DOE/CF-0203
Volume 2

Department of Energy
FY 2025 Congressional Justification

Other Defense Activities
Departmental Administration
Inspector General
Technology Transitions
Working Capital Fund
Crosscutting Activities
Advanced Research Projects Agency - Energy
Energy Information Administration

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March 2024 Office of the Chief Financial Officer Volume 2

Printed with soy ink on recycled paper

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DEPARTMENT OF ENERGY
Appropriation Summary
FY 2025
(Dollars in Thousands)

	FY 2023 Enacted [1],[2],[3]	FY 2024 Annualized CR	FY 2025 President's Budget [4]	FY 2025 President's Budget vs. FY 2023 Enacted $	FY 2025 President's Budget vs. FY 2023 Enacted %
Department of Energy Budget by Appropriation					
Energy Efficiency and Renewable Energy	3,460,000	3,460,000	3,118,000	-342,000	-9.9%
Electricity	350,000	350,000	293,000	-57,000	-16.3%
Cybersecurity, Energy Security and Emergency Response (270)	200,000	200,000	200,000	0	0.0%
Strategic Petroleum Reserve	207,175	207,175	241,169	+33,994	+16.4%
Naval Petroleum and Oil Shale Reserves	13,004	13,004	13,010	+6	+0.0%
SPR Petroleum Account	100	100	100	0	0.0%
Northeast Home Heating Oil Reserve	7,000	7,000	7,150	+150	+2.1%
Office of Petroleum Reserves	**227,279**	**227,279**	**261,429**	**+34,150**	**+15.0%**
Nuclear Energy (270)	1,623,000	1,623,000	1,440,660	-182,340	-11.2%
Fossil Energy and Carbon Management	890,000	890,000	900,000	+10,000	+1.1%
Uranium Enrichment Decontamination and Decommissioning (UED&D)	879,052	879,052	854,182	-24,870	-2.8%
Energy Information Administration	135,000	135,000	141,653	+6,653	+4.9%
Non-Defense Environmental Cleanup	358,583	358,583	314,636	-43,947	-12.3%
Science	8,100,000	8,100,000	8,583,000	+483,000	+6.0%
Office of Technology Transitions	22,098	22,098	27,098	+5,000	+22.6%
Office of Clean Energy Demonstrations	89,000	89,000	180,000	+91,000	+102.2%
Federal Energy Management Program	0	0	64,000	+64,000	N/A
Grid Deployment Office	0	0	101,870	+101,870	N/A
Office of Manufacturing & Energy Supply Chains	0	0	113,350	+113,350	N/A
Office of State and Community Programs	0	0	574,000	+574,000	N/A
Advanced Research Projects Agency - Energy	470,000	470,000	450,000	-20,000	-4.3%
Nuclear Waste Disposal Fund	10,205	10,205	12,040	+1,835	+18.0%
Departmental Administration	283,000	283,000	334,671	+51,671	+18.3%
Indian Energy Policy and Programs	75,000	75,000	95,000	+20,000	+26.7%
Inspector General	86,000	86,000	149,000	+63,000	+73.3%
Title 17 Innovative Technology Loan Guarantee Program	-136,018	-71,362	-184,558	-48,540	+35.7%
Advanced Technology Vehicles Manufacturing Loan Program	9,800	9,800	27,508	+17,708	+180.7%
Tribal Energy Loan Guarantee Program	4,000	4,000	6,300	+2,300	+57.5%
Total, Credit Programs	**-122,218**	**-57,562**	**-150,750**	**-28,532**	**+23.3%**
Energy Projects	221,969	221,969	0	-221,969	-100.0%
Critical and Emerging Technologies	0	0	5,000	+5,000	N/A
Total, Energy Programs	**17,357,968**	**17,422,624**	**18,061,839**	**+703,871**	**+4.1%**
Weapons Activities	17,116,119	17,116,119	19,848,644	+2,732,525	+16.0%
Defense Nuclear Nonproliferation	2,490,000	2,490,000	2,465,108	-24,892	-1.0%
Naval Reactors	2,081,445	2,081,445	2,118,773	+37,328	+1.8%
Federal Salaries and Expenses	475,000	475,000	564,475	+89,475	+18.8%
Total, National Nuclear Security Administration	**22,162,564**	**22,162,564**	**24,997,000**	**+2,834,436**	**+12.8%**
Defense Environmental Cleanup	7,025,000	7,025,000	7,059,695	+34,695	+0.5%
Other Defense Activities	1,035,000	1,035,000	1,140,023	+105,023	+10.1%
Defense Uranium Enrichment D&D	586,035	586,035	384,957	-201,078	-34.3%
Total, Environmental and Other Defense Activities	**8,646,035**	**8,646,035**	**8,584,675**	**-61,360**	**-0.7%**
Nuclear Energy (050)	150,000	150,000	150,000	0	0.0%
Total, Atomic Energy Defense Activities	**30,958,599**	**30,958,599**	**33,731,675**	**+2,773,076**	**+9.0%**
Southeastern Power Administration	0	0	0	0	N/A
Southwestern Power Administration	10,608	10,608	11,440	+832	+7.8%
Western Area Power Administration	98,732	98,732	100,855	+2,123	+2.2%
Falcon and Amistad Operating and Maintenance Fund	228	228	228	0	0.0%
Colorado River Basins Power Marketing Fund	0	0	0	0	N/A
Total, Power Marketing Administrations	**109,568**	**109,568**	**112,523**	**+2,955**	**+2.7%**
Federal Energy Regulatory Commission	0	0	0	0	N/A
Total, Energy and Water Development and Related Agencies	**48,426,135**	**48,490,791**	**51,906,037**	**+3,479,902**	**+7.2%**
Sale of the Gas Reserves	0	0	-95,000	-95,000	N/A
Excess Fees and Recoveries, FERC	-9,000	-9,000	-9,000	0	0.0%
Title XVII Loan Guar. Prog Section 1703 Negative Credit Subsidy Receipt	-14,000	-14,000	-2,051	+11,949	-85.4%
UED&D Fund Offset	-586,035	-586,035	-384,957	+201,078	-34.3%
Discretionary Funding by Appropriation	**47,817,100**	**47,881,756**	**51,415,029**	**+3,597,929**	**+7.5%**
DOE Budget Function	**47,817,100**	**47,881,756**	**51,415,029**	**+3,597,929**	**+7.5%**
NNSA Defense (050) Total	22,162,564	22,162,564	24,997,000	+2,834,436	+12.8%
Non-NNSA Defense (050) Total	8,796,035	8,796,035	8,734,675	-61,360	-0.7%
Defense (050)	*30,958,599*	*30,958,599*	*33,731,675*	+2,773,076	+9.0%
Science (250)	8,100,000	8,100,000	8,583,000	+483,000	+6.0%
Energy (270)	8,758,501	8,823,157	9,100,354	+341,853	+3.9%
Non-Defense (Non-050)	*16,858,501*	*16,923,157*	*17,683,354*	+824,853	+4.9%

[1] Funding does not reflect the mandated transfer of $99.75 million in FY 2023 from Naval Reactors to the Office of Nuclear Energy and the inclusion of the mandated transfer in the calculation of the rate of operations for FY 2024 for operation of the Advanced Test Reactor.

[2] Funding does not reflect the transfer of $20 million from the Office of Nuclear Energy to the Office of Science for Nuclear Facilities Oak Ridge National Laboratory Operations and Maintenance.

[3] FY 2023 Enacted levels for base funding includes $300 million for the Office of Nuclear Energy that was enacted in Division M, Additional Ukraine Supplemental Appropriations, of the Consolidated Appropriations Act, 2023 (P.L. 117-328).

[4] FY 2025 levels include the reallocation of $173 million in funding from Defense Environmental Cleanup to Weapons Activities to support the transition of oversight of the Savannah River Site to NNSA.

Other Defense Activities

Other Defense Activities

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Other Defense Activities
Proposed Appropriation Language

For Department of Energy expenses, including the purchase, construction, and acquisition of plant and capital equipment and other expenses, necessary for atomic energy defense, other defense activities, and classified activities, in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, $1,140,023,000, to remain available until expended: Provided, That of such amount, $396,804,000 shall be available until September 30, 2026, for program direction.

Note. --A full-year 2024 appropriation for this account was not enacted at the time the Budget was prepared; therefore, the Budget assumes this account is operating under the Continuing Appropriations Act, 2024 and Other Extensions Act (Division A of Public Law 118-15, as amended). The amounts included for 2024 reflect the annualized level provided by the continuing resolution.

Other Defense Activities
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
1,035,000	1,035,000	1,140,023

Overview

The Other Defense Activities appropriation funds elements that relate to and support the defense-oriented activities within the Department. These include Environment, Health, Safety and Security (EHSS), Enterprise Assessments (EA), Specialized Security Activities (SSA), Legacy Management (LM), Hearings and Appeals (OHA), and Defense Related Administrative Support (DRAS). Funding from DRAS is used to offset administrative expenses for work supporting defense-oriented activities.

Highlights and Major Changes in the FY 2025 Budget Request

- **Legacy Management**- The FY 2025 request allow LM to increase activities for its foundational Environmental Justice program, enabling the program to reach a larger number of affected communities.
- **Environment, Health, Safety and Security**- Requirements mandated by the Security, Suitability, Credentialing, Performance Accountability Council (PAC), as it relates to Trusted Workforce, will include additional costs to agencies, and that of the Department, for the purpose of vetting, enrollment into continuous vetting modules, and use of services within the National Background Investigation Services (NBIS). EHSS will work with Departmental Elements and Cognizant Personnel Security Offices to ensure an understanding and awareness of associated costs for meeting Trusted Workforce requirements.
- **Enterprise Assessments**- Conducting comprehensive independent security performance assessments and follow-up assessments at DOE National Security / Category I SNM sites (those with high value assets).
- **Hearings and Appeals**- The Alternative Dispute Resolution (ADR) office implemented an aggressive educational campaign throughout DOE.

Other Defense Activities
Funding by Congressional Control
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Environment, Health, Safety and Security	215,539	215,539	232,463	+16,924
Office of Enterprise Assessments	85,427	85,427	94,154	+8,727
Specialized Security Activities	335,000	335,000	390,000	+55,000
Legacy Management	190,909	190,909	205,258	+14,349
Defense-Related Administrative Support	203,648	203,648	213,649	+10,001
Office of Hearings and Appeals	4,477	4,477	4,499	+22
Total, Other Defense Activities	**1,035,000**	**1,035,000**	**1,140,023**	**+105,023**

Outyear Priorities and Assumptions

In the FY 2012 Consolidated Appropriations Act (P.L. 112-74), Congress directed the Department to include a future-years energy program (FYEP) in subsequent requests that reflects the proposed appropriations for five years. This FYEP shows outyear funding for each account for FY 2026 - FY 2029. The outyear funding levels use the growth rates from and match the outyear account totals published in the FY 2025 President's Budget for both the 050 and non-050 accounts. Actual future budget request levels will be determined as part of the annual budget process.

Future Years Energy Program (FYEP)
($K)

	FY 2026 Request	FY 2027 Request	FY 2028 Request	FY 2029 Request
Total, Other Defense Activities	**1,166,000**	**1,193,000**	**1,201,000**	**1,210,000**

Environment, Health, Safety and Security
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
215,539	215,539	232,463	+16,924

Mission

The Office of Environment, Health, Safety and Security (EHSS) is the Department of Energy's (DOE) central organization with enterprise-level responsibilities for health, safety, environment, and security; providing corporate-level leadership and strategic vision to establish, sustain, coordinate and integrate these vital programs. EHSS is responsible for policy development and technical assistance; safety analysis; and corporate safety and security programs. The Director, Office of Environment, Health, Safety and Security advises DOE elements and senior Departmental leadership, including the Deputy Secretary on all matters related to environment, health, safety and security across the complex.

Overview

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

FY 2023 Key Accomplishments

- Strengthened the Department's safety culture through ongoing efforts and deliverables related to communications, training, monitoring means and measures, and contract language shared regularly through leadership Safety Culture Improvement Panel meetings.

- Provided policy interpretations supporting tailoring of worker health and safety regulatory requirements in coordination with our DOE safety professionals; our laboratories, affected contractor groups and through public forums.

- Initiated the interagency review and update to the Nuclear Security Threat Capability Assessment (NSTCA) to identify and assess current, emerging and projected adversary threat capabilities.

- Updated DOE Order 474.2A, Nuclear Material Control and Accountability establishes requirements for developing, implementing, and maintaining a nuclear material control and accountability program within DOE, including the National Nuclear Security Administration (NNSA). Revised the DOE Order 472.2A, Personnel Security, in support of ongoing personnel security reforms.

- Continued to implement Trusted Workforce (TW) 2.0 consistent with Executive Agents requirements. Chaired the TW Working Group (TWWG), collaborating with the TWWG members to certify DOE's compliance with TW 1.25 in November 2019 and submission of the TW 1.5 certification plan in July 2022.

- Security System Design References (SSDRs) were published on the topics of Intrusion Detection and Video Assessment, Entry Control and Contraband Detection, Alarm Control and Display and Security Communications, and Blast Protection. The topic of access delay was being addressed and planned for publishing in 2023.

- Developed cloud-based software to help make it easier to conduct high quality security risk assessments consistently across a large number of sites and programs, including the Power Marketing Administrations and continued to maintain and enhance safety and health reporting databases incorporating machine learning tools.

- In coordination with other Federal Agencies and the White House, led the Department's implementation of the Per- and Polyfluoroalkyl Substances (PFAS) Strategic Roadmap. Finalized the Initial PFAS Assessment at DOE sites. Released the Department's Initial PFAS Research Plan and produced publicly available guidance document on PFAS Environmental Sampling and Investigating Historic PFAS uses.

Environment, Health, Safety and Security

Overview

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

Environment, Health, Safety and Security
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted23	
				$	%
Environment, Health, Safety and Security					
Environment, Health and Safety					
Worker Safety	4,656	4,656	6,072	+1,416	+30.4%
Nuclear Safety	6,030	6,030	6,138	+108	+1.8%
Environment	2,407	2,407	2,407	0	0.0%
Health Programs					
Domestic Health Programs					
Health Research	2,570	2,570	3,270	+700	27.2%
Former Worker Medical Screening	19,850	19,850	19,850	0	0.0%
Employee Compensation Program	4,691	4,691	5,430	+739	+15.8%
International Health Programs					
Russian Health Studies	2,750	2,750	0	-2,750	-100.0%
Japanese Health Studies	14,000	14,000	14,000	0	0.0%
Marshall Islands Program	6,300	6,300	6,300	0	0.0%
Total, Environment, Health and Safety	**63,254**	**63,254**	**63,467**	**+213**	**0.3 %**

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted23	
				$	%
Security					
Insider Threat Program	1,000	1,000	1,000	0	0.0%
Security Operational Support	7,591	7,591	8,737	+1,146	+15.1%
Classification, Declassification and Controlled Information	13,679	13,679	15,179	+1,500	+11.0%
Security Investigations	4,000	4,000	6,850	+2,850	+71.3%
Headquarters Security Operations	49,330	49,330	46,675	-2,655	-5.4%
Total, Security	75,600	75,600	78,441	+2,841	+3.8%
Total, Environment, Health, Safety and Security	**138,854**	**138,854**	**141,908**	**+3,054**	**+2.2%**
Program Direction	**76,685**	**76,685**	**90,555**	**+13,870**	**+18.1%**
Total, Environment, Health, Safety and Security	**215,539**	**215,539**	**232,463**	**+16,924**	**+7.9%**

Explanation of Changes Funding ($K)	FY 2025 Request vs FY 2023 Enacted ($)
Environment, Health, Safety and Security:	
Worker Safety: Funding increases are required for contract support costs for Information Technology safety databases (+0.500M); Worker Safety policy (+0.330M); Voluntary Protection Program (+0.127M); safety database performance, trending and analysis (+0.119M); and Safety Culture (+0.340M).	+1,416
Nuclear Safety: Funding provides for increased costs of the fixed price contract for the Filter Testing Facility contract.	+108
Health: ***Domestic Health Programs*:** Funding change provides for an increase in Domestic Health Programs for increased costs for operating the U.S. Transuranium and Uranium Registry (+0.200M); an increase for the Million Person Radiation Workers and Veterans Study (+0.500M); and an increase to the Energy Employees Occupational Illness Compensation Program for providing employee records to the Department of Labor for DOE worker Employee Compensation Claims (+0.739M).	+1,439
***International Health Programs*:** Funding change reflects elimination of the Russian Health Studies Program.	-2,750
Security Operation Support: Funding provides an increase for Security Policy Analysis for Methodology for Analyzing and Prioritizing Policy Requirements and Integrating Them for Effectiveness (MAPPRITE) to convert into a sustainable information technology application/system (+0.289M); an increase for Human Reliabilities Program (HRP) to support ongoing policy initiatives (+0.200M); a decrease to Security Awareness Specialty Interest group (SASIG) due to eliminating field site administrative support (-0.089M); a decrease to Foreign Visits, Assignments due to newly awarded fixed price contract (-0.119M); an increase for contract support costs to maintain the corporate security databases for the DOE electronic Foreign Ownership, Control, or Influence program database (+0.100M), an increase for the Safeguards and Security Information Management System (+0.215M); and it eliminates Corporate Security (.0.-200M), which is being absorbed by the Risk Management/Vulnerability Assessment with an increase due to rising costs of IT expertise in support of Design Base Threat (DBT) initiatives ($0.750M) .	+1,146
Classification., Declassification, & Controlled Information: Funding provides additional support for the review of classified documents based on the existing and increasing document review workload to strengthen efforts to prevent the inadvertent release of sensitive information to the public.	+1,500

Explanation of Changes Funding ($K)	FY 2025 Request vs FY 2023 Enacted ($)
Environment, Health, Safety and Security:	
Security Investigations: Funding increase reflects a realignment of contract support for processing Security Investigations, Personnel Identity Verifications and Continuing Evaluations from Headquarters Security Operations to Security Investigations (+2.300M); and an increase for contract support costs for the electronic DOE Integrated Security System (eDISS) (+0.550M).	+2,850
Headquarters Security Operations: Funding supports Protective Force and related support costs at the two HQ's buildings located in Washington, D.C. and Germantown, MD and will no longer fund satellite buildings in the Washington, D.C. area (-2.253M); an increase for Technical Surveillance Countermeasures (TSCM) equipment purchases due to escalating price hikes (+0.422M); an increase for Security Alarms and Access Control Systems (SAACS) for existing contractor support due to rising labor costs (+0.500M); an increase in contract support for administration of the DOE Headquarters facility clearance registration and foreign ownership, control, or influence (FOCI) programs for contractors granted access to classified information and to conduct safeguards and security surveys, self-assessments, and program reviews to ensure that DOE Headquarters operations comply with Departmental and national-level requirements (+0.976M); and realignment of contract support for processing Security Investigation and Personnel Identity Verifications from Headquarters Security Operations to Security Investigations (-2.300M).	-2,655
Program Direction: Funding increases are in the areas of Salaries and Benefits which includes funding increase that reflects current actual salaries and benefits projected to FY 2025 including a 5.2% pay raise for calendar year (CY) 2024 and 2.0% for three quarters of CY 2025 (+9.925M); six (6) additional FTEs to support anticipated Trusted Workforce workload (+1.200M); Travel (+0.450M); Training (+0.073M); Working Capital Fund (+0.123M) and Other Related Program Direction including Information Technology, Executive Protection, and miscellaneous Program Direction expenses (+2.099M).	+13,870

Environment, Health and Safety

Description

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

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

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

In FY 2025, Environment, Health and Safety will continue:

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

<u>Worker Safety</u>

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

Nuclear Safety

Nuclear Safety program activities include establishing and maintaining nuclear safety policies and requirements to ensure adequate protection of workers, the public, and the environment from hazards associated with the design and operation of DOE nuclear facilities. This includes the establishment of general facility safety requirements in fire protection, response to natural phenomena, maintenance, and quality assurance to ensure that products and services meet or exceed the Department's objectives. This program provides assistance to field elements in implementing requirements and resolving issues; and provides oversight of DOE nuclear operations and facilities. Nuclear Safety maintains a DOE-wide nuclear safety research and development program to provide corporate-level leadership supporting the coordination and integration of nuclear safety science and technology, share nuclear safety research and development information across the Department, and coordinate the conduct of nuclear safety research and development activities.

