Facilities Working Group
DBT	Design Basis Threat	ECGS	Enterprise Cybersecurity Governance System
DCAA	Defense Contract Audit Agency	eCPIC	Electronic Capital Planning and Investment Control
DEAR	Department of Energy Acquisition Regulations	eCRM	Enterprise Cybersecurity Risk Management
DEFEND	Dynamic and Evolving Federal Enterprise Network Defense	EEOICPA	Energy Employees Occupational Illness Compensation Program Act
DER	Distributed Energy Resources	EERE	Office of Energy Efficiency and Renewable Energy
DESI	Dark Energy Spectroscopic Instrument	EM	Office of Environmental Management; Environmental Management
DFAS	Defense Finance and Accounting Service	EMF	Effluent Management Facility
DHS	Department of Homeland Security	EMP	Electromagnetic Pulse
DICARC	Department Internal Control and Assessment Review Council	EO	Executive Order
DM&R	Deferred Maintenance and Repairs	EPA	Environmental Protection Agency
DNFSB	Defense Nuclear Facilities Safety Board		

OTHER INFORMATION (Unaudited)

EPAct05	Energy Policy Act of 2005	FISMA 2014	Federal Information Security Modernization Act of 2014
EPB	Electric Power Board	FITARA	Federal IT Acquisition Reform Act
ERISA	Employee Retirement Income Security Act	FMFIA	Federal Managers' Financial Integrity Act of 1982
ES&H	Environment, Safety, and Health	FNAL	Fermi National Accelerator Laboratory
ESA	Endangered Species Act	FOA	Funding Opportunity Announcement
ESCO	Energy Service Company	FOC	Full Operational Capability
ESF	Emergency Support Function	FPA	Federal Power Act
ESPC	Energy Savings Performance Contract	FPDS-NG	Federal Procurement Data System – Next Generation
ETTP	East Tennessee Technology Park	FPU	First Production Unit
FAR	Federal Acquisition Regulations	FR	Financial Report
FASAB	Federal Accounting Standards Advisory Board	Framework	Fraud Risk and Data Analytics Framework
FASB	Financial Accounting Standards Board	FRDAA	Fraud Reduction and Data Analytics Act of 2015
FASB ASC	Financial Accounting Standards Board's Accounting Standards Codification	FY	Fiscal Year
FAST	Fixing America's Surface Transportation Act of 2015	GAO	Government Accountability Office
FCRA	Federal Credit Reform Act of 1990	GAO Framework	GAO Framework for Managing Fraud Risks in Federal Programs
FCRPS	Federal Columbia River Power System	GBSD	Ground-Based Strategic Deterrent
FDS 2.0	Funds Distribution System	GDP	Gaseous Diffusion Plant
FE	Office of Fossil Energy	GMD	Geomagnetic Disturbance
FEED	Front End Engineering and Design	GMRA	Government Management Reform Act of 1994
FERC	Federal Energy Regulatory Commission	GMS	Global Material Security
FERS	Federal Employees Retirement System	GONE	Grants Oversight and New Efficiency Act of 2016
FFB	Federal Financing Bank	GPRA	Government Performance and Results Act of 1993
FMFIA	Federal Financial Management Improvement Act of 1996	GPRAMA	Government Performance and Results Act Modernization Act of 2010
FIPP	Financial Institution Partnership Program	GRC	Governance, Risk and Compliance
FIRST	Flexible, Innovative, Resilient, Small, Transformative	GSA	General Services Administration
First Five	First Five Consortium		

OTHER INFORMATION (Unaudited)