Environment

Environmental activities support DOE's efficient use of resources and energy and its compliance with environmental requirements. Funding provides technical support for the development of policies, requirements, and guidance related to responsible and sustainable management of natural and cultural resources on and around DOE sites, and performance tracking across the DOE complex and in support of Department-wide conservation efforts. Environmental activities also fund coordination, planning and technical analyses supporting EHSS's role representing DOE to external agencies and stakeholders to develop cost effective and efficient means of meeting environmental and public protection objectives and avoiding future liabilities. One such area of concern involves identifying and characterizing the extent of Per- and Polyfluoroalkyl Substances (PFAS) use and inventories across the enterprise. Environmental activities also support the development of guidance and tools for implementation of practical and broadly accepted consensus standards. Funding supports programs that provide assurance that environmental monitoring and sampling data meet DOE data quality objectives and ensures computer codes that are used to demonstrate compliance with DOE public and environmental protection requirements are appropriate and employ the best science. Funding also supports the development and maintenance of plans, models, and guidance to respond to radiological and nuclear-related emergencies and support for interagency and national consensus standard development with a goal to harmonize Federal radiation protection policies and guidance for protection of the public and environment.

Domestic Health Programs

Health Research

Domestic health research activities provide for the conduct of health studies on DOE workers and communities surrounding DOE sites, technical assistance to DOE programs in addressing specific health issues, support to national assets used to respond to radiological events throughout the country, and expertise to support national and international efforts in response to disease outbreaks. These activities also support the maintenance of the electronic comprehensive epidemiologic data resource; the Beryllium Associated Worker Registry; Million Person Radiation Workers and Veterans Study, and the U.S. Transuranium and Uranium Registry.

Former Worker Medical Screening

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

Employee Compensation Program

DOE Energy Employees Occupational Illness Compensation Program Act (EEOICPA) activities support the implementation of Parts B and E of the Act by the Department of Labor to provide compensation to DOE and DOE-related vendor employees who have become ill as a result of work for DOE. Part B provides for compensation to workers with beryllium disease, silicosis, or radiation-induced cancer, and Part E provides for compensation and medical benefits to DOE contractor and subcontractor employees whose illnesses were caused by exposure to any toxic substance, such as beryllium or other chemical hazards. DOE's support consists primarily of providing information regarding employment status, exposures to

radiation and toxic substances, and operational history of DOE facilities to the Department of Labor, the National Institute for Occupational Safety and Health, and the President's Advisory Board on Radiation and Worker Health in support of claims filed by current and former DOE Federal and contractor employees.

International Health Programs:

Japanese Health Studies
The Japanese health studies activity supports the Radiation Effects Research Foundation (RERF), pursuant to an agreement between the United States and Japan. RERF conducts epidemiologic studies and medical surveillance of the survivors of the atomic bombings of Hiroshima and Nagasaki; and engages in innovative science to develop new research methods and approaches for assessing radiation health effects for use as a basis for the development of DOE occupational and environmental radiation protection standards.

Marshall Islands Program

The Marshall Islands program provides medical surveillance and treatment of Marshallese citizens who were affected by U.S. nuclear weapons testing in the Pacific. It also provides for environmental monitoring for safe resettlement of four atolls affected by the testing. The work was specified by the Compact of Free Association Acts of 1986 and 2003 between the United States and the Republic of the Marshall Islands and by the Insular Areas Act of 2011 that required enhanced monitoring of the Runit Island Nuclear Waste Containment Structure beginning in FY 2013.

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Environment, Health, Safety $63,254,000	**$63,467,000**	**+$213,000**
Worker Safety $4,656,000	**$6,072,000**	**+$1,416,000**
• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safety and health requirements based on new or evolving working conditions, when warranted. • Provide technical assistance to DOE programs, laboratories, and sites in the implementation of health and safety requirements and programs, such as integrated safety management and Federal line management oversight. • Provide support in development of technical qualification standards and description of required competencies and training for Federal staff involved in management of defense nuclear facilities. • Promote the implementation of the DOE voluntary protection program, which encourages and rewards safety performance that exceeds industry averages. • Provide technical support for the implementation of the DOE contractor employee assistance program that provides for the collection and analysis of causes of lost time and disabilities and the medical and psychological interventions available to reduce those losses. • Maintain the electronic Radiation Exposure Monitoring System, which serves as the Department's central repository for radiation exposure information at DOE in support of 10 C.F.R. 835, Occupational Radiation Protection, Subpart I, requirements regarding annual monitoring of individual occupational radiation exposure records for DOE employees, contractors, and subcontractors, as well as members of the public who visit DOE sites. • Provide technical support for the implementation of the DOE Federal employee occupational safety and health program, as required by Presidential Executive Order 12196, Occupational	• Continuation of all FY 2023 activities.	• Funding increases are required for contract support costs for Information Technology safety databases (+0.500M); Worker Safety policy (+0.330M); Voluntary Protection Program (+0.127M); safety database performance, trending and analysis (+0.119M); and Safety Culture (+0.340M).

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Safety and Health Programs for Federal Employees; Section 19 of Public Law 91-596, the Occupational Safety and Health Act of 1970; and 29 C.F.R. 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters. • Conduct and communicate analysis and trending of safety performance information to identify excellent performance and areas needing improvement in order to reduce or prevent adverse events and injuries and minimize mission interruptions. • Provide information to DOE operating entities regarding operating experience, lessons learned, and suspect, defective, and counterfeit items. • Provide program administration, assistance, and training to DOE program offices to support implementation of the Department's accident prevention and investigation program, which helps avoid incidents and provides for independent Federal investigations of high-consequence incidents involving worker fatalities or serious injuries, acute exposures to radiation or chemicals, environmental releases, or significant loss of capital assets. Assist DOE program offices in conducting or leading specific accident investigations. • Maintain the differing professional opinion program and process, including a web page and online submittal form that DOE and contractor employees can use to identify and document differing professional opinions concerning technical issues. • Maintain corporate health- and safety-related information management technology systems, such as the Computerized Accident/Incident Reporting System, the Occurrence Reporting and Processing System, the Radiation Exposure Monitoring System, and the lessons learned system. • Support continuous improvement in meeting the Department's safety culture and safety conscious work environment (SCWE) across the complex and to ensure consistent leadership and focus on all aspects of DOE's safety culture initiatives. • Support the DOE enterprise-wide Employee Concerns Program that provides management and administration of the program to ensure that employee concerns related to environment, health,		

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
safety, and security and the management of DOE and NNSA programs and facilities are addressed utilizing well-established processes that include prompt identification, reporting, and resolution of employee concerns regarding DOE facilities or operations in a manner that provides the highest degree of safe operations.		
Nuclear Safety $6,030,000	**$6,138,000**	**+$108,000**
• Assess, update, and maintain DOE regulations, directives, and technical standards and lead the development of nuclear safety and quality assurance requirements based on new or evolving facility hazards and/or operating conditions, when warranted (including fire protection, natural phenomena hazards, nuclear materials packaging, and maintenance). • Maintain a DOE-wide nuclear safety research and development program to provide corporate-level leadership supporting the coordination and integration of nuclear safety science and technology, share nuclear safety research and development information across the Department, and coordinate the conduct of nuclear safety research and development activities. • Provide technical assistance to DOE program and line organizations, national laboratories, and sites in implementing nuclear safety and quality assurance requirements and programs and resolving issues and recommendations identified by the Defense Nuclear Facilities Safety Board. • Provide technical assistance to national standards development organizations in developing and maintaining nuclear safety and quality assurance consensus standards. • Support DOE program offices in assessing conduct of operations, maintenance, and/or training evaluations for hazard category 1, 2, and 3 nuclear facilities prior to authorizing startup or restart of these facilities or their operations. • Facilitate continuous improvement to the DOE facility representative and safety system programs, supporting approximately 280 site office resident nuclear safety subject matter experts funded by and reporting to DOE line management. • Develop guidance documents and technical assistance tools to	• Continuation of all FY 2023 activities.	• Funding provides for increased costs of the fixed price contract for the Filter Testing Facility contract.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
support effective implementation of key DOE safety concepts including organizational culture, high reliability organizations, and human and organizational performance. • Implement safety software quality assurance activities that provide for the maintenance of the DOE safety software central registry of approved computer codes, including a user-oriented communication forum, and operation of the safety software expert working group for enabling effective and consistent use of high-quality safety software across DOE. • Provide for the testing of 100 percent of all high efficiency particulate air filters used in safety class and safety significant systems, and other ventilation systems for confinement of radioactive materials prior to their use at DOE nuclear facilities.		
Environment $2,407,000	**$2,407,000**	**$0**
• Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new environmental protection, and public radiation protection requirements based on new or evolving science, protection strategies, national radiation protection guidance, and techniques based on new or evolving DOE activities and programs, when warranted. • Provide technical assistance to DOE programs, laboratories, and sites in implementing public radiation protection requirements and programs. • Provide technical support to DOE site and program offices and laboratories in evaluating and resolving regulatory compliance issues through the interpretation of regulatory requirements, development of cost-effective implementation strategies, and maintenance of web-based compliance tools. • Coordinate and develop consolidated responses to proposed changes in environmental regulations that may impact Departmental operations to improve implementation and optimize the use of protective resources. • Review data from environmental reports required by Federal and state environmental protection agencies to validate adherence to reporting requirements; evaluate the effectiveness of the	• Continuation of all FY 2023 activities.	• No changes.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Department's toxic chemical release reduction and pollution prevention efforts; produce annual reports on DOE environmental performance; and develop annual radionuclide emissions summaries submitted to the EPA under an interagency agreement. • Conduct proficiency and quality assurance audits and reviews of environmental analytical laboratories and commercial waste treatment, storage, and disposal vendors used by DOE operating entities in support of ongoing operations, remediation, and other cleanup projects, compliance programs, and long-term monitoring and surveillance activities to ensure consistency of services while minimizing the number of DOE audits of these commercial service providers. • Provide assistance to and oversight of DOE site property radiological clearance and control programs to ensure the public and environment are protected from radiological harm associated with the use or disposition of DOE property. • Continue development and maintenance of residual radioactivity models and codes that support evaluations and safe disposition of lands, structures, equipment, soil, and other material that may contain small amounts of residual radioactive material. • Support development of Federal radiation protection policies and guidelines and consistent, cost-effective implementation of radiation protection programs within DOE including the review, evaluation and implementation of the 2014 and 2015 updates to the recommendations of the International Commission on Radiological Protection and associated revisions to Federal guidance reports on radiation protection. • Provide assistance to support development and effective use of national consensus standards for radiation protection, radioactive waste and materials management, environmental protection, and operational resilience. • Maintain operational guidelines and other radiological criteria that support protective action decisions and Federal policy governing response to and recovery from radiological and nuclear terrorism incidents (radiological dispersal devices and improvised nuclear devices) and major nuclear accidents, and support NNSA		

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
emergency response and preparedness activities associated with such incidents. • Provide technical assistance to DOE programs, laboratories, and sites in implementing natural and cultural resource protection requirements and programs.		
Domestic Health Programs $27,111,000	**$28,550,000**	**+$1,439,000**
Health Research $2,570,000 • Provide for the operation and maintenance of the electronic comprehensive epidemiologic data resource, and the U.S. Transuranium and Uranium Registry. • Support the Radiation Emergency Assistance Center/Training Site, which provides medical expertise to DOE occupational medicine clinics, supplies chelating pharmaceuticals to treat radiation-exposed workers, and trains physicians to respond to radiological accidents anywhere in the United States. • Provide for maintenance of the beryllium registry, which collects, analyzes, summarizes, and disseminates health and exposure data to improve chronic beryllium disease prevention programs. • Provide for the conduct of public health studies and other activities performed by the Department of Health and Human Services through the National Institute for Occupational Safety and Health, the National Center for Environmental Health, and the Agency for Toxic Substances and Disease Registry to provide third-party objectivity regarding the effect of DOE operations on communities surrounding DOE sites. • Provide funding for the Million Person Radiation Workers and Veterans Study that will provide the most precise estimate possible of the lifetime risk of cancer resulting from low levels of chronic radiation exposure and be of significant value to workers and the public. Results also would appreciably improve the data used for compensation of workers with prior exposures to ionizing radiation.	• $3,270,000 • Continuation of all FY 2023 activities.	• +$700,000 • Funding change provides for an increase in Domestic Health Programs for increased costs for operating the U.S. Transuranium and Uranium Registry (+0.200M); an increase for the Million Person Radiation Workers and Veterans Study (+0.500M)
Former Worker Medical Screening $19,850,000 • Conduct site assessments to identify groups of at-risk former DOE Federal and contractor/ subcontractor workers and DOE site-specific exposures.	• 19,850,000 • Continuation of all FY 2023 activities.	• $0 • No change.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Provide for outreach efforts to inform former workers of the availability and benefits of the program. • Provide for approximately 8,000 medical screenings annually to check for adverse health effects that could be related to occupational exposures to radiation, noise, beryllium, asbestos, silica, lead, cadmium, chromium, and solvents, conducted by independent health experts through seven cooperative agreements held by a consortia of universities, labor unions, and commercial organizations throughout the United States with expertise in administration of medical programs. • Refer workers who are found to have illnesses related to work on behalf of DOE to the Department of Labor for potential compensation through the Energy Employees Occupational Illness Compensation Program Act. • Support the DOE central institutional review board, jointly funded with DOE' Office of Science and NNSA, which reviews all medical screening programs funded by DOE and/or involving the DOE workforce to ensure the risks to human participants are minimized and reasonable in relation to the anticipated benefits.		
Energy Employee Occupational Illness Compensation Act (EEOICA) Program $4,691,000 • Conduct searches for records related to the employment and hazardous exposures for workers who applied to the Department of Labor for benefits under EEOICPA, declassify relevant records, and provide copies of those records to the Department of Labor (DOL) and the National Institute for Occupational Safety and Health. • Provide for large-scale records research projects conducted by DOL, the National Institute for Occupational Safety and Health, and the President's Advisory Board on Radiation and Worker Health. • Provide for the continued transition of hard copy, paper records to electronic records, as well as records indexing projects to improve the efficiency of responses to the DOL and the National Institute for Occupational Safety and Health. • Continue coordination and interface between former worker medical screening activities and EEOICPA activities, including	• $5,430,000 • Continuation of all FY 2023 activities.	• +$739,000 • Funding increase provides for an escalation to the Energy Employees Occupational Illness Compensation Program for providing employee records to the Department of Labor for DOE worker Employee Compensation Claims.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
identifying mechanisms for outreach to former workers and enhancing the exchange of medical, site, and exposure information among former worker medical screening service providers, the DOL, and the National Institute for Occupational Safety and Health to assist the agencies tasked with adjudicating claims.		
International Health Program $23,050,000	**$20,300,000**	**-$2,750,000**
Russian Health Studies $2,750,000 • Provide for the conduct of radiation exposure historical dose reconstruction studies, epidemiologic studies, and for a tissue repository of Russian nuclear workers and people living in communities surrounding the Russian nuclear facilities. • Assess radiation health effects of ionizing radiation. • Publish analyses of radiation health effects assessments.	• The Russian Health Studies Program is being eliminated $0	• -$2,750,000 • Funding change reflects elimination of the Russian Health Studies Program
Japanese Health Studies $14,000,000 • Conduct epidemiologic studies and medical surveillance of the survivors of the atomic bombings of Hiroshima and Nagasaki at the Radiation Effects Research Foundation. • Assess radiation health effects of ionizing radiation. • Publish analyses of radiation health effects assessments.	• Continuation of all FY 2023 activities.	• $0 • No change
Marshall Islands Program $6,300,000 • Conduct whole-body counting and plutonium urinalyses to measure individual exposure to radionuclides. • Conduct comprehensive annual screening examinations. • Provide medical care for specified Marshallese. • Provide environmental monitoring services in support of resettlement activities.	• Continuation of all FY 2023 activities.	• $0 • No change.

Security

Description

The Security subprogram provides support to develop and assist in the implementation of safeguards and security programs that provide protection to national security and other vital national assets entrusted to DOE, and to implement the U.S. Government's nuclear weapons-related technology classification and declassification program. Policies and guidance related to physical, personnel, and information security and nuclear materials accountability are designed to promote responsiveness to national security needs and changing threat environments. Assistance is provided to DOE programs and site offices and laboratories via working groups, site-specific support, and corporate program support to implement cost-effective security measures tailored to Departmental mission accomplishment. Corporate security-related information management systems are maintained to identify and reduce the potential for undue risk to individual sites, the Department, and national security. This subprogram also provides for the continuous physical protection and security of DOE facilities and information in the National Capital Area and access authorization security background investigations for EHSS Headquarters Federal and contractor personnel. Additionally, DOE implements the information control program for the U.S. Government to mitigate national security threats by preventing the release of information regarding weapons of mass destruction. Support is also provided to review over 400 million pages of documents at the National Archives for potential release as required by Executive Order 13526, Classified National Security Information.

In FY 2025, Security activities will include developing comprehensive, reasonable, and cost-effective security policies and operational guidelines to assure that the Nation's nuclear and energy assets and DOE's personnel and facilities are secure from insider and external threats.

Insider Threat Program

The DOE Insider Threat Program (ITP) is intended to: deter cleared employees from becoming insider threats; detect insiders who pose a risk to personnel, assets, facilities, or classified or sensitive information; and mitigate insider threat risks through administrative, investigative, or other response actions. The Secretary of Energy designated an EHSS Senior Executive as the Designated Senior Official for the ITP to provide guidance for and oversight of DOE's enterprise-wide ITP activities. On a continuing basis, this Designated Senior Official engages with senior security and intelligence officials across the Department and advises and reports directly to the Secretary and Deputy Secretary regarding the planning, construct, and operation of the Department's ITP.

Security Operational Support

Security operational support provides technical expertise to develop safeguards and security policy requirements and guidance; assistance to DOE operations, to include foreign ownership, control and influence analysis; security technology research, development, test and evaluations to effectively mitigate current and emerging threats; and maintenance and management of corporate-level safeguards and security-related programs and information technology systems. These activities support Departmental objectives by providing an appropriately tailored level of security requirements and cost-effective protection options for a wide range of scientific, research, and national security operations based on the significance of the national assets involved.

Security policies, requirements, and guidance are developed to be clear and easily implemented, with the goal of securing nuclear material and classified matter and protecting the highly specialized DOE workforce. Corporate Security/Complex Wide initiatives provide specialized assessments and analyses of enterprise-wide security activities and issues affecting DOE safeguards and security programs and the identification of approaches to address them. Human Reliability Program, under 10 C.F.R. 712, provides trending, analysis and training to ensure compliance and a consistent enterprise approach to implementation. Funding to implement EHSS's share of program responsibilities includes the DOE share for the inter-agency Security, Suitability and Credential Line of Business (SSCLoB) budget supporting Executive Branch-wide reforms to the security clearance, employment suitability, and credentialing processes.

Classification, Declassification, and Controlled Information

The classification, declassification, and controlled information activity ensures that the Department meets its statutory responsibility to implement the U.S. Government-wide program to classify and declassify nuclear weapons-related

information (i.e., Restricted Data and Formerly Restricted Data) in order to prevent proliferation of nuclear weapons and technology. This activity supports the implementation of Executive Order 13526 to classify other information critical to national security (i.e., National Security Information), such as security-related information concerning U.S. nuclear sites and chemical/biological and radiological dispersal devices. Funding provides for declassification review of DOE records and the development of policies, requirements, and guidance and technical support for the protection of controlled unclassified information. Advanced Computer Tools to Identify Classified Information (ACTICI) is an artificial intelligence/machine learning initiative to develop advanced computer tools to identify classified information embedded in electronic documents and augment human classification reviews. The goals of the program are to develop and deploy advanced tools that can automatically identify the subject areas of a document, determine whether a document needs a classification review, determine if the document is classified, determine which parts of the document are sensitive, and determine which classification guides are applicable.

Security Investigations

Security investigation activities provide for background investigations conducted by the Defense Counterintelligence and Security Agency (DCSA) (formerly the National Background Investigations Bureau) of EHSS Headquarters federal and contractor personnel who require access to classified information or certain quantities of special nuclear material, as required by Section 145 of the Atomic Energy Act of 1954 (as amended) and Executive Order 12968, Access to Classified Information. The conduct of investigations and granting of access authorizations are based on 10 C.F.R. 710, Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material. Personal Identity Verification (PIV) checks are required to obtain a Homeland Security Presidential Directive 12 (HSPD-12) badge and beginning in FY 2024, Continuous Vetting will be expanded from our national security (cleared population) to the EHSS non-sensitive public trust (noncleared population).

Headquarters Security Operations

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

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Security $75,600,000	**$78,441 ,000**	**+$2,841,000**
Insider Threat Program $1,000,000	**$1,000,000**	**$0**
• Develop and maintain a robust program to deter, detect, and centrally analyze and respond to insider threats facing the Department. • Enhance existing information-sharing partnerships with law enforcement, intelligence, and community organizations. • Assist field sites in the establishment of Local Insider Threat Working Groups. • Assist Local Insider Threat Working Groups in the implementation of the Insider Threat Program. • Develop measures of success and program review criteria. • Develop and implement insider threat program training in fundamentals of counterintelligence, security, agency procedures for insider threat response, as well as applicable laws and regulations on gathering, integrating, retaining, safeguarding and use of collected insider threat data. • Produce an annual report for the Secretary to provide to the President.	• Continuation of all FY 2023 activities.	• No change
Security Operational Support $7,591,000	**$8,737,000**	**+$1,146,000**
• Research, update, and maintain existing DOE regulations, directives and technical standards, and develop new safeguards and security requirements based on new or evolving threats or working conditions, when warranted. • Provide technical assistance to DOE programs, laboratories, and sites in implementing safeguards and security requirements and programs. • Provide technical support, training, and awareness materials for the security-related aspects of the human reliability program, including deployment of the human	• Continuation of all FY 2023 activities except for the elimination of SASIG and Corporate Security support.	• Funding provides an increase for Security Policy Analysis for Methodology for Analyzing and Prioritizing Policy Requirements and Integrating Them for Effectiveness (MAPPRITE) to convert into a sustainable information technology application/system (+0.289M); an increase for the Human Reliability Program (HRP) to support ongoing

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
reliability program database and standard certification management system to ensure that over 10,000 individuals with access authorizations/clearances who occupy positions requiring access to special nuclear materials, nuclear explosive devices, or related facilities and information meet the highest standards of reliability and physical and mental suitability; • Provide support to the security awareness special interest group for DOE and contractor safeguards and security awareness coordinators to share security awareness methods and products, solve problems, and disseminate security-related information to satisfy Presidential and other regulatory requirements. • Operate, maintain, and perform data analysis of the electronic Safeguards and Security Information Management System, a centralized classified browser-based database that serves as the repository of current and historical DOE safeguards and security information pertaining to inspection deficiencies, corrective action status, facility clearance levels, classified addresses, and asset information. • Provide technical support and assistance for risk communication, risk management, vulnerability assessments, and security system performance evaluations, verifications, and validations, which are used to identify and cost-effectively address and mitigate current and emerging threats to Departmental assets at the site level. • Provide assistance to DOE programs, sites, and laboratories in the use of security technology as a means to mitigate vulnerabilities, reduce recurring costs, and lessen environmental impacts. • Maintain corporate security-related information technology systems, such as the DOE electronic Foreign Ownership, Control, or Influence program mandated by the Federal acquisition regulations system (48 C.F.R.		policy initiatives (+0.200M); a decrease to Security Awareness Specialty Interest Group (SASIG) due to eliminating field site administrative support (-0.089M); a decrease to Foreign Visits, Assignments due to newly awarded fixed price contract (-0.119M); eliminated Corporate Security (-0.200M); an increase in Risk Management/Vulnerability Assessment due to rising costs of IT expertise in support of Design Base Threat (DBT) initiatives (+0.750M); an increase for contract support costs to maintain the corporate security databases for the DOE electronic Foreign Ownership, Control, or Influence program database (+0.100M); and the Safeguards and Security Information Management System (+0.215M).

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
904.7003, 952.204-2, 970.0404, 904.404, and 952.204-73) and by Executive Order 12829, National Industrial Security Program; the DOE foreign visits and assignments (FACTS) program that enables foreign nationals' participation in unclassified DOE work, as well as classified visits involving foreign nationals; and the Radiological Source Registry and Tracking (RSRT) database, which is used to inventory approximately 18,000 radioactive sealed sources at DOE sites in support of the Department's nonproliferation and antiterrorist programs, U.S. and DOE regulatory compliance, and international treaty obligations. • Conduct specialized assessments and analyses of enterprise-wide security activities. • Assess systemic issues affecting DOE safeguards and security programs and identify approaches to address them. • Produce biennial reports to Congress on the status of Security of the Department's Category I and II Special Nuclear Materials.		
Classification, Declassification and Controlled Information $13,679,000	**$15,179,000**	**+$1,500,000**
• Provide technical support in developing U.S. Government and DOE-wide policy and technical guidance to ensure that classified nuclear weapons-related information and other information critical to national security and to U.S. Governmental, commercial, or private interests is identified for proper protection. • Provide specialized technical expertise to foreign governments and to DOE and other U.S. departments and agencies regarding the national security implications of classification and declassification decisions for nuclear proliferation issues. • Provide training and certification of DOE and other agency personnel in classification and information control programs and related areas.	• Continuation of all FY 2023 activities.	• Funding provides additional support for the review of classified documents based on the existing and increasing document review workload to strengthen efforts to prevent the inadvertent release of sensitive information to the public.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Provide support to the National Declassification Center (NDC) for review of the remaining 3 million pages at the National Archives and follow-on record collections amounting to 24 million pages; support to NDC in its Interagency Referral Center confirming potential Restricted Data/Formerly Restricted Data in documents referred to DOE/EHSS by other agencies. • Review documents in support of DOE operations and other U.S. Government entities, such as Congress, Presidential Libraries, U.S. Patent Office, the Defense Nuclear Facilities Safety Board, the Government Accountability Office, and the Inspector General. • Perform the final review of classified DOE documents and documents containing DOE equities from all U.S. Government departments and agencies, including DOE, when they are requested under the Freedom of Information Act and the mandatory provisions of Executive Order 13526, to ensure that DOE classified and controlled information is identified and protected from unauthorized release to the public as required by 10 C.F.R. 1004, Freedom of Information, and 10 C.F.R. 1045, Nuclear Classification and Declassification. • Continue efforts for the Advanced Computer Tools to Identify Classified Information (ACTICI) initiative.		
Security Investigations $ 4,000,000	**$6,850,000**	**+$2,850,000**
• Provides for initial background investigations, periodic reinvestigations, and reimbursement for fingerprint and name checks. • Provide for the Defense Counterintelligence and Security Agency to conduct most background investigations of EHSS Headquarters Federal and contractor employees. Funding provides for initial single-scope background investigations, periodic reinvestigations, and initial and reinvestigation national agency checks, and continuous evaluations special agreement checks.	• Continuation of all FY 2023 activities including the transfer of the following activities from Headquarters Security Operations to Security Investigations. Providing access authorization adjudication services (i.e., case reviews and analysis, interrogatories, consultations, use of court reporters and consulting physicians as needed) for DOE Headquarters personnel to assure that	• Funding increase reflects a realignment of contract support for processing Security Investigation, Personnel Identity Verifications and Continuing Evaluations from Headquarters Security Operations to Security Investigations (+2.300M); an increase for contract support costs for the electronic DOE Integrated Security System (eDISS) (+0.550M).

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Research, update, and maintain existing DOE regulations, directives, and technical standards, and develop new personnel security requirements based on new or evolving threats or working conditions, when warranted. • Provide technical assistance to DOE programs, laboratories, and sites in implementing personnel security requirements and programs. • Conduct corporate-level access authorization adjudications (i.e., performing case reviews, conducting evaluations, and preparing decision packages), as necessary. • Operate and manage the electronic DOE Integrated Security System (eDISS), which consists of interrelated databases and associated client applications and web pages that automate the processing and tracking of access authorizations, access and visitor control, personal identity verification, and related personnel security processes. • Continue deployment of the personnel security case management system, as well as the integration of this system with DOE field site human resources, financial management, and access control systems to reduce overall personnel security program costs by eliminating redundant systems at DOE field sites and reduce processing time by integrating directly with other databases. • Provide for Homeland Security Presidential Directive 12 credentials for Headquarters DOE employees and contractors.	access to DOE classified information is permitted only after a determination that such access will not endanger the common defense and national security. Implementing Homeland Security Presidential Directive 12 requirements related to the secure and reliable identification of DOE Federal and contractor employees.	
Headquarters Security Operations $49,330,000	**$46,675,000**	**-$2,655,000**
• Provide a protective force engaged in the physical protection of classified information, facilities, and the workforce 24 hours a day, 365 days a year at DOE Headquarters facilities and satellite facilities in Washington, DC, and Germantown, MD.	• Continuation of all FY 2023 activities except the transfer of the following activities from Headquarters Security Operations to Security Investigations.	Funding supports Protective Force and related support costs at the two HQ's buildings located in Washington, D.C. and Germantown, MD and will no

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Operate and maintain security alarms and access control systems, including security screening equipment, vehicle inspection scanning devices, K9 explosive detection teams, internet protocol video, turnstiles, unmanned automated-access/egress portals, other access control equipment; and protective force hardened shelters. • Conduct technical surveillance countermeasures activities, such as surveys, inspections, in-conference monitoring, pre-construction consultation services, and threat analysis, in support of Presidential Decision Directive 61, Energy Department Counterintelligence, to detect and prevent hostile intelligence collection operations intent on penetrating DOE installations to steal technology or sensitive or classified information. • Conduct the telecommunications security activities consisting of emission security, protected transmission systems, and communications security to ensure the protection of DOE's sensitive unclassified and classified telecommunications through various security components. • Provide Communications Security (COMSEC) and TEMPEST support and oversight to all of the DOE/NNSA entities; develop and implement training for the various elements of the Technical Surveillance Program (TSP); perform COMSEC Audits/Inspections; and maintain DOE policy and guidance for TSP activities. • Serve as the COMSEC Central office of record and national command and controlling authorities for classified key material. • Provide access authorization adjudication services (i.e., case reviews and analysis, interrogatories, consultations, use of court reporters and consulting physicians as needed) for DOE Headquarters personnel to assure that access to DOE classified information is permitted only after a determination that such access will not endanger the common defense and national security.	Providing access authorization adjudication services (i.e., case reviews and analysis, interrogatories, consultations, use of reporters and consulting physicians as needed) for DOE Headquarters personnel to assure that access to DOE classified information is permitted only after a determination that such access will not endanger the common defense and national security. Implementing Homeland Security Presidential Directive 12 requirements related to the secure and reliable identification of DOE Federal and contractor employees.	longer fund satellite buildings in the Washington, D.C. area (-2.253M); increase TSCM equipment purchases due to escalating price hikes (+0.422M); increase SAACS existing contractor support due to rising labor costs (+0.500M); an increase in contract support for administration of the DOE Headquarters facility clearance registration and foreign ownership, control, or influence programs for contractors granted access to classified information and to conduct safeguards and security surveys, self-assessments, and program reviews to ensure that DOE Headquarters operations comply with Departmental and national-level requirements (+0.976M); and realignment of contract support for processing Security Investigation and Personnel Identity Verifications from Headquarters Security Operations to Security Investigations (-2.300M).

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Implement Homeland Security Presidential Directive 12 requirements related to the secure and reliable identification of DOE Federal and contractor employees. • Administer the DOE Headquarters facility clearance registration and foreign ownership, control, or influence programs for contractors granted access to classified information. • Conduct safeguards and security surveys, self-assessments, and program reviews to ensure that DOE Headquarters operations comply with Departmental and national-level requirements. • Replace and repair of Headquarters multi-layered physical security systems and barriers at both the Forrestal and Germantown facilities.		

Program Direction

Overview

Program Direction provides for Federal staffing and mission support services to provide overall direction and execution of the EHSS mission of conducting the Department's activities in environment, health, safety, and security policy, technical assistance, analysis, and corporate programs. Critical to achieving its vision and goals is the ability of EHSS to maintain a highly qualified workforce with the expertise and skills necessary to support, manage, and conduct its mission. EHSS will implement activities to support Executive Order 14035: Diversity, Equity, Inclusion and Accessibility in the Federal Workforce to create a respectful, inclusive, and safe workplace where employees can thrive, develop their potential and contribute to the success of their workplace that will increase productivity and morale and may reduce employee turnover.

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

The Office of the Departmental Representative to the DNSFB ensures effective cross-organizational leadership, transparency, assistance and coordination across the Department to resolve DNFSB-identified technical and management issues to ensure the health, safety, and security of the workers, public, and environment.

Other Related Expenses

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

Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Program Direction					
Salaries and Benefits	52,946	52,946	64,071	+11,125	+21.0%
Travel	3,000	3,000	3,450	+450	+15.0%
Mission Support	285	285	285	0	0%
Other Related Expenses	20,454	20,454	22,749	+2,295	+11.2%
Total, Program Direction	76,685	76,685	90,555	+13,870	+18.1%
Federal FTEs	262	262	268	6	+2.3%
Support Service and Other Related Expenses					
Support Services					
Technical Support					
Defense Nuclear Facilities Safety Board Liaison Activities	285	285	285	0	0%
Total, Technical Support	285	285	285	0	0%
Total, Support Services	285	285	285	0	0%
Other Related Expenses					
Working Capital Fund	12,377	12,377	12,500	+123	1.0%
Tuition/Training of Federal Staff	365	365	438	+73	+20.0%
Other Services Procured	7,712	7,712	9,811	+2,099	+27.2%
Total, Other Related Expenses	20,454	20,454	22,749	+2,295	+11.2%

Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $76,685,000	**$90,555,000**	**+$13,870,000**
Salaries and Benefits $52,946,000	**$64,071,000**	**+$11,125,000**
• Funds 262 full-time equivalent employees (FTE):	• Continuation of all FY 2023 activities.	• Funding increases are in the areas of Salaries and Benefits which includes funding increase that reflects current actual salaries and benefits projected to FY 2025 including a 5.2% pay raise for CY 2024 and 2.0% for three quarters of CY 2025 (+9.925M); six (6) additional FTEs to support anticipated Trusted Workforce workload (+1.200M).
Travel $3,000,000	**$3,450,000**	**+$450,000**
• Support the management and conduct of environment, health, safety, and security programs for the Department; and • Support executive protection activities for the Secretary, Deputy Secretary, and other dignitaries as assigned.	• Continuation of all FY 2023 activities.	• Funding reflects inflationary travel costs.
Technical Mission Support $285,000	**$285,000**	**$0**
Defense Nuclear Facilities Safety Board (Board) Liaison Activities • Coordinate resolution of Board recommendations and agreed-upon defense nuclear facility safety issues. • Provide requested reports/information on defense nuclear facility safety issues. • Coordinate ready access to such defense nuclear facilities, personnel, and information as are necessary for the Board to carry out its responsibilities. • Provide technical evaluation and analysis of defense nuclear safety and management issues identified by the Board. • Provide assistance, advice and support to DOE/NNSA Program and field offices, including line management on addressing and resolving such issues; and • Monitor Department-wide performance in addressing Board-related defense nuclear safety and management issues.	• Continuation of all FY 2023 activities.	• No change

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Other Related Expenses $20,454,000	**$22,749,000**	**+$2,295,000**
• Working Capital Fund fees for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, mail service, copying, printing and graphics, procurement closeouts, supplies, online learning, computer network support, and payroll processing. • Federal employee training to obtain and/or maintain the technical competence of Federal employees. • The DOE common operating environment initiative that provides a single point of contact for all common information technology systems and services and brings security, service, efficiency, and scale to these projects. • Information technology investments that support Headquarters Federal and contractor staff with hardware, software, hotline, and other desktop computer maintenance support on per-user count and level of service. • Information technology systems exclusive to EHSS, such as the classified local area network that includes a Secret/Restricted Data network that supports Headquarters users and the Secret Internet Protocol Router Network that provides access to the Department of Defense classified network to effect coordination between the two departments. • Executive protection services to the Secretary of Energy and others designated by the Secretary; and the conduct of inquiries and investigations into significant matters of security concern. • Specialized security equipment and services.	• Continuation of all FY 2023 activities.	• Funding increases are in the areas of Training (+0.073M); Working Capital Fund (+0.123M) and Other Related Program Direction including Information Technology, Executive Protection, and miscellaneous Program Direction expenses (+2.099M).