GSP	Graded Security Protection (now called Design Basis Threat, DBT)	INL	Idaho National Laboratory
GTAS	Government Treasury Account Symbol Adjusted Trial Balance System	IOC	Initial Operating Capability
HC	Office of the Chief Human Capital Officer	IOU	Investor-Owned Utility
HCMAP	HC Management Assessment Program	IPERA	Improper Payments Elimination and Recovery Act of 2010
HEU	Highly Enriched Uranium	IPERIA	Improper Payments Elimination and Recovery Improvement Act of 2012
HLW	High-level Waste	IPIA	Improper Payments Information Act of 2002
HMO	Health Maintenance Organization	IPT	Integrated Project Team
HPC	High-performance Computing	ISCM	Information Security Continuous Monitoring
HQ	Headquarters	ISFSI	Independent Spent Fuel Installation
HR	Human Resources	ISM	Integrated Safety Management
HRP	Human Reliability Program	IT	Information Technology
HVA	High Value Asset	ITP	Insider Threat Program
i.e.	That Is	kW	Kilowatt
IAEA	International Atomic Energy Administration	kWh	Kilowatt Per Hour
ICA	Interstate Commerce Act	LANL	Los Alamos National Laboratory
ICAM	Identity Credentialing and Access Management program	LANS	Los Alamos National Security, LLC
ICFRMD	Internal Controls & Fraud Risk Management Division	LBL	Lawrence Berkeley National Laboratory
ICS	Industrial Control Systems	LDRD	Laboratory-directed R&D
ICSJWG	Industrial Control Systems Joint Working Group	LEP	Life Extension Program
IDIQ	Indefinite Delivery Indefinite Quantity	LEU	Low Enriched Uranium
IDW	Integrated Data Warehouse	LITWG	Local Insider Threat Working Groups
IE	Office of Indian Energy	LLNL	Lawrence Livermore National Laboratory
IEC	Infrastructure Executive Committee	LM	Office of Legacy Management
IG	Inspector General	LMS	Learning Management System
iJC3	Integrated Joint Cybersecurity Coordination Center	LNG	Liquefied Natural Gas
ILAW	Immobilized Low-activity Waste	LOB	Laboratory Operations Board
		LT	Limited Term

OTHER INFORMATION (Unaudited)

LTS&M	Long-Term Surveillance and Maintenance	NMED	New Mexico Environmental Department
M&O	Management and Operating	NNSA	National Nuclear Security Administration
M&R	Maintenance and Repairs	NPAC	Nonproliferation and Arms Control
M3	Material Management and Minimization	NRC	Nuclear Regulatory Commission
MFA	Multifactor Authentication	NREL	National Renewable Energy Laboratory
Mo-99	Molybdenum-99	NRIC	National Reactor Innovation Center
MOSRC	M&O Subcontract Reporting Capability	NSC	National Security Council
MOX	Mixed Oxide	NWF	Nuclear Waste Fund
MOX Services	CB&I AREVA MOX Services, LLC	NWPA	Nuclear Waste Policy Act of 1982
MSTEC	Molten Salt Thermophysical Examination Capability	OA	Occupancy Agreement
MT	Metric Tons	OCIO	Office of the Chief Information Officer
MTU	Metric Tons of Uranium	ODI	Oracle Data Integrator
MW	Megawatt	OE	Office of Electricity
MY	Model Year	OIG	Office of the Inspector General
NARA	National Archives and Records Administration	OMB	Office of Management and Budget
NARUC	National Association of Regulatory Utility Commissioners	OPM	Office of Personnel Management
NAV	Net Asset Value	OR	Oak Ridge
NDAA	National Defense Authorization Act	ORNL	Oak Ridge National Laboratory
NE	Office of Nuclear Energy	ORSSC	Oak Ridge HR Shared Service Center
NEAT	Networked Employee Assurance Tool	OTC	Over-The-Counter
NETL	National Energy Technology Laboratory	OTT	Office of Technology Transitions
NGA	Natural Gas Act	P.L.	Public Law
NGPA	Natural Gas Policy Act of 1978	P3	Public-Private Partnership
NICE	National Initiative for Cybersecurity Education	PDP	Prescription Drug Plan
NIF	National Ignition Facility	PFAS	Per- and Polyfluoroalkyl Substances
NIH	National Institutes of Health	PIIA	Payment Integrity Information Act of 2019
NIST	National Institute for Science and Technology	PMA	Power Marketing Administration
		PMA HR SSC	PMA HR Shared Service Center

OTHER INFORMATION (Unaudited)