Environment, Health, Safety and Security Funding by Appropriation by Site
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Environment, Health, Safety and Security			
Argonne National Laboratory	945	945	945
Brookhaven National Laboratory	250	250	250
Chicago Operations Office	50	50	50
Consolidated Business Center	259	259	259
Idaho National Laboratory	150	150	150
Idaho Operations Office	400	400	400
Kansas City Plant	10	10	10
Lawrence Berkeley National Laboratory	0	0	50
Lawrence Livermore National Laboratory	3,050	3,050	3,050
Lexington Project Office	200	200	200
Los Alamos National Laboratory	95	95	95
Nevada Site Office	15	15	15
NNSA Service Center	1,000	1,000	1,000
Oak Ridge Institute for Science and Education	1,305	1,305	1,255
Oak Ridge National Laboratory	1,035	1,035	1,035
Oak Ridge Operations Office	2,795	2,795	2,795
Office of Scientific and Technical Information	300	300	300
Ohio Field Office	5	5	5
Pacific Northwest National Laboratory	1,905	1,905	1,905
Pantex Plant	10	10	10
Richland Operations Office	1,000	1,000	1,000
Sandia National Laboratory	1,210	1,210	1,210
Savannah River Operations Office	500	500	500
Savannah River Site	10	10	10
Washington, D.C., Headquarters	199,020	199,020	215,944
Y-12 National Security Complex	20	20	20
Total, Environment, Health, Safety and Security	**215,539**	**215,539**	**232,463**

Office of Enterprise Assessments

Overview

The Office of Enterprise Assessments (EA) supports the Department's mission priorities and strategic plan for the secure, safe, and efficient operation of the nuclear weapons complex, science and energy research, and environmental cleanup activities by conducting independent assessments of security and safety performance throughout the Department, holding contractors accountable for violations of security and safety regulations, and providing training programs that institutionalize enterprise security and safety lessons learned.

Because EA is organizationally independent of the DOE entities that develop and implement security and safety policy and programs it can provide objective and timely information on whether national security material and information assets are appropriately protected; and whether Departmental operations ensure the safety of its employees and the public. EA activities evaluate the Department's effectiveness in promoting protection strategies that are based on informed risk management decisions. EA is designated to implement statutorily authorized contractor enforcement programs pertaining to information security, nuclear safety, and worker safety and health. EA also operates the DOE National Training Center (NTC) in Albuquerque, New Mexico, to enhance the proficiency and competency of the Department's security and safety personnel, and to support DOE workforce development through other programs including safety culture improvement and the Department's Diversity, Equity, Inclusion and Accessibility (DEIA) Strategic Plan.

EA has initiated a program to support Executive Order 14035: Diversity, Equity, Inclusion and Accessibility in the Federal Workforce to create a respectful, inclusive, and safe workplace where employees can thrive, develop their potential, and contribute to the success of their organization that will increase productivity and morale and may reduce employee turnover.

EA's key activities in FY 2025 are:

- Conducting comprehensive independent security performance assessments and follow-up assessments at DOE National Security / Category I SNM sites (those with high value assets); utilizing "limited notice" safeguards and security performance tests to provide accurate, up-to-date assessments of DOE site security response capabilities; and evaluating actions to detect insider threats from individuals who may seek to compromise national security and/or the ability of the Department to meet its mission;

- Enhancing the methods and tools used to conduct comprehensive, and threat-informed independent cybersecurity assessments, including unannounced "red team" performance testing to identify vulnerabilities in the Department's National Security, Intelligence, scientific, and other information systems to external and internal attacks;

- Conducting nuclear safety, worker safety and health, and emergency management independent performance assessments of the Department's operations including high hazard nuclear construction projects and operations;

- Enhancing the effectiveness of the DOE enforcement function that holds contractor organizations accountable for noncompliance with worker safety and health, nuclear safety, and information security regulations;

- Developing and providing training programs that promote the competency and proficiency of DOE federal and contractor employees and performing other related functions via the NTC, that institutionalize security and safety data analysis and safety lessons learned in support of improved DOE security and safety performance, advance strong safety culture and DEIA principles across the enterprise; and

- Using risk-informed and fact-based analyses to identify emerging trends in safety, security, and cybersecurity within the Department.

Office of Enterprise Assessments
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	FY 2025 Request vs FY 2023 Enacted
				($)	(%)
Office of Enterprise Assessments					
Nuclear Safety Assessments	7,621	7,621	7,383	-238	-3.1%
Enforcement	435	435	479	+44	+10.1%
Security and Safety Training	19,430	19,430	22,160	+2,730	+14.1%
Total, Office of Enterprise Assessments	**27,486**	**27,486**	**30,022**	+2,536	+9.2%
Program Direction	**57,941**	**57,941**	**64,132**	+6,191	+10.7%
Total, Office of Enterprise Assessments	**85,427**	**85,427**	**94,154**	+8,727	+10.2%

Office of Enterprise Assessments
Explanation of Major Changes ($K)

	FY 2025 Request vs FY 2023 Enacted
Office of Enterprise Assessments	
Increase for: Program funding reflects Security and Safety Training at current and projected operating levels; Salaries & Benefits to support subject matter experts to include a pay raise and for overall ongoing personnel actions to include lump sum payouts, Permanent Change of Station (PCS), and awards.	**+8,727**
Total, Office of Enterprise Assessments	**+8,727**

Enterprise Assessments

Description

The EA Program provides for the assessment of DOE performance in nuclear safety; implementation of the statutorily authorized contractor enforcement programs for information security, nuclear safety, and worker health and safety; development and administration of security and safety training that reflects the most current Departmental policy and lessons learned derived from enforcement investigations, independent assessments to enhance performance of the Department, and data analysis in support of improved DOE security and safety performance.

Nuclear Safety Assessments

Provides for the planning and execution of independent assessments of DOE high hazard nuclear facility construction projects (as required under Sec. 303 of annual appropriations legislation) and nuclear facilities and operations to determine performance compared with nuclear safety requirements and standards contained in Title 10, Code of Federal Regulations (C.F.R.) Part 830, Nuclear Safety Management, and related DOE directives.

Enforcement

Provides the Department with the capability to implement the DOE contractor enforcement programs specified in 10 C.F.R. Part 824, Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations; 10 C.F.R. Part 820, Procedural Rules for DOE Nuclear Activities; 10 C.F.R. Part 851, Worker Safety and Health Program, and 10 C.F.R. Part 1017, Identification and Protection of Unclassified Controlled Nuclear Information. The goal of this activity is to enable safe and secure accomplishment of the Department's mission by promoting DOE contractor adherence to classified and unclassified controlled nuclear information security, nuclear safety, and worker safety and health requirements.

Security and Safety Training

Security and safety training activities provide the Department a means to improve security and safety performance by developing and maintaining the proficiency and competency of DOE security and safety contractor and Federal employees. These activities also improve senior executives' performance and capabilities to fulfill security and safety leadership responsibilities through standardized training for the security of critical Departmental and national security assets, the safety and health of the workforce, and the protection of the public and the environment. The DOE National Training Center (NTC), located in Albuquerque, New Mexico, serves as the primary resource for DOE security and safety training for Federal and contractor employees. Funding provides for operation and maintenance of the NTC campus and the development and presentation of various security and safety training and certification programs at the NTC, through e-learning mechanisms, and at DOE sites via mobile training teams. The NTC certifies certain health and safety training programs for those training programs to be accepted at various DOE sites and contractor organizations, thus reducing or eliminating the need for employees to complete redundant training programs before conducting work at different DOE sites. The NTC also incorporates lessons learned and best practices identified during EA enforcement investigations and independent assessments into its training programs to increase their utility, relevancy, and effectiveness.

EA is continuing to build its data analysis program, which draws upon existing DOE reporting systems and programs, as well as other potentially useful data sources, to identify and interpret emerging security and safety trends across the DOE complex, to evaluate their potential impact on the Department's performance, and to support prioritization of independent assessment activities.

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Office of Enterprise Assessments $27,486,000	**$30,022,000**	**+2,536,000**
Nuclear Safety Assessments $7,621,000	**$7,383,000**	**-238,000**
• Conduct independent assessments of high hazard nuclear facility construction projects to ensure performance in the implementation of nuclear safety requirements; and • Provide independent assessments of DOE nuclear facilities and operations.	• Continuation of activities.	Realignment of funds within the budget.
Enforcement $435,000	**$479,000**	**+44,000**
• Review and analyze information from the DOE data management system to determine whether enforcement investigations are warranted and to identify performance trends; and • Conduct periodic outreach and training activities to communicate the Department's approach to security and safety enforcement.	• Continuation of activities.	No significant change.
Security and Safety Training $19,430,000	**$22,160,000**	**+$2,730,000**
• Develop and provide security and safety-related training and professional development programs at the NTC and DOE sites; • Maintain and upgrade equipment and technologies; • Provide expanded nuclear safety training, expanded DOE oversight training, and Nuclear Executive leadership training, expanded protective force training and development of contractor acquisition curricula. • Support development and implementation of the DOE Learning Nucleus platform that consolidates DOE-wide employee training resources and administration; • Continue the implementation of the training reciprocity and collaboration program whereby certified safety training programs are recognized by other DOE contractors and sites; • Incorporate best practices and lessons learned from EA enforcement investigations and independent assessments as well as data analysis into NTC training programs to	• Continuation of activities.	Increase to support currently projected demands for NTC safety, security, leadership and other training and customer requested programs, infrastructure maintenance and information technology upgrades.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
enhance performance of the DOE workforce; and • Operate and maintain the facility, including classrooms, administrative offices, weapons live-fire ranges, and the Integrated Safety and Security Training and Evaluation Complex, a simulated DOE research and operational facility.		

Program Direction

Overview

Program Direction provides for Federal staffing and mission support services to provide overall direction and execution of the EA mission to conduct independent assessments of the Department's performance in security, safety, and other areas; implement classified information security, nuclear safety, and worker health and safety contractor enforcement programs; and develop and administer security and safety training that reflects the most current Departmental policy on security and safety issues; and perform analytic functions. Critical to achieving its vision and goals is the ability of EA to maintain a highly qualified workforce with the expertise and skills necessary to support, manage, and conduct its mission. The EA workforce is composed of security and safety professionals highly educated in science, engineering, and technology that are led by effective program and project managers supported by resource management experts.

Support Services

Independent assessment activities provide high value to the Department by assessing performance and identifying gaps and vulnerabilities in physical security and cybersecurity programs, safety (worker and nuclear safety, and emergency management), and related performance. Independent assessment activities are selected based on careful consideration and analysis of risk to Departmental operations and performance trends. Safeguards and security, information security, and cybersecurity independent performance assessment activities are designed to determine whether special nuclear materials, classified matter, and controlled unclassified and sensitive information are adequately protected. Safety-related independent performance assessment activities determine whether workers and the public are protected from the hazards associated with the Department's operations and identify conditions that could negatively impact the Department's ability to perform its mission and achieve its goals. Independent assessment activities provide accurate and timely information and analysis to the Department's senior leadership, Department management, congressional committees, and stakeholders, to provide confidence that the Department's operations are performed in a secure and safe manner.

Independent performance assessment activities complement but do not replace DOE line management's responsibility for security, safety, and contract performance management as required by Departmental policies. EA provides a check-and-balance function for the Department that is vital to provide assurance of its security and safety performance to its leadership, its workers, the public and Congress, and to maintain confidence in the Department's ability to be an effective self-regulator. As required by DOE Order 227.1A, *Independent Oversight Program*, independent assessment activities are performed by personnel who are organizationally independent of the DOE program and site / field offices that develop and implement policies and programs, and who can therefore objectively observe and report on the performance of those policies and programs as they relate to Departmental operations.

Other Related Expenses

Support includes working capital fund services; training for Federal employees; information technology equipment and services, and the Energy Information Technology Services.

Program Direction
Funding
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted ($)	FY 2025 Request vs FY 2023 Enacted (%)
Program Direction					
Salaries and Benefits	24,180	26,822	27,385	+3,205	+13.3 %
Travel	1,170	1,170	1,170	+0	+0%
Support Services	27,701	25,059	30,438	+2,737	+9.9%
Other Related Expenses	4,890	4,890	5,139	+249	+5.1%
Total, Program Direction	**57,941**	**57,941**	**64,132**	**+6,191**	**+10.7%**
Federal FTEs	**100**	**100**	**100**	**0**	**0**
Support Services					
Independent Assessments	**27,701**	**25,059**	**30,438**	**+2,737**	**+9.9%**
Other Related Expenses					
Working Capital Fund	2,804	2,804	2,820	+16	+0.6%
Training	116	116	128	+12	+10.3%
Other Services Procured	1,970	1,970	2,191	+221	+11.2%
Total, Other Related Expenses	**4,890**	**4,890**	**5,139**	**+249**	**+5.1%**

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $57,941,000	**$64,132,000**	**+$6,191,000**
Salaries and Benefits $24,180,000	**$27,385,000**	**+$3,205,000**
• Provides for Federal staffing to manage and oversee direction and execution of the EA mission.	• The request will support 100 FTEs to perform core EA missions.	Increase for Salaries and Benefits to support subject matter experts and for overall ongoing personnel actions to include pay raise, benefits, lump sum payouts, PCS and awards.
Support Services $27,701,000	**$30,438,000**	**+$2,737,000**
Independent Assessments • Observe operations and conduct technical assessments and performance tests that examine the effectiveness of security and safety programs and policies, giving priority to the highest security interests, and activities that present the most significant safety risks to workers and the public; • Conduct performance tests for critical security interests, including protective force tests (e.g., force-on-force exercises); • Conduct limited-notice performance testing of site protective forces; • Conduct performance assessments of the implementation of the Department's insider threat program; • Conduct announced and unannounced internal and external network penetration testing; • Develop new and enhanced performance testing tools capable of detecting and countering evolving cybersecurity threats; • Conduct the annual independent evaluation of DOE classified information systems security programs as required by the Federal Information Security Modernization Act; • Conduct an annual evaluation of DOE classified	*Independent Assessments* • Continuation of activities.	Support Services necessary to maintain currently planned level of independent assessments to identify gaps and vulnerabilities as well as best practices in physical and cybersecurity programs, and environment, safety and health programs.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
information systems security programs for systems that process intelligence information; • Conduct annual "red team" cybersecurity performance assessments of the computer networks within the nuclear weapons sites and laboratories; • Conduct targeted reviews of selected nuclear safety functional areas across the DOE complex; • Maintain the nuclear safety program to monitor the status of DOE nuclear facilities and activities and facilitate the selection and execution of risk-informed assessment activities; • Conduct risk-informed reviews of worker safety and health programs; • Conduct reviews to assess performance of emergency planning, preparedness, and response and recovery capabilities; • Conduct special reviews and studies of security and safety policies, programs, and implementation to identify needed program corrections; • Develop reports to communicate security and safety performance, findings, and opportunities for improvement; • Continuously analyze results, and develop periodic summary reports that identify cross-cutting issues and performance trends; • Conduct follow-up performance reviews to evaluate corrective action effectiveness; and • Provide lessons learned and trending of assessment results to the NTC to be used to develop or amend security and safety curricula to enhance performance of the DOE workforce.		
Other Related Expenses $4,890,000	**$5,139,000**	**+$249**
• Working Capital Fund (WCF) fees, based on	• Continuation of activities.	Provides for information technology, training for

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
guideline estimates issued by the working capital fund manager, for the cost of common administrative services such as building occupancy and alterations, computer and telephone infrastructure and usage, supplies, online learning, computer network support, and payroll processing; • Federal employee training to obtain and/or maintain the technical competence of EA Federal employees, and • The Energy Information Technology Services.		Federal employees and Working Capital Fund.

Other Defense Activities
Facilities Maintenance and Repair

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

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

	FY 2023 Actual Cost	FY 2023 Planned Cost	FY 2024 Planned Cost	FY 2025 Planned Cost
National Training Center	1,125	1,771	1,824	1,878
Total, Direct-Funded Maintenance and Repair	**1,125**	**1,771**	**1,824**	**1,878**

Report on FY 2023 Expenditures for Maintenance and Repair

This report responds to legislative language set forth in Conference Report (H.R. 108-10) accompanying the Consolidated Appropriations Resolution, 2003 (Public Law 108-7) (pages 886-887), which requests the Department of Energy provide an annual year-end report on maintenance expenditures to the Committees on Appropriations. This report compares the actual maintenance expenditures in FY 2023 to the amount planned for FY 2023, including congressionally directed changes.

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

	FY 2023 Actual Cost	FY 2023 Planned Cost
National Training Center	1,125	1,771
Total, Maintenance and Repair	**1,125**	**1,720**

Funding by Appropriation by Site ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Enterprise Assessments			
National Training Center	300	300	330
Washington Headquarters	85,127	85,127	93,824
Total, Enterprise Assessments	**85,427**	**85,427**	**94,154**

Enterprise Assessments
Safeguards and Security ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023
Cybersecurity	9,335	10,123	10,123	+788
Total, Safeguards and Security	**9,335**	**10,123**	**10,123**	**+788**

Legacy Management
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
190,909	190,909	205,258	+14,349

Overview

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) protects human health and the environment by providing long-term management solutions at over 100 World War II and Cold War era sites where the federal government operated, researched, produced, and tested nuclear weapons and/or conducted scientific and engineering research. While these sites were remediated and placed in a safe condition, residual hazards remain after cleanup due to technical limitations of the remedial work. As a result, DOE maintains a post closure obligation to protect human health and the environment after cleanup is completed. LM fulfills this obligation by providing long-term stewardship (LTS) of these sites. In just five years, LM anticipates adding over 20 new sites to its LTS portfolio.

LM's LTS activities foundationally include executing Long-Term Surveillance and Maintenance (LTS&M) at remediated sites. In addition to the LTS&M activities, LTS includes evaluating the condition and addressing physical safety hazards of Defense-Related Uranium Mines (DRUM), performing Archives and Information Management (AIM) for LM's operations and sites, assuring post-retirement benefits to more than 7,000 former DOE contractor employees (Legacy Benefits), and conducting Asset Management (AM), Education, Communication, History, and Outreach (ECHO), Environmental Justice (EJ), and Program Direction (PD) functions.

Highlights and Major Changes for the FY 2025 Budget Request

The request supports LM's mission capabilities and its core LTS activities mentioned above. Approximately $80,456,000 will support LTS&M activities, transition activities for over 20 new sites over five years, and the acceleration of major maintenance and repair at sites and field offices. This will also support inventorying, risk screening, and safeguarding of DRUM sites on public, Navajo Nation, Tribal, and private lands and in Native American communities. Lastly, it supports appropriate implementation of mitigating actions at LM sites to enhance climate resilience.

Additionally, $11,984,000 will allow LM to continue expanding its foundational Environmental Justice (EJ) program activities, enabling the program to reach a larger number of affected State, Native American, and local communities in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations and Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All. Environmental justice funding continues LM activities such as the Teaching Radiation, Energy and Technology Workshop and Community Leaders Institute. The expansion will include making infrastructure investments and increasing current EJ activities executed by current partners and establishing new EJ activities to be executed by Minority Serving Institutions (MSIs) on or near LM sites.

The remaining $112,818,000 supports legacy benefits for former DOE Contractor workers; deployment and implementation of enhancements to address the increased number and complexity of Known Exploited Vulnerabilities; execution of beneficial land reuse activities at DOE properties to revitalize land and assets; extensive community interaction and outreach to support the LTS mission; and the proposed FY 2025 cost-of-living pay increase for civilian employees.

Legacy Management
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted ($)	FY 2025 Request vs FY 2023 Enacted (%)
Legacy Management					
Legacy Management					
Long-Term Surveillance and Maintenance	72,406	72,406	80,456	+8,050	+11%
Archives and Information Management	24,075	24,075	27,311	+3,236	+13%
Legacy Benefits	46,400	46,400	38,700	-7,700	-17%
Asset Management	14,162	14,162	16,307	+2,145	+15%
Education, Communication, History, and Outreach	4,553	4,553	6,531	+1,978	+43%
Environmental Justice	7,330	7,330	11,984	+4,654	+63%
Subtotal, Legacy Management	168,926	168,926	181,289	+12,363	+7%
Program Direction	21,983	21,983	23,969	+1,986	+9%
Total, Legacy Management	**190,909**	**190,909**	**205,258**	**+14,349**	**+8%**
Federal FTEs	**80**	**80**	**82**	**0**	

Legacy Management Explanation of Major Changes ($K)	FY 2025 Request vs FY 2023 Enacted
• **Long-Term Surveillance and Maintenance: :** The increase is primarily due maintenance and repair projects such as repairing deficiencies in the Alternate Water Supply System (AWSS) at the Riverton site in Wyoming, repairing roads and addressing erosion controls at the L-Bar site in New Mexico, installing a groundwater treatment unit and associated infrastructure at the Shiprock site in New Mexico, constructing an interpretive center and modernizing the groundwater treatment system at the Rocky Flats site in Colorado, and regrading a disposal cell depression at the Bluewater site in New Mexico. Improvements such as these are necessary to preserve the integrity of the environmental remedies, fortify institutional controls, and continue to protect human health and the environment.	**+8,050**
• **Archives and Information Management:** The increase supports the continued efforts on compliance with Executive Orders (E.O.): E.O. 14028 (Improving the Nation's Cybersecurity) and EO 14110 (Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence) as well as continuing efforts to comply with M-21-07 (Completing the Transition to Internet Protocol Version 6 (IPv6)). Additionally, the increase will support enhancements to address the increased quantity and complexity of Known Exploited Vulnerabilities. Increase supports efforts to comply with the new CUI (Controlled Unclassified Information) guidance. The increase continues to support improvements to the enterprise geospatial information system to ensure compliance with Federal Data Strategy; and the Geospatial Data Act of 2018; and the 21st Century Integrated Digital Experience Act related to data access, data integrity, quality, use and data sharing, as well as increased scrutiny on Operational Technology in use within LM.	**+3,236**
• **Legacy Benefits:** Decrease reflects the reduction in participates due to the increase in mortality rates.	**-7,700**
• **Asset Management:** Request supports the modernization of infrastructure related to electrification of fleet vehicles and emergency management administrative efforts.	**+2,145**
• **Education, Communication, History, and Outreach:** Increase supports proactive communications and outreach requirements to stay engaged with the public and Tribal governments and address media participation.	**+1,978**
• **Environmental Justice:** Increase supports the expansion of foundational EJ activities, the establishment of new EJ initiatives, the investment in infrastructure, and the development of partnerships with MSIs on or near LM sites.	**+4,654**
• **Program Direction:** Increase supports two (2) additional FTEs, the proposed 2% cost-of-living increase to salaries and benefits for Federal full-time-equivalents (FTEs). Also, supports additional travel and overhead due to increase in number sites.	**+1,986**
Total, Legacy Management	**+14,349**

Overview

Long-Term Surveillance and Maintenance

This sub-program includes conducting LTS&M activities at over 100 remediated sites that have been transferred to LM for long-term care under various regulatory frameworks; planning and executing the transition of future sites from cleanup organizations to LM; inventorying and safeguarding over 3,400 defense-related uranium mine (DRUM) sites on public, Tribal, private lands and in Native American communities sustaining multiple supporting functions. These supporting functions such as environmental compliance, safety and health, and quality assurance (ESH&Q) are integrated into the daily operations of LM's programs and projects. These also include functions such as the Applied Studies and Technology (AS&T) program which incorporates advancements in science and technology into operations improving LM stewardship capabilities, cost effectiveness, sustainability, and protectiveness of environmental remedies at LM sites. All these efforts collectively assures that environmental remedies remain protective of human health and the environment.

The funding requested for FY 2025 will allow LM to accomplish sustainment activities, improvements, and new initiatives. Sustainment activities include soil, water and air monitoring, long-term treatment of contaminants, maintenance and repair of disposal cells, facility and infrastructure maintenance and repair, management and remediation of contaminated groundwater, maintenance of institutional controls, and security at our sites. They also include the execution of multiple functions (e.g., ESH&Q) and programs (e.g., AS&T) critical to LTS&M. These are the necessary activities that maintain LTS&M operations and regulatory compliance until final cleanup objectives have been met. Activities related to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five Year Review work will also begin for multiple sites including the Laboratory for Energy-Related Health Research (LEHR) site in California, the Mound and Fernald sites in Ohio, and the Weldon Spring site in Missouri. Improvements include major projects such as repairing deficiencies in the Alternate Water Supply System (AWSS) at the Riverton site in Wyoming, repairing roads and addressing erosion controls at the L-Bar site in New Mexico, installing a groundwater treatment unit and associated infrastructure at the Shiprock site in New Mexico, modernizing the groundwater treatment system at the Rocky Flats site in Colorado, and regrading a disposal cell depression at the Bluewater site in New Mexico to ensure runoff. Improvements such as these preserve the integrity of the environmental remedy, fortify institutional controls, and continue to protect human health and the environment at LM sites. New initiatives include engaging with international and intergovernmental delegations to share LTS best practices, designing and constructing an interpretive center for Rocky Flats, as well as implementing sustainability options, confronting emerging contaminants, and addressing climate resilience at LM sites. This will ensure regulatory compliance, continuous learning and improvement, and implementation of Departmental planning guidance (e.g., carbon pollution-free electricity).

A related cost, directly supporting this activity and embedded within LTS&M site-specific costs, is safeguards and security for LM properties. The costs include protective forces and physical security systems integral to the LTS&M strategies for the Weldon Spring (Missouri) and Fernald (Ohio) sites.

Archives and Information Management (AIM)

This sub-program includes LM's custodianship of legacy physical and electronic records for LM sites, such as closed sites at Fernald, Mound, Weldon Spring, and Rocky Flats. Additionally, and in support of the DOE Office of the Historian, this includes records management of the federal records related to DOE history and its predecessor agencies. Next, the AIM sub-program involves the management, operations, and security of LM's information technology (IT) infrastructure and data. Major objectives of this activity include management of LM's inherited and mission-related federal records, geospatial and environmental data management, and information technology management. Tasks to achieve these objectives include continuous monitoring, development, modernization, and enhancement of IT systems and cyber security activities.

Additionally, sustainment activities include the management and maintenance of LM's IT infrastructure. Management of LM's IT infrastructure includes maintaining functional equipment, operating systems, and software capable of accessing electronic records; providing planning, design, and maintenance of an IT infrastructure to effectively support automated needs (e.g., platforms, networks, servers, printers, applications, dashboards, etc.); providing cyber security for LM's

unclassified computing networks; and directing and overseeing LM's environmental data. All these efforts collectively ensure that LM will preserve, protect, and share records and information.

The funding requested for FY 2025 will allow LM to accomplish sustainment activities, improvements, and new initiatives. Sustainment activities include responsibility for approximately 111,000 cubic feet of physical records and approximately 4.22 million electronic records. LM's responsibility in this area includes management of the records and information systems (e.g., the Licensing Support Network) associated with the Yucca Mountain Project, in compliance with the Federal Records Act. Lastly, custodianship activities include responding to requests associated with the Freedom of Information Act, Privacy Act, and other information requests (e.g., DOE stakeholders processing claims associated with the Energy Employees Occupational Illness Compensation Program Act). LM currently receives approximately 1,800 formal requests for information each year.

Improvements and new initiatives include the modernization of the Geospatial Environmental Mapping System (GEMS) to ensure the long-term sustainability and operability of a critical mission and stakeholder web-based data sharing system, compliant with the Geospatial Data Act and the Government Paperwork Elimination Act. Also, new improvements include dedicating more resources to address the increased number and complexity of Known Exploited Vulnerabilities. Finally, new initiatives comprise of compliance with Executive Orders (E.O.): E.O. 14028 (Improving the Nation's Cybersecurity) and EO 14110 (Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence) as well as continuing efforts to comply with M-21-07 (Completing the Transition to Internet Protocol Version 6 (IPv6)).
Cyber and information security involves all processes and activities pertaining to the securing of Federal data and systems through the creation and definition of security policies, procedures, and controls covering Identify, Protect, Detect, Respond and Recover activities in accordance with the National Institute of Standards and Technology (NIST) Cybersecurity Framework.

The funding requested for FY 2025 will allow LM to accomplish sustainment activities, and modernization and enhancements of all the above activities.

Legacy Benefits (formerly Pension and Benefit Continuity)
This sub-program fulfills the Department's commitment to former DOE contractor employees who previously worked at sites prior to closure. For sites that have been closed, following the end of active programs and completion of site remediation, LM is responsible for ensuring former DOE contractor employees, their dependents, and their beneficiaries receive the pensions and post-retirement benefits (PRB) that are part of the contractual agreements for the respective sites. Dependent upon the contract provisions for the respective sites, LM funds the contractor cost of providing retirement benefits to former DOE contractor employees. These retirement benefits include pension plans, health insurance, health reimbursement account stipends, Medicare Part B reimbursement, and life insurance.

The funding requested for FY 2025 will continue to support the administration of PRB (healthcare and insurance) for the following sites: Fernald (Ohio), Grand Junction (Colorado), Mound (Ohio), Paducah (Kentucky), Pinellas (Florida), Portsmouth (Ohio), and Rocky Flats (Colorado). There are more than 7,000 participants, including spouses, covered under the retiree medical plans. The total number of participants in these plans has declined over time and mortality rates have increased.

Asset Management (AM)
This sub-program includes the management of real and personal property; aviation management; beneficial reuse; facility management and security; fleet and emergency management. This sub-program also includes management of mining lease tracts for royalties paid to the U.S. government from production on U.S. Bureau of Land Management (BLM) managed lands in Colorado. Lease management continues to strengthen LM's ability to demonstrate responsible lifecycle mining and supports production of strategic minerals. Leases include the option for reclamation in lieu of royalties, which allows lessees to perform reclamation activities of legacy or pre-law abandoned mine sites on or near lease tracts in lieu of annual royalty payments. Finally, this includes stewardship and preservation responsibilities under § 306101 of the National Historical Preservation Act (NHPA).

The funding requested for FY 2025 will allow LM to accomplish sustainment activities, improvements, and new initiatives. Sustainment activities include managing more than 60,000 acres of land and other assets; awarding and administering

leases and facilities; overseeing fleet; aviation program administration; Facilities and infrastructure management; and execution of land beneficial reuse activities. Additionally, sustainment activities include managing processes for preventing and reporting emergencies at LM sites and field offices. These activities include the implementation of several land beneficial reuse activities such as the sale or transfer of real property; habitat and agriculture conservation; and cultural preservation. Also, sustainment activities include the management of DOE's Uranium Leasing program and stewardship and preservation responsibilities under the National Historical Preservation Act (NHPA) (54 USC 306101).

Initiatives include infrastructure for the LM Field Support Center in Grand Junction, Colorado. Additionally, improvements include adding electric vehicles to the fleet and the infrastructure necessary to allow further electrification of the fleet.

A related cost directly supporting this activity within program-wide asset management costs is safeguards and security for LM properties and emergency management. The costs include protective forces, physical security systems, personnel security, information security, and program management.

Education, Communication, History, and Outreach (ECHO)

This sub-program includes education, communication, history, and outreach activities. Together these activities ensure Tribes and stakeholders, including those traditionally disadvantaged communities, are consulted, involved, and informed regarding LM's long-term solutions.

The funding requested for FY 2025 will allow LM to accomplish sustainment activities, improvements, and new initiatives. LM's successful accomplishment of LTS&M activities depends on connecting and effectively communicating with the public, other government organizations, key stakeholders, and partnership with 25 Tribal Communities. As a result, sustainment activities include proactive outreach to the above groups through social media, radio, print publications, speeches, in-person presentations, placing stories in traditional media outlets, carefully targeted communications plans, and more.

Improvements and new initiatives include ECHO's continuous enhancements of vertical integration of outreach activities within the organization. Also, improvements include equity through language access such as language interpretative enhancements. Next, improvements include activities that further outreach requirements such as STEM with LM outreach to 13 schools in Alaska. Lastly, improvements include the integration of public participation specialists to each of the site operations teams. The integration of public participation specialists will help ensure outreach and communication proactively addresses the questions or concerns of affected communities. This is especially important in FY 2025 as the DRUM program focuses on Tribal and private lands, requiring more face-to-face collaboration, public communication, and relationship building to support the program.

Environmental Justice

This sub-program includes administration of the Department's Environmental Justice (EJ) mission in accordance with "Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations and Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All. Environmental justice funding continues LM activities such as the Teaching Radiation, Energy and Technology Workshop and Community Leaders Institute." Agencies are required to advance environmental justice by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, and other cumulative impacts on disadvantaged communities. Accordingly, activities are centered around meaningfully increasing community involvement and participation in the decision-making processes.

The funding requested for FY 2025 will allow EJ to accomplish sustainment activities, improvements, and new initiatives. Sustainment activities include EJ and Tribal training, education, and internships; community-driven activities; capacity building; public participation; agency, public, private industry partnerships; and fostering opportunities for underserved communities, low-income populations, Navajo Nation, Tribal Communities, and Alaska Native Communities.

Improvements and new initiatives begin with amplifying existing foundational activities and expanding the scope of engagement to a broader set of communities using current models of implementation. To strengthen activities, the EJ program will work with Tribal partners and stakeholders to make infrastructure investments and expand community outreach, public participation, and environmental education. Additionally, the EJ program will utilize multiple outreach tools to establish new partnerships and engagement opportunities with MSIs on or near LM sites. Through the expansion of

current activities and the establishment of new partnerships, LM will execute more trainings, community outreach, and internships to meet the intent of reaching more affected communities.