PMIAA	Program Management Improvement Accountability Act of 2016	SAT	Senior Assessment Team
PMIO	Program Management Improvement Officer	SBR	Statements of Budgetary Resources
PMPC	Program Management Policy Council	SC	Office of Science
PP&E	Property, Plant and Equipment	SCIP	Safety Culture Improvement Panel
PPO	Preferred Provider Organization	SEPA	Southeastern Power Administration
PRB	Postretirement Benefits Other Than Pensions	SES	Senior Executive Service
PRISM	PRISM Record Retention and Destruction module	SFFAS	Statement of Federal Financial Accounting Standards
PSO	Program Secretarial Office	SLAC	SLAC National Accelerator Laboratory (previously Stanford Linear Accelerator Center)
QC	Quantum Computing	SMART	Surrogate Model Autonomous experimenT
R&D	Research and Development	SMS	Sustainment Management System
RAPID	Regulatory and Permitting Information Desktop	SNF	Spent Nuclear Fuel
RCRA	Resource Conservation and Recovery Act of 1976	SOC	Security Operation Center
REE	Rare Earth Element	SPR	Strategic Petroleum Reserve
REO	Rare Earth Oxide	SRMC	Senior Risk Management Council
REP	Residential Exchange Program	SRS	Savannah River Site
REs	Runaway Electron Beams	SSC	Shared Service Center
RF	Radiofrequency	STARS	Standard Accounting and Reporting System
RFI	Request for Information	STRIPES	Strategic Integrated Procurement Enterprise System
RHIC	Relativistic Heavy Ion Collider	SUM	Spend Under Management
RNA	Ribonucleic Acid	SWPA	Southwestern Power Administration
RPA	Robotic Processing Automation	SWPF	Salt Waste Processing Facility
RSI	Required Supplementary Information	TCF	Technology Commercialization Fund
RtF	Reduce the Footprint	TELGP	Tribal Energy Loan Guarantee
RTIC	Research and Technology Investment Committee	Title XVII	Title XVII Loan Guarantee Program for Innovative Technologies
S94	Excess to National Security Needs	TOR	Task Order Request
SAM	System for Award Management	TPC	Total Project Cost

OTHER INFORMATION (Unaudited)

Treasury	Department of the Treasury	VA	Veterans Affairs
TRISO	Tri-structural Isotropic	VDP	Vulnerability Disclosure Program
TSCR	Tank-Side Cesium Removal	WAPA	Western Area Power Administration
TSP	Thrift Savings Plan	WIPP	Waste Isolation Pilot Plant
U.S.	United States	WMD	Weapons of Mass Destruction
U.S.C.	United States Code	Y-12	Y-12 National Security Complex
UEI	Unique Entity Identifier	ZPPR	Zero Power Physics Reactor
UESC	Utility Energy Service Contracts		
UF₆	Uranium Hexafluoride		
USACE	U.S. Army Corps of Engineers		
USEC	U.S. Enrichment Corporation Fund		
USSGL	U.S. Standard General Ledger		

Photo Captions

Front and Back Covers

Drilling Rig 21, R&D project with Virginia Tech and EnerVest Operating LLC. Photo taken May 15, 2020.
Photo courtesy of Brad Deel of EnerVest.

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Photo 2 - Historical photo of an alpha racetrack under construction, Y-12, Oak Ridge. Photo taken 1943.

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Photo 1 - Historical photo of the Hanford site.

Photo 2 - Historical photo of the Lawrence Berkeley Laboratory's scientific and technical staff arranged within and on top of the magnet of the 60-inch cyclotron. Photo taken September, 1939.

Photo 3 - Historical photo of an alpha racetrack under construction, Y-12, Oak Ridge. Photo taken 1943.

Photo 4 - Historical photo of the Power House under construction.

Financial Results

Photo 1 - The U.S. Department of Energy's Oak Ridge National Laboratory unveiled Summit as the world's most powerful and smartest scientific supercomputer on June 8, 2018.

Photo 2 - Lattice Quantum Chromodynamics (LQCD) cluster at Fermilab's Grid Computing Center.

Photo 3 - National Energy Technology Laboratory (NETL) samples of coal-derived graphene quantum dots that glow when exposed to light. Photo taken February 10, 2020.

Photo 4 - EH&S Professional scans her temperature at one of the automated temperature stations inside the Research Support Facility (RSF) at National Renewable Energy Laboratory (NREL).

Other Information

Photo 1 - Secretary Brouillette was on hand for the groundbreaking and to announce the launch of the Advanced Research on Integrated Energy Systems (ARIES) platform at the U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL). ARIES is a cutting-edge research platform that will allow NREL researchers and the scientific community to address the fundamental challenges of integrated energy systems at scale. Photo taken on August 12, 2020.

Photo 2 - Sandia biochemist and virologist are conducting research using CRISPR-based technology to genetically engineer a deployable antiviral countermeasure for COVID-19. Their goal is to create an antiviral that will be customizable to respond to many different viruses, including coronavirus.

Photo 3 - A flight test of the '70s-era unarmed Minuteman III intercontinental ballistic missile lights up the night sky. Programs to sustain this leg of the U.S. nuclear deterrent are underway, including a replacement of the W78 nuclear warhead by Lawrence Livermore National Laboratory (LLNL).

Photo credit: U.S. Air Force.

Photo 4 - Los Alamos National Laboratory (LANL) ChemCam's invisible laser beam.



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