Legacy Management
Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Long-Term Surveillance and Maintenance- $72,406,000	**$80,456,000**	**+$8,050,000**
• Accept responsibility for surveillance and maintenance of 101 sites by the end of FY 2023. • Conduct transition activities for approximately 20 sites prior to their transfer to LM. • Continue to support an interagency effort to inventory and safeguard defense-related uranium mines on public and Tribal lands. • Support major maintenance and repair projects.	• Accept responsibility for surveillance and maintenance of 106 sites by the end of FY 2025. • Conduct transition activities for approximately 20 sites prior to their transfer to LM. • Continue to support an interagency effort to inventory and safeguard defense-related uranium mines on public and private lands and in Native American communities • Support major maintenance and repair projects.	• The increase is primarily due to maintenance and repair projects such as repairing deficiencies in the Alternate Water Supply System (AWSS) at the Riverton site in Wyoming, • Addressing erosion controls at the L-Bar site in New Mexico, • Installing a groundwater treatment unit and associated infrastructure at the Shiprock site in New Mexico, • Constructing an interpretive center and modernizing the groundwater treatment system at the Rocky Flats site in Colorado • Regrading a disposal cell depression at the Bluewater site in New Mexico. • Improvements such as these are necessary to preserve the integrity of the environmental remedy, fortify institutional controls, and continue to protect human health and the environment at LM sites.
Archives and Information Management- $24,075,000	**$27,311,000**	**+$3,236,000**
• Continue records/IT management functions for all sites and activities. • Accept responsibility for records/IT for sites transferred to LM during the fiscal year. • Continue to preserve Yucca Mountain Project records and information systems in compliance with the Federal Records Act.	• Continue records/IT management functions for all sites and activities. • Accept responsibility for records/IT for sites transferred to LM during the fiscal year. • Continue to preserve Yucca Mountain Project records and information systems in compliance with the Federal Records Act.	• The increase supports the continued efforts on compliance with E.O. 14028, E.O. 14110, and M-21-07 (IPv6-only). • Increase will support enhancements to address the increased quantity and

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
• Restore and modernize records, environmental, and geospatial data information management systems. • Address the increased number and complexity of Known Exploited Vulnerabilities.	• Restore and modernize records, environmental, and geospatial data information management systems. • Address the increased number and complexity of Known Exploited Vulnerabilities.	complexity of Known Exploited Vulnerabilities. • Increase will support efforts to comply with the new CUI (Controlled Unclassified Information) guidance. • Increase continues to support improvements to the enterprise geospatial information system assuring compliance with Federal Data Strategy; Geospatial Data Act of 2018; and 21st Century Integrated Digital Experience Act related to data access, data integrity, quality, use and data sharing, and increased scrutiny on Operational Technology in use within LM.
Legacy Benefits- **$46,400,000**	**$38,700,000**	**-$7,700,000**
• Continue to reimburse contractor costs for PRB administration for seven sites. • Continue efforts to reduce DOE's liabilities for retiree PRB while maintaining commitments to DOE's legacy contractor workforce.	• Continue to reimburse contractor costs for PRB administration for seven sites. • Continue efforts to reduce DOE's liabilities for retiree PRB while maintaining commitments to DOE's legacy contractor workforce.	• Decrease reflects the reduction in participants due to the increase in mortality rates.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Asset Management- $14,162,000	**16,307,000**	**+$2,145,000**
• Initiate asset management support for incoming sites. • Continue infrastructure and facilities management at LM sites and Departmental properties. • Manage beneficial reuse initiatives at sites available for reuse. • Establish public land withdrawals with the Department of the Interior that are associated with incoming sites. • Manage program's aviation activites and requirements. • Administer the Minerals Leasing Program. • Continue activities towards DOE's stewardship and perservation responsiblites under NHPA (54 USC 306101). • Manage the expansion of real property requirements at LM Field Support Center and the LM Operations Center and other Departmental properties. • Recapitalize the LM Field Support Center in Grand Junction, Colorado. • Enhance climate resiliency and sustainability at leased and owned properties such as the Regenerative Grazing Study at the Shirley Basin South site in Wyoming. • Modernize fleet vehicles and infrastructure to support electrification of fleet.	• Maintain asset management support for incoming sites. • Continue infrastructure and facilities management at LM sites and Departmental properties. • Pursue beneficial reuse initiatives at sites available for reuse. • Establish public land withdrawals with the Department of the Interior that are associated with incoming sites. • Manage program's aviation activites and requirements. • Administer the Minerals Leasing Program. • Continue activities towards DOE's stewardship and perservation responsiblites under NHPA (54 USC 306101). • Manage the expansion of real property requirements at LM Field Support Center and the LM Operations Center and other Departmental properties. • Recapitalize the LM Field Support Center in Grand Junction, Colorado. • Enhance climate resiliency and sustainability at leased and owned properties such as the Regenerative Grazing Study at the Shirley Basin South site in Wyoming. • Modernize fleet vehicles and infrastructure to support electrification of fleet.	• Increase includes centralizing maintenance of all vehicles and equipment. • Increase in modernization of infrastructure related to electrification of fleet vehicles. • Increase emergency management at LM sites. • Increase in physical security at public outreach centers.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Education, Communications, History, and Outreach- $4,553,000	**$6,531,000**	**+$1,978,000**
• Continue to increase Tribal and stakeholder awareness and engage the public. • Support outreach requirements regarding Executive Orders 13985 and 14091. • Advance equity such as through language interpretative enhancements. • Integrate public participation specialists.	• Continue to increase Tribal and stakeholder awareness and engage the public. • Support outreach requirements regarding Executive Orders 13985 and 14091. • Advance equity such as through language interpretative enhancements. • Integrate public participation specialists.	• Increase supports proactive communications and outreach requirements to stay engaged with the public and Tribal governments and address media participation.
Environmental Justice- $7,330,000	**$11,984,000**	**+$4,654,000**
• Continue EJ functions as the Departmental focus for that program element. • Promote EJ functions in the communities affected by DOE closure actions. • Enhance education and Science, Technology, Engineering, and Mathematics (STEM) outreach activities. • Support equity and energy justice requirements according to Executive Orders 13985 and 14091. • Continue the expansion of foundational EJ activities and expand the scope of engagement to a broader set of participants.	• Support Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations and Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All. • Enhance foundational EJ activities and expand the scope of engagement to a broader set of participants. • Continue EJ functions as the Departmental focus for that program element. • Promote EJ functions in the communities affected by DOE closure actions. • Continue education and Science, Technology, Engineering, and Mathematics (STEM) outreach activities. • Support equity and energy justice requirements according to Executive Orders 13985 and 14091.	• Increase supports the expansion of foundational EJ activities, the establishment of new EJ initiatives, the investment in infrastructure, and the development of partnerships with MSIs near LM sites.

Program Direction

Overview

The LM mission is carried out in the field by a workforce composed mainly of contractors paid from program funds. Oversight, policy, and inherently governmental functions (e.g., human capital, facility management, site management, contract administration, and budget management) are provided by a federal workforce funded from program direction. Program direction includes overhead costs associated with Federal personnel such as salaries, benefits, travel, training, administrative support services, DOE IT Services, and DOE Working Capital Fund (WCF).

Highlights of the FY 2025 Budget Request

The request is an increase of $1,986,000 from the FY 2023 Request level. The request includes supporting overhead costs for 82 Federal FTEs. Overhead support for Federal FTEs includes activities for diversity, equity, inclusion, and accessibility in the Federal Workforce." The increase will also support the proposed 2% cost-of-living increase to salaries and benefits for Federal FTEs.

Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted ($)	FY 2025 Request vs FY 2023 Enacted (%)
Washington Headquarters					
Salaries and Benefits	15,685	15,685	17,244	+1,559	+10%
Travel	750	750	1000	+250	+25%
Support Services	2,725	2,725	2,725	0	0%
Other Related Expenses	2,823	2,823	3,000	+177	+6%
Total, Program Direction	**21,983**	**21,983**	**23,969**	**+1,986**	**+8%**
Federal FTEs	**80**	**80**	**82**	**0**	**0**
Support Services					
Management Support	2,725	2,725	2,725	0	0%
Total, Support Services	**2,725**	**2,725**	**2725**	**0**	**0%**
Other Related Expenses					
Other Services and Supplies	651	651	647	-4	-1%
DOE IT Services	410	410	422	+12	+3%
Working Capital Fund	1,762	1,762	1931	+169	+9%
Total, Other Related Expenses	**2,823**	**2,823**	**3000**	**+177**	**+6%**

Program Direction
Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction- $21,983,000	**$23,969,000**	**+$1,986,000**
Salaries and Benefits- $15,685,000	**$17,244,000**	**+1,559,000**
• Continue functions to execute LM's mission and achieve LM's program goals. • Maintain a level of 80 Federal FTEs to meet the increased site management responsibilities such as addressing physical hazards posed by defense-related uranium mines. • Provide 5.2% cost-of-living increase to salaries and benefits for 80 FTEs.	• Continue functions to execute LM's mission and achieve LM's program goals. • Increase level to 82 Federal FTEs to meet the increased site management responsibilities due to incoming sites from cleanup organizations. • Provide 2% cost-of-living increase to salaries and benefits for 82 FTEs.	• Increase supports two (2) additional FTEs and the 2% cost-of-living increase.
Travel- $750,000	**$1,000,000**	**+250,000**
• Continue to resume normal travel activities to support mission functions such as surveillance, maintenance, operations, and oversight at a growing number of closed sites.	• Continue to resume normal travel activities to support mission functions such as surveillance, maintenance, operations, and oversight at a growing number of closed sites.	• Increase supports normal mission-related traveling and additional travel demands related to site portfolio and field responsibilities (surveillance, monitoring, and transition responsibilities).
Support Services- $2,725,000	**$2,725,000**	**$0**
• Continue effort to prepare more analyses and reports with Federal staff.	• Continue effort to prepare more analyses and reports with Federal staff.	• No change to budget request due to prior year efficiencies.
Other Related Expenses- $2,823,000	**$3,000,000**	**+$177,000**
• Continue supporting individual development staff training, procurement of supplies, annual lease agreements, program allocation of WCF and the energy IT support.	• Continue supporting individual development staff training, procurement of supplies, annual lease agreements, program allocation of WCF and the energy IT support.	• Increase for mission-related training, procurement of equipment and supplies, and WCF and DOE IT support cost.

Legacy Management
Facilities Maintenance and Repair

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

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

	FY 2023 Actual Cost	FY 2024 Planned Cost	FY 2025 Request Level
Office of Legacy Management			
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Sites	2,691	4,532	4,778
Non-CERCLA Sites	1,261	2,256	1,767
Total, Direct-Funded Maintenance and Repair	3,952	6,788	6,545

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

Legacy Management
Capital Summary ($K)

	Total	Prior Years	FY 2023 Enacted	FY 2023 Actuals	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Capital Operating Expenses Summary (including Major Items of Equipment (MIE))							
Capital Equipment > $500K (including MIE)	n/a	n/a	0	0	0	0	0
Accelerator Improvement Projects (AIP) (<$5M)	n/a	n/a	0	0	0	0	0
Minor Construction	26,500	1,500	7,125	7,125	8,065	9,810	+2,685
Total, Capital Operating Expenses	**26,500**	**1,500**	**7,125**	**7,125**	**8,065**	**9,810**	**2,685**
Capital Equipment > $500K (including MIE)							
Total Non-MIE Capital Equipment	n/a	n/a	0	0	0	0	0
MIE Name -N/A	0	0	0	0	0	0	0
MIE Name -N/A	0	0	0	0	0	0	0
Total, Capital Equipment (including MIE)	**n/a**	**n/a**	**0**	**0**	**0**	**0**	**0**
Accelerator Improvement Projects (Total Estimated Cost <$5M)							
AIP Name -N/A	0	0	0	0	0	0	0
AIP Name -N/A	0	0	0	0	0	0	0
Total, Accelerator Improvement Projects	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minor Construction Projects							
Total Direct Funded Minor Construction Projects (TEC <$5M)	n/a	n/a	0	0	0	0	0
Total Indirect Funded Minor Construction Projects (TEC <$5M)	n/a	n/a	0	0	0	0	0
Grand Junction Field Support Center New Campus	14,250	0	7,125	7,125	7,125	0	-7,125
Rocky Flats Interpretive Center	12,250	1,500	0	0	940	9,810	+9,810
Total, Minor Construction Projects	**26,500**	**1,500**	**7,125**	**7,125**	**8,065**	**9,810**	**+2,685**
Total, Capital Summary	**26,500**	**1,500**	**7,125**	**7,125**	**8,065**	**9,810**	**+2,685**

Office of Legacy Management	
Project Name:	Grand Junction Field Support Center New Campus
Location:	Grand Junction, CO
Type:	Minor Construction (GPP, IGPP, excluding AIP)
Total Estimated Cost:	$22.0 Million (includes property purchase)
Construction Design:	$1.5M Million
Project Start:	10/1/2022
Design Complete:	9/30/2024
Construction Complete:	9/30/2025
Project Description:	LM's current office space to support the Grand Junction Field Support Center staff requires major infrastructure renovations. This project includes the renovation of new office space to support the Grand Junction Field Support Center staff. The total estimated cost to renovate the new office space is $22 million.
Prior Year Accomplishments:	Initial planning and (IAA) Inter Agency Agreement preparation and execution.
Planned Activities:	Due diligence for purchase of property, design, and construction to renovate that property.
Significant Changes from original plan:	Termination of construction activities at current Grand Junction (GJ) Office site.

Office of Legacy Management	
Project Name:	Rocky Flats Interpretive Center
Location:	LM Rocky Flats Site near Golden. CO
Type:	Minor Construction (GPP, IGPP, excluding AIP)
Total Estimated Cost:	$12.3 Million
Construction Design:	$1.5M Million
Project Start:	9/7/2022
Design Complete:	2/28/2024
Construction Complete:	5/31/2026
Project Description:	Design and construction of a center Multipurpose Facility including interpretive exhibits and infrastructure improvements at or near the Rocky Flats Site near Golden, CO.
Prior Year Accomplishments:	Initial planning and IAA preparation and execution.
Planned Activities:	Design and construction of an interpretive center.
Significant Changes from original plan:	None at this time.

Office of Hearings and Appeals
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
4,477	4,477	4,499	+22

Overview

The Office of Hearings and Appeals (OHA) provides adjudicatory and conflict resolution services in a fair, impartial, and efficient manner for DOE programs. OHA supports all DOE strategic goals, especially with regard to operational excellence. The majority of OHA's work is defense-related and consists of the adjudication of security clearance cases that determine the eligibility of employees to have access to special nuclear material or classified information.

Within the Other Defense Activities Appropriation, OHA operates with three divisions: the Personnel Security and Appeals Division, the Employee Protection and Exceptions Division, and the Alternative Dispute Resolution (ADR) Office. OHA offers fair, timely, impartial, and customer-friendly processes for adjudicating matters pursuant to regulatory authority or special delegation from the Secretary. Such matters include: (i) eligibility for a security clearance; (ii) whistleblower protection for employees of DOE contractors; (iii) Freedom of Information Act (FOIA) and Privacy Act appeals; (iv) relief from DOE product efficiency regulations to prevent special hardship; (v) hearings to enforce the energy efficiency standards; and (vi) other matters that the Secretary may delegate.

OHA incorporates Diversity, Equity, Inclusion and Accessibility (DEIA) into every aspect of its mission and goals. OHA staff includes individuals from a wide variety of backgrounds, and more than 50% of OHA's Administrative Judges are female. In addition, OHA's ADR Office offers mediation, ADR training, and other services for a variety of matters Department-wide, including DEIA issues, and it collaborates with DOE's Equal Employment Opportunity Office, Ombuds Office, General Counsel, Employee Concerns Office, and Human Capital Management in resolving issues at the lowest possible level.

FY 2023 Accomplishments

- OHA continues to process cases promptly upon receipt. In security clearance cases, decisions were issued, on average, in just 10 days after receiving the hearing transcript. With respect to FOIA appeals, while Federal law allows 20 working days for processing appeals, OHA adjudicated them, on average, in just 10 working days.

- In a new area of jurisdiction, OHA issued the first six civil penalty decisions ever under 42 U.S.C § 6303 for violations of the Energy Policy and Conservation Act. OHA orders recommended civil penalties totaling over 5 million dollars.

- The ADR office implemented an aggressive educational campaign throughout DOE. Among other achievements, the office conducted over 20 ADR trainings (reaching over 1,000 employees); conducted three Lunchtime Series programs (reaching over 2,700 employees); debuted an electronic "Listening Circle" as a tool for group ADR work; and conducted a DOE-wide needs assessment, inviting DOE and NNSA leaders to identify issues their teams faced and the trainings they would like offered. As a result of these efforts, ADR Office cases filed in FY 2023 doubled.

- OHA is ranked number one at DOE having achieved the highest cumulative scores on the Federal Employee Viewpoint Survey (FEVS). As in previous years, every OHA employee participated in taking the FEVS.

Office of Hearings and Appeals
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Program Direction					
Salaries and Benefits	3,127	3,127	3,274	+147	4%
Travel	100	100	100	0	0%
Support Services	150	150	150	0	0%
Other Related Expenses	1,100	1,100	975	-125	-11%
Total, Program Direction	**4,477**	**4,477**	**4,499**	**22**	**1%**
Federal FTEs	**24**	**24**	**24**	**0**	**0%**
Support Services					
Legal Research Support	150	150	150	0	0%
Other Related Expenses					
Energy IT Services	100	100	100	0	0%
Working Capital Fund	1,000	1,000	875	-125	-11%
Total, Other Related Expenses	**1,100**	**1,000**	**975**	**-125**	**1%**

Office of Hearings and Appeals
Explanation of Change
($K)

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction **$4,477**	**$4,499**	**+$22**
Salaries and Benefits **$3,127**	**$3,274**	**+$147**
• Supports staffing level of 24 FTEs.	• Supports staffing level of 24 FTEs.	• Increase due to Annual Civilian Pay Raise
Other Related Expenses **$1,100**	**$975**	**-$125**
• Funding supports the Working Capital Fund (WCF), which provides for shared service costs and Departmental overhead expenses, Energy IT Services, and other services.	• Funding supports the WCF, which provides for shared service costs and Departmental overhead expenses, Energy IT Services, and other services.	• Decrease due to minimizing office space

Funding by Site

TAS_0243 - Other Defense Activities - FY 2025

(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Argonne National Laboratory			
Environment, Health, Safety & Security	945	945	945
Environment, Health, Safety, and Security	945	945	945
Total Argonne National Laboratory	**945**	**945**	**945**
Brookhaven National Laboratory			
Environment, Health, Safety & Security	250	250	250
Environment, Health, Safety, and Security	250	250	250
Total Brookhaven National Laboratory	**250**	**250**	**250**
Chicago Operations Office			
Environment, Health, Safety & Security	50	50	54
Environment, Health, Safety, and Security	50	50	54
Total Chicago Operations Office	**50**	**50**	**54**
Consolidated Business Center			
Environment, Health, Safety & Security	259	259	259
Environment, Health, Safety, and Security	259	259	259
Total Consolidated Business Center	**259**	**259**	**259**
Fernald Site			
Legacy Management Activities - Defense	11,988	11,988	11,488
Legacy Management	11,988	11,988	11,488
Total Fernald Site	**11,988**	**11,988**	**11,488**
Grand Junction Office			
Legacy Management Activities - Defense	41,856	41,856	59,694
Legacy Management	41,856	41,856	59,694
Total Grand Junction Office	**41,856**	**41,856**	**59,694**
Idaho National Laboratory			
Environment, Health, Safety & Security	150	150	150
Environment, Health, Safety, and Security	150	150	150
Total Idaho National Laboratory	**150**	**150**	**150**
Idaho Operations Office			
Environment, Health, Safety & Security	400	400	400
Environment, Health, Safety, and Security	400	400	400
Total Idaho Operations Office	**400**	**400**	**400**
Kansas City National Security Complex (KCNSC)			
Environment, Health, Safety & Security	10	10	20
Environment, Health, Safety, and Security	10	10	20
Total Kansas City National Security Complex (KCNSC)	**10**	**10**	**20**

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Lawrence Berkeley National Laboratory			
Environment, Health, Safety & Security	50	50	60
Environment, Health, Safety, and Security	50	50	60
Total Lawrence Berkeley National Laboratory	**50**	**50**	**60**
Lawrence Livermore National Laboratory			
Environment, Health, Safety & Security	3,050	3,050	3,050
Environment, Health, Safety, and Security	3,050	3,050	3,050
Total Lawrence Livermore National Laboratory	**3,050**	**3,050**	**3,050**
Lexington Office			
Environment, Health, Safety & Security	200	200	200
Environment, Health, Safety, and Security	200	200	200
Total Lexington Office	**200**	**200**	**200**
Los Alamos National Laboratory			
Environment, Health, Safety & Security	95	95	95
Environment, Health, Safety, and Security	95	95	95
Total Los Alamos National Laboratory	**95**	**95**	**95**
Miamisburg Site			
Environment, Health, Safety & Security	5	5	15
Environment, Health, Safety, and Security	5	5	15
Total Miamisburg Site	**5**	**5**	**15**
Mound Site			
Legacy Management Activities - Defense	12,083	12,083	10,274
Legacy Management	12,083	12,083	10,274
Total Mound Site	**12,083**	**12,083**	**10,274**
National Energy Technology Lab			
Legacy Management Activities - Defense	1,976	1,976	1,991
Legacy Management	1,976	1,976	1,991
Total National Energy Technology Lab	**1,976**	**1,976**	**1,991**
Nevada Field Office			
Environment, Health, Safety & Security	15	15	25
Environment, Health, Safety, and Security	15	15	25
Total Nevada Field Office	**15**	**15**	**25**
NNSA Albuquerque Complex			
Environment, Health, Safety & Security	1,000	1,000	1,200
Environment, Health, Safety, and Security	1,000	1,000	1,200
Enterprise Assessments	300	300	300
Office of Enterprise Assessments	300	300	300
Total NNSA Albuquerque Complex	**1,300**	**1,300**	**1,500**

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Oak Ridge Institute for Science & Education			
Environment, Health, Safety & Security	1,255	1,255	1,500
Environment, Health, Safety, and Security	1,255	1,255	1,500
Total Oak Ridge Institute for Science & Education	**1,255**	**1,255**	**1,500**
Oak Ridge National Laboratory			
Environment, Health, Safety & Security	1,035	1,035	1,043
Environment, Health, Safety, and Security	1,035	1,035	1,043
Total Oak Ridge National Laboratory	**1,035**	**1,035**	**1,043**
Oak Ridge Office			
Environment, Health, Safety & Security	2,795	2,795	2,795
Environment, Health, Safety, and Security	2,795	2,795	2,795
Total Oak Ridge Office	**2,795**	**2,795**	**2,795**
Office of Scientific & Technical Information			
Environment, Health, Safety & Security	300	300	300
Environment, Health, Safety, and Security	300	300	300
Total Office of Scientific & Technical Information	**300**	**300**	**300**
Pacific Northwest National Laboratory			
Environment, Health, Safety & Security	1,905	1,905	1,905
Environment, Health, Safety, and Security	1,905	1,905	1,905
Total Pacific Northwest National Laboratory	**1,905**	**1,905**	**1,905**
Pantex Plant			
Environment, Health, Safety & Security	10	10	10
Environment, Health, Safety, and Security	10	10	10
Total Pantex Plant	**10**	**10**	**10**
Pinellas Site			
Legacy Management Activities - Defense	4,164	4,164	3,452
Legacy Management	4,164	4,164	3,452
Total Pinellas Site	**4,164**	**4,164**	**3,452**
Portsmouth Gaseous Diffusion Plant			
Legacy Management Activities - Defense	4,300	4,300	2,500
Legacy Management	4,300	4,300	2,500
Total Portsmouth Gaseous Diffusion Plant	**4,300**	**4,300**	**2,500**
Richland Operations Office			
Environment, Health, Safety & Security	1,000	1,000	1,000
Environment, Health, Safety, and Security	1,000	1,000	1,000
Total Richland Operations Office	**1,000**	**1,000**	**1,000**
Rocky Flats Site			
Legacy Management Activities - Defense	40,735	40,735	31,195
Legacy Management	40,735	40,735	31,195
Total Rocky Flats Site	**40,735**	**40,735**	**31,195**

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Sandia National Laboratories			
Environment, Health, Safety & Security	1,210	1,210	1,210
Environment, Health, Safety, and Security	1,210	1,210	1,210
Total Sandia National Laboratories	**1,210**	**1,210**	**1,210**
Savannah River Site			
Environment, Health, Safety & Security	10	10	10
Environment, Health, Safety, and Security	10	10	10
Total Savannah River Site	**10**	**10**	**10**
Savannah River Site Office			
Environment, Health, Safety & Security	500	500	500
Environment, Health, Safety, and Security	500	500	500
Total Savannah River Site Office	**500**	**500**	**500**
Washington Headquarters			
Program Direction - Environment, Health, Safety and Security	76,685	76,685	90,555
Environment, Health, Safety & Security	122,335	122,335	124,892
Environment, Health, Safety, and Security	199,020	199,020	215,447
Program Direction - Office of Enterprise Assessments	57,941	57,941	64,132
Enterprise Assessments	27,186	27,186	29,722
Office of Enterprise Assessments	85,127	85,127	93,854
Specialized Security Activities	335,000	335,000	390,000
Legacy Management Activities - Defense	46,693	46,693	56,222
Program Direction - Legacy Management	21,983	21,983	23,969
Legacy Management	68,676	68,676	80,191
Office Of Hearings And Appeals	4,477	4,477	4,499
Total Washington Headquarters	**692,300**	**692,300**	**783,991**
Weldon Spring Site Office			
Legacy Management Activities - Defense	5,131	5,131	4,473
Legacy Management	5,131	5,131	4,473
Total Weldon Spring Site Office	**5,131**	**5,131**	**4,473**
Y-12 Site Office			
Environment, Health, Safety & Security	20	20	20
Environment, Health, Safety, and Security	20	20	20
Total Y-12 Site Office	**20**	**20**	**20**
Total Funding by Site for TAS_0243 - Other Defense Activities	**831,352**	**831,352**	**926,374**

Departmental Administration

Departmental Administration

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Departmental Administration
Proposed Appropriation Language

For salaries and expenses of the Department of Energy (DOE) necessary for departmental administration in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), $435,248,563 to remain available until September 30, 2026, including the hire of passenger motor vehicles and official reception and representation expenses not to exceed $30,000, plus such additional amounts as necessary to cover increases in the estimated amount of cost of work for others notwithstanding the provisions of the Anti-Deficiency Act (31 U.S.C. 1511 et seq.): Provided, That such increases in cost of work are offset by revenue increases of the same or greater amount: Provided further, That moneys received by the Department for miscellaneous revenues estimated to total $100,578,000 in fiscal year (FY) 2025 may be retained and used for operating expenses within this account, as authorized by section 201 of Public Law 95–238, notwithstanding the provisions of 31 U.S.C. 3302: Provided further, that the sum herein appropriated shall be reduced as collections are received during the fiscal year so as to result in a final FY 2025 appropriation from the general fund estimated at not more than $334,670,563.

Note—A full-year 2024 appropriation for this account was not enacted at the time the Budget was prepared; therefore, the Budget assumes this account is operating under the Continuing Appropriations Act, 2024 and Other Extensions Act (Division A of Public Law 118-15, as amended). The amounts included for 2024 reflect the annualized level provided by the continuing resolution.

Explanation of Change

In FY 2025, the Request will allow DOE to provide historic support for underserved communities, including $36,530,000 for the Office of Energy Justice and Equity (formerly the Office of Economic Impact and Diversity) to play a critical role in implementing the Department's equity and justice priorities and equity action plan. The Request invests $37,874,000 through the Office of International Affairs to accelerate international climate progress, deploy American innovation, and support economic prosperity at home and abroad, and includes and $1,850,000 to increase energy security and clean energy initiatives. The Office of Management requests $9,000,000 to continue DOE's transition from GSA leased gas powered vehicles to electric vehicles and charging infrastructure. The Office of Policy Request includes $10,000,000 to expand statistical/analytical capabilities that will provide near-real time analysis to be used by policymakers across the government to inform decisions and to expand the Arctic Energy Office scope of activities. To continue to address Cyber vulnerabilities, the Department is requesting $100,000,000 toward critical cybersecurity investments, including those related to the implementation of Zero Trust principles and post-quantum cryptography pilot programs and developing guidelines and best practices and managing Artificial Intelligence in critical infrastructure and cybersecurity. Additionally, within this Request $2,000,000 in included for Industrial Emissions and Technology Coordination to support coordination of industrial emissions and technologies across the Department focusing on work that is both sector-specific and technology-inclusive for energy intensive industries.

Departmental Administration
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
283,000	283,000	334,671	+51,671

Overview

The Departmental Administration (DA) appropriation funds 14 management and mission support programs that have enterprise-wide responsibility for administration, accounting, budgeting, contract and project management, human resources management, congressional and intergovernmental liaison, international cooperation and coordination, information management, life-cycle asset management, legal services, energy jobs, energy justice, workforce diversity and equal employment opportunity, ombudsman services, small business advocacy, sustainability, arctic energy coordination,

and public affairs.

DA supports Strategic Partnership Projects (SPP) that are reimbursed by customers of the DOE laboratories; and receives Miscellaneous Revenues that that offset the costs of the overall program of work. Additionally, the DA program of work operates by executing Defense-Related Administrative Support (DRAS) funding, appropriated within Other Defense Activities (ODA). This accounts for the support DA programs provide for the Defense portion of DOE.

Highlights of the FY 2025 Budget Request

In FY 2025 the Department requests an increase of $51,671,000 to reflect a dedication to strengthen enterprise-wide management and mission support functions, per the Administration's priorities, as the highlights below outline:

- **Office of the Secretary (OSE):** Funding will continue to support leadership and policy direction at the Department.
- **Office of the Chief Financial Officer (CFO):** Funding ensures the effective management and financial integrity of DOE programs, activities, and resources by developing, implementing, and monitoring DOE-wide policies and systems in the areas of budget administration, finance and accounting, internal controls and financial policy, corporate financial systems, and strategic planning. The FY 2025 Request supports Evidence Act Implementation, and funding to support efforts to implement a planning, programming, budgeting, and execution (PPBE) process within the Department.
- **Economic Justice & Equity (EJE, formerly Economic Impact & Diversity):** Funding supports EJE's role as central coordinator and departmental subject matter expert on equity and justice, to include technical assistance to minority businesses, Minority Serving Institutions, and third-party evaluation of Justice40 benefits. Funding expands efforts to identify the socio-economic effects and environmental effects of DOE and State-level energy programs; coordinate with other DOE programs to ensure the equitable distribution of benefits from DOE programs; supporting the inclusion of Minority Serving Institutions and Minority Business Enterprises within DOE programs, advancing the principles of diversity, equity, inclusions, and accessibility within the Department, and protecting the civil right and equal opportunity protections of DOE staff. Staffing level supports EEO consolidation, energy justice, diversity, equity, and inclusion activities.
- **International Affairs (IA):** Funding supports the Administration's efforts to strategic implementation of U.S. international energy policy and supports DOE's mission to ensure America's security and prosperity by addressing its energy, environmental, and climate challenges through innovative science and technology solutions. IA develops and leads the Department's bilateral and multilateral R&D cooperation, connecting DOE's program offices to advantageous international relationships.
- **Office of the Chief Information Officer (OCIO):** Funding supports OCIO's continued modernization of DOE's information technology (IT) infrastructure and IT services to provide the capacity, flexibility, and resiliency required of a modern and secure enterprise. Proposed modernization initiatives will continue to reduce the threat of attacks to both DOE's IT and operational technology assets through automation, scale capacity commensurate with demand, and establish IT enterprise capabilities. Cyber vulnerabilities will continue to be addressed through funds specifically dedicated to cyber response and recovery management in this Request.
- **Office of Management (MA):** Funding supports MA's mission fulfillment, and continued expansion of the Department's electric vehicle fleet and charging infrastructure as part of DOE's transition from GSA-leased gas-powered vehicles to GSA-leased Zero Emission Vehicles.
- **Office for Human Capital (HC):** Funding supports current operational levels, maintain HC's vital customer service mission, and support ongoing initiatives related to developing more agile, cost-effective operations and modernizing hiring practices to improve the DOE workforce's ability to deliver mission outcomes. Additional funding will support hiring increases related to building Talent Teams and dedicated resources to provide HR and hiring managers with new digital tools and capabilities that are needed to effectively support mission needs.
- **Office of Policy (OP):** Funding supports enhanced energy policy and analysis work as an essential function to support urgently needed technology, economic, job creation, and energy-related goals; and expanded capabilities to provide statistical analysis and dashboard tracking and reporting related to climate, economic, environmental, and security goals to be used across the government.

Departmental Administration
Funding by Congressional Control ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Departmental Administration					
Office of the Secretary	6,642	6,642	7,215	+573	9%
Congressional & Intergovernmental Affairs	5,000	5,000	7,112	+2,112	42%
Chief Financial Officer	62,283	62,283	67,345	+5,062	8%
Environmental Justice and Equity[1]	34,140	34,140	36,530	+2,390	7%
International Affairs	32,000	32,000	37,874	+5,874	18%
Artificial Intelligence and Technology Office	1,000	1,000	0	-1,000	-
Chief Information Officer	215,000	215,000	229,434	+14,434	7%
Industrial Emissions and Technology Coordination	0	0	2,000	+2,000	-
Subtotal, DA	**356,065**	**356,065**	**387,510**	**+31,445**	9%
Other Departmental Administration					
Management	66,000	66,000	77,000	+11,000	17%
Project Management	13,550	13,550	16,312	+2,762	20%
Human Capital	35,300	35,300	39,000	+3,700	10%
Office of Small & Disadvantaged Business Utilization	4,200	4,200	5,241	+1,041	25%
General Counsel	41,725	41,725	41,725	0	0%
Office of Policy	23,950	23,950	34,138	+10,188	43%
Public Affairs	5,936	6,436	7,972	+2,036	34%
Undistributed	500	0	0	0	-
Subtotal, Other DA	**191,161**	**191,161**	**221,388**	**+30,727**	**16%**
Strategic Partnership Projects (SPP)	40,000	40,000	40,000	**0**	0%
Total, Departmental Administration (Gross)	**587,226**	**587,226**	**648,898**	**+61,672**	**11%**
Defense-Related Administrative Support (DRAS)	-203,648	-203,648	-213,649	**-10,001**	**5%**
Subtotal, Departmental Administration	**383,578**	**383,578**	**435,249**	**+51,671**	**13%**
Miscellaneous Revenues					
Revenues Associated with SPP	-40,000	-40,000	-40,000	0	0%
Other Revenues	-60,578	-60,578	-60,578	0	0%
Subtotal, Miscellaneous Revenues	**-100,578**	**-100,578**	**-100,578**	**0**	0%
Total, Departmental Administration (Net)	**283,000**	**283,000**	**334,671**	**+51,671**	**18%**

[1] Formerly Economic Impact & Diversity

	Outyear Funding ($K)				
	FY 2025 Request	FY 2026	FY 2027	FY 2028	FY 2029
Total, Departmental Administration	**334,671**	**342,034**	**350,926**	**358,998**	**366,896**

Outyear Priorities and Assumptions

In the FY 2012 Consolidated Appropriations Act (P.L. 112-74), Congress directed the Department to include a future-years energy program (FYEP) in subsequent requests that reflects the proposed appropriations for five years. This FYEP shows outyear funding for each account for FY 2026 - FY 2029. The outyear funding levels use the growth rates in outyear account totals published in the FY 2025 President's Budget for both the 050 and non-050 accounts. Actual future budget request levels will be determined as part of the annual budget process.

Defense-Related Administrative Support

Overview

Beginning in FY 1999, funding has been provided within the Other Defense Activities appropriation to offset expenses that support defense-related activities. This offset addresses the significant level of administrative assistance performed by DA programs in support of the Department's defense-related programs. The services provided by the programs within DA are performed without distinction between defense and non-defense related activities and provide benefit for all headquarters organizations proportionally.

Defense-Related Administrative Support
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Defense-Related Administrative Support	**-203,648**	**-203,648**	**-213,649**

Strategic Partnership Projects

Overview

The Strategic Partnership Projects (SPP) program provides funding to DOE's multi-purpose field offices and National Laboratories to finance the cost of products and services requested by non-DOE users, both foreign and domestic. The products and services provided by the Department under this program generally are not available from alternate sources and are reimbursable work for non-federal entities where the sponsor is precluded by law from providing advance funding.

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

The benefits for this program are continued access to the Department's Laboratory complex, which satisfies the needs of our non-federal customers. Performance evaluation for this work is the responsibility of our customers. The success of this program is indicated by the steady influx of business from the targeted groups.

Strategic Partnership Projects
Funding ($K)

	FY 2023 Enacted	FY 2024 Enacted	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Consolidated Service Center	18,566	21,613	21,700	+3,134
Argonne National Laboratory	-	-	-	
Brookhaven National Laboratory	-	-	-	
Lawrence Berkeley Laboratory	-	-	-	
Oak Ridge National Laboratory	-	-		
Idaho Operations Office	2,000	2,000	2,000	0
National Energy Technology Laboratory	150	100	150	0
National Renewable Energy Laboratory	500	500	500	0
NNSA Complex	7,484	4,487	3,800	-3,684
Richland Operations Office	100	100	100	0
Savannah River Ops Office	11,200	11,200	5,200	-6,000
Washington DC HQ Undistributed		-	6,550	6,550
Total, Strategic Partnership Projects	**40,000**	**40,000**	**40,000**	0

Revenues Associated with Strategic Partnership Projects
Funding ($K)

Description of FY 2025 Activities	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Consolidated Service Center	18,566	21,613	21,700
• Argonne National Laboratory - Work with universities and state and local governments that are precluded by law in giving a cash advance; and cover anticipated work with Small Business Innovation Research federal awarded sponsors. • Brookhaven National Laboratory - Primarily to cover anticipated work with small businesses on Small Business Innovation Research/Small Business Technology Transfer and Research SPP. In addition, to cover work with universities and state & local governments that are precluded by law to provide a cash advance. • Lawrence Berkeley National Laboratory o Additional university support for Composite for Basic Science Research; o Independent Technical Assistance for Management and Treatment of Groundwater and Drinking Water; o Fabricate the components in the ALICE (A Large Ion Collider Experiment)-USA scope and ALICE ITS (Inner Tracking System) upgrade; o University of Washington for comprehensive Identification of Worm and Fly Transcription Factors; and o National Laboratory High Energy Physics for Particle Data Group. o 21st Century Indiana Energy Policy Development Task Force and Comprehensive Study. • Oak Ridge National Laboratory support for Early-Time Signatures of a Nuclear Detonation in Urban Areas; Tennessee REVV Program; Tip-Enhanced Raman Spectroscopy (TERS) as a Screening Tool; Understanding Cellular Transformation and Chemical Responses Linking Type 2 Diabetes and Amyotrophic Lateral Sclerosis; Neutron Scattering Studies of Human Acetylcholinesterase (AChE); Computational Support for Problem Structure and Quantum Advantage; Joint Faculty Agreements; General Employee Loan Agreements; etc. • SLAC National Accelerator Laboratory support to U.S./Japan Cooperative Program in High Energy Physics; • Oak Ridge Institute for Science and Education (ORISE) support to/for Radiation Emergency Assistance Center/Training courses, and Beryllium Lymphocyte Proliferation Testing; and • Pacific Northwest National Laboratory (PNNL) work with universities and state and local governments in the areas of Biomedical, High Performance Computing, Grid Modernization, Security and Incident Response, Nuclear and Reactor Technologies, Advance Material Development, Marine Sciences research and development, Build Back Better solicitations, and State Clean Energy fund, Advance Material Development, and Advance Manufacturing.			

Idaho Operations Office • Work with universities state and local governments. • To cover anticipated work with small businesses on Small Business Innovation Research/Small Business Technology Transfer and Research SPP.	2,000	2,000	2,000
National Energy Technology Laboratory • Work with state and local governments that are precluded by law in giving a cash advance.	150	100	150
National Renewable Energy Laboratory • Work with state and local governments.	500	500	500
NNSA Complex • Consolidated Nuclear Solutions (CNS) National Security Complex support to long-term supply contracts with foreign governments to provide uranium fuel; • CNS - NA-23 Material Management & Minimization Nuclear Material Removal program - cost of recovery operations subsequently reimbursed by foreign customers; • CNS support for Universities precluded by law from providing advance funding. • Sandia National Laboratory support to state & local governments; and • Lawrence Livermore National Laboratory support to state and local governments	7,484	4,487	3,800
Richland Operations Office • Work with Universities, State, and Local governments.	100	100	100
Savannah River Operations • Savannah River National Laboratory support to universities & institutions, state and local governments, and non-profit organizations; and • Savannah River site support for the receipt and management of foreign research reactor spent nuclear fuel	11,200	11,200	5,200
Washington DC HQ Undistributed • Funding kept in reserve to support SPP activities			6,550
Total, Revenues Associated with Strategic Partnership Projects	**40,000**	**40,000**	**40,000**

Miscellaneous Revenues

Overview

The Departmental Administration account receives Miscellaneous Revenues from the following:

- Revenues received from the sale of by-products that have no cost associated with the Departmental Administration program of work. These items are by-products of activities funded by other on-going Departmental programs and are collected as Miscellaneous Revenues. Included in this estimate are revenues collected from the Reimbursable Work program for Federal Administrative Charges.
    - Federal Administrative Charges – Revenues collected from other federal agencies as well as non-federal entities for reimbursable activity conducted by the Department in accordance with full-cost recovery policy.
    - Nuclear Production Office – Revenues generated from shipment of surplus Highly Enriched Uranium and Low Enriched Uranium for use in foreign research and test reactors.
    - Naval Reactors Laboratory Field Office (formally Pittsburgh Naval Reactors Office) – The Department of the Navy reimburses the Naval Reactors Laboratory Field Office for the nuclear material burn-up while the core is in operation and when residual nuclear material is removed during refueling and defueling of the core. While nuclear material burn-up is relatively consistent across years, major fluctuations in this line item are attributable to the refueling and defueling schedules, which are based on ship availability and quantity of nuclear material left in the cores.
    - Other Revenues, including Timber Sales – Estimate based on current rate of collections for various miscellaneous revenues collected at all Department sites, including timber sales at Savannah River Site.

Miscellaneous Revenues
Funding ($K)

	FY 2023 Enacted	FY2024 Bill	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Revenues Associated with Strategic Partnership Projects	**-40,000**	**-40,000**	**-40,000**	0
Other Revenues	**-60,578**	**-60,578**	**-60,578**	0
Federal Administrative Charges	-36,667	-36,667	-31,597	+5,070
Nuclear Production Office	-4,044	-4,044	-3,250	+794
Naval Reactors Laboratory Field Office	-15,167	-15,167	-20,931	-5,764
Other Revenues, including Timber Sales	-4,700	-4,700	-4,800	-100
Total, Miscellaneous Revenues	**-100,578**	**-100,578**	**-100,578**	**-**

Office of the Secretary (OSE)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
6,642	6,642	7,215	+573

Mission

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

Overview

The OSE provides agency leadership tasked with maintaining a safe, secure, and effective nuclear deterrent and reducing the threat of nuclear proliferation, overseeing the United States' energy supply, carrying out the environmental clean-up from the Cold War nuclear mission, and the 17 National Laboratories.

The Budget Request supports Salary and Benefit Expenses, Travel, Security Clearances and Training for the Immediate Office of the Secretary (OSE), Deputy Secretary, Office of the Under Secretary for Infrastructure and Office of the Under Secretary for Science and Innovation.

In FY 2025, the Department will continue promoting scientific and technological innovation in achieving each of its goals through continued investments in: scientific research; technology innovation; nuclear security; and environmental cleanup.

FY 2023 Key Accomplishments

OSE made progress in achieving the Department's mission of ensuring America's security and prosperity by addressing its energy, environmental and nuclear challenges through continued investment in transformative science and technology solutions.

OSE advanced clean energy solutions to combat the climate crisis, create U.S. jobs, bring new opportunities to communities across America, and promote America's energy independence.

OSE is helping America achieve President Biden's goal of net-zero carbon emissions by 2050 by advancing cutting-edge clean energy technologies, creating millions of good-paying energy jobs, and building an equitable clean energy future.

OSE is executing and amplifying President Biden's Investing in America Agenda by coordinating messaging and travel throughout the Department that serves to highlight the investments in energy and infrastructure enabled by the Infrastructure Investment and Jobs Act and the Inflation Reduction Act.

Office of the Secretary (OSE)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	6,012	6,012	6,585	+573	10%
Travel	529	529	529	0	0%
Other Related Expenses	101	101	101	0	0%
Total, Program Direction	**6,642**	**6,642**	**7,215**	**+573**	**9%**
Federal FTEs	**33**	**33**	**33**	**0**	**0%**
Other Related Expenses					
Training	6	6	6	0	0
Other Services	95	95	95	0	0
Total, Other Related Expenses	**101**	**101**	**101**	**0**	**0**

FY 2025 Budget Request Highlights

The FY 2025 Guidance Level funding amount of $7,215K is a $573K increase above the FY 2023 Enacted Level. The additional funding supports Salaries and Benefits escalation for pay raise, 33 FTEs, and other related payroll expenses.

In FY 2025, the Office of the Secretary remains committed to providing leadership for: Strengthening and Empowering the Federal Workforce; Management Efforts; Delivering Excellent, Equitable, and Secure Federal Services and Customer Experience; Advancing Clean Energy; and Addressing Environmental and Nuclear Challenges.

Office of the Secretary (OSE)
Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Program Direction: $6,642,000	**$7,215,000**	**$573,000**
Salaries and Benefits $6,012,000	**$6,585,000**	**+$573,000**
Funding supports payroll costs of up to 33 FTEs in the Office of the Secretary, Deputy Secretary, Office of the Under Secretary for Infrastructure (S3), and the Office of the Under Secretary for Science and Innovation (S4).	Continued funding supports payroll costs of up to 33 FTEs in the Office of the Secretary, Deputy Secretary, Office of the Under Secretary for Infrastructure (S3), and the Office of the Under Secretary for Science and Innovation (S4). Additional funding for cost-of-living adjustment. FTEs, and other related payroll expenses.	+$573 Additional funding for cost-of-living adjustment, FTEs, and other related payroll expenses.

Congressional and Intergovernmental Affairs (CI)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
5,000	5,000	7,112	+2,112

Mission
The Office of Congressional and Intergovernmental Affairs (CI) serves as the Department's primary liaison to Congress, state, local, and Tribal governments, and other stakeholder organizations, delivering accurate and timely information and ensuring coordination related to Departmental programs policies, and initiatives.

Overview
In FY 2025, CI will direct, manage, and ensure timely coordination between Departmental organizations and their external stakeholders. This includes timely notifications to Members of Congress, governors, mayors, and Tribal officials on Department of Energy (DOE) matters of specific interest including pending awards/grants/contracts that may affect the states, Tribal nations, congressional districts, and other constituencies. CI will ensure the Department provides timely and complete responses to inquiries and requests for information. In addition, CI will engage with governors, staff, local elected and appointed officials, and consult Tribal leaders on DOE activities and decisions; and to elicit concerns and interests for consideration in DOE decision processes.

FY 2023 Key Accomplishments

- Conducted over 300 briefings for members of Congress and Congressional staff as well as over 10 Congressional Delegations and DOE site visits with Congressional Staffers.
- Supported testimony by DOE principals in 32 Congressional hearings, a substantial increase from FY 2022.
- Supported more than 50 direct engagements between the Secretary of Energy and/or Deputy Secretary and members of Congress.
- Supported over 125 direct engagements between DOE leadership and governors, mayors, and Tribal leaders.
- Conducted outreach and engagement at more than 30 major events with state and local government stakeholders or Tribal nations.
- Facilitated DOE principal-level participation for over 20 webinars and in-person events hosted by members of Congress to educate constituents and stakeholders on Departmental programs, policies, and other initiatives.
- Dispatched Departmental responses or provided briefings to answer thousands of incoming letters and email inquiries from Members of Congress.

Congressional and Intergovernmental Affairs (CI)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	3,511	3,693	5,642	+2,131	+61%
Travel	75	50	100	+25	+33%
Support Services	230	73	150	-80	-35%
Other Related Expenses	1,184	1,184	1,220	+36	+3%
Subtotal, Washington Headquarters	**5,000**	**5,000**	**7,112**	**+2,112**	**+42%**
Total, Program Direction	**5,000**	**5,000**	**7,112**	**+2,112**	**+42%**
Federal FTEs	**24**	**24**	**31**	**+7**	**+29%**
Support Services					
Print and electronic subscription services	100	23	100	-	-
Contractor Support	80	0	0	-80	-100%
Other Support Services	50	50	50	-	-
Total, Support Services	**230**	**73**	**150**	**-80**	**-35%**
Other Related Expenses					
Training	0	0	0	-	-
Energy IT Services	215	215	226	+11	+1%
Working Capital Fund	969	969	969	-	-
Other Services	0	0	25	+25	+100%
Total, Other Related Expenses	**1,184**	**1,184**	**1,220**	**+36**	**+3%**

Congressional and Intergovernmental Affairs (CI)
Program Direction

FY 2025 Budget Request Highlights

The Department requests $7,112,000 in FY 2025 for CI to support operational levels consistent with Departmental needs and Secretarial priorities, and fully funds 31 FTE positions required to support increased demand for engagement, broadened stakeholder outreach, and improved responsiveness and efficiency to the increasing number of Congressional inquiries, requests, and correspondence. Increased funding above the FY 2023 Enacted level is crucial to backfilling critical staffing positions needed to maximize CI's effectiveness and ability to support DOE initiatives :

- Congressional Services and Information: This team oversees the process of developing and clearing testimony for Congressional hearings, manages all responses to QFRs, tracks and dispatches all required Congressional reports, and reviews and dispatches all Congressional and Intergovernmental correspondence on behalf of the Department. These positions are deemed critical because of the Secretary's focus on expediting responses to Congressional correspondence. CI has successfully reduced response times by 16 days since February 2023 and are committed to further improvements.

- Legislative Affairs: This team provides direct service to Congressional staff, including arranging briefings and responding to Member requests. These positions are deemed critical as CI continues to see an increasing number of Congressional inquiries and requests as interest in DOE priorities and programs grows.

- Intergovernmental Affairs: This team provides direct support and engagement on behalf of DOE to all intergovernmental stakeholders, including Governors, mayors, state energy officials and Tribal leaders. CI's IGA team is extremely limited in Career staff representation, additional Career capacity is needed to ensure continuity, maintain stability and a strong focus on IGA stakeholders.

Funding at the Request level will further enable CI to support the following initiatives:

- Critical Departmental and Administration priorities in Congress, including efforts to develop a framework for AI, secure vital energy supply chains (such as for distribution transformers and other critical grid components), and ensure domestic supplies of critical materials and uranium.

- Continue Congressional engagements in alignment with Departmental policy and program initiatives. This includes both monitoring and developing legislative activity on behalf of the Department, as well as working with Congress to define and advance the Administration's position on pending legislation.

- Prepare Departmental officials for Congressional hearings, briefings, and meetings, as well as gubernatorial and Tribal consultations and other events. This includes directing and coordinating the preparation of Congressional testimony, transcripts, pre- and post-hearing questions and answers, and other information provided for the record.

- Continue its key role in coordinating outreach and providing timely information to stakeholders, including members of Congress, Congressional staff, state and local elected officials, and other external groups.

Congressional and Intergovernmental Affairs (CI)
Program Direction

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $5,000,000	**$7,112,000**	**+$2,112,000**
Salaries and Benefits $3,511,000	**$5,642,000**	**+$2,131,000**
Funding supports funding for 24 FTEs.	Funds 31 FTEs to support increased demand for engagement with Congress, State, Local, and Tribal Government, broadened outreach, improved responsiveness to increasing number of Congressional inquiries, requests and correspondence, and succession planning to maintain a workforce with the necessary skills and knowledge to achieve mission objectives and advance DOE goals.	Funds 31 FTEs required to address critical staffing needs essential for maximizing CI's effectiveness and ability to support DOE initiatives; includes pay increase of 2 percent in FY 2025, 5.2 percent in FY 2024, and supplemental funds for performance award pool in FY 2025.
Travel $75,000	**$100,000**	**+$25,000**
Funding for minimum travel requirements to support the Department's engagements with congressional, intergovernmental, and other stakeholders.	Funds travel closer to level required to effectively support Departmental engagements with congressional, intergovernmental, and other stakeholders.	Increase funds travel essential to performing IGA Regional Specialist job duties as liaisons between the Department and localities, enables expanded outreach and engagement opportunities on DOE initiatives.
Support Services $230,000	**$150,000**	**-$80,000**
Funding for mandatory costs associated with background investigation services, access to subscription platforms critical to staff performance, and partially funds executive contractor support.	Funds mandatory costs associated with background investigation services, and access to subscription platforms critical to staff performance.	Reflects reduced contractor support.
Other Related Expenses $1,184,000	**$1,220,000**	**+$36,000**
Funds support business costs associated with the Department's Working Capital Fund (WCF) and Energy IT Services (EITS).	Funds WCF and EITS costs per FY 2025 guidance, and conference attendance fees.	Increase funds cost escalation for EITS and conference attendance fees.

Office of the Chief Financial Officer (OCFO)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
62,283	62,283	67,345	+5,062

Mission

To provide the leadership, resources, and expertise necessary for the department to accomplish its mission.

Overview

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

- Serves as the principal advisor to the Secretary and other DOE officials on matters relating to the Department's financial resources and performance management.
- Oversees the formulation, execution, analysis, and financial integrity of the Department's annual and multi-year budget, including portions of the Infrastructure Investment and Jobs Act (IIJA), Inflation Reduction Act (IRA), and other supplemental spending bills including funding for Ukraine and Puerto Rico.
- Develops and maintains an integrated agency-wide financial accounting system.
- Prepares reports including a description and analysis of the status of financial management in the annual financial statements, audit reports, the Digital Accountability and Transparency Act of 2014 (DATA Act) reporting, and internal accounting and administrative controls systems at DOE. In November 2022, DOE received its 16th consecutive unmodified audit opinion and the high accuracy rate for DATA Act reporting efforts.
- Manages the activities and execution of DOE's Working Capital Fund (WCF) and prepares annual budget documentation.
- Leads Enterprise Risk Management efforts to provide data for risk by systematically identifying, assessing, and managing strategic, financial, and programmatic risks across the DOE.
- Develops program performance measures, manages the performance tracking system, and serves as the Performance Improvement Officer, the Department's principal advocate for improved performance and management. Improves departmental implementation of budget performance integration and evidence-based decision making.
- Coordinates and leads the development and implementation of the DOE Strategic Plan, Agency Priority Goals (APGs), and other requirements of the GPRA Modernization Act, including quarterly assessment meetings.
- Manages and supports the administration and the operations and maintenance of the Department-wide enterprise corporate business systems (e.g., Foreign Travel Management System, Integrated Data Warehouse).
- Leads the implementation of program management policies and strategies for developing highly qualified program managers required by the *Program Management Improvement Accountability Act of 2016 (PMIAA)*.

FY 2023 Key Accomplishments

- Secured 16th consecutive unmodified clean audit opinion.
- Developed new training program for DOE Financial management personnel; trained 75+ from across DOE in person this year.
- Established new interagency working group to coordinate GAO liaison activities in coordination with OMB, DOD, and DHS.
- Closed 72,000 accounts through RPA automation saving 265 days in staff time. Developed and deployed 6 RPAs and initiated an additional 7 automations for use in FY 2024.
- Completed G-Invoicing implementation (one of the first across federal government).
- Supported improvements for DOE workforce to include use of Uber/Lyft for official local travel and free access to gym facilities at HQ.
- Processed over $123 billion of funding allotments.
- Released initial phase of new IIJA dashboard to track execution and support improved project management.

Office of the Chief Financial Officer (OCFO)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Washington Headquarters					
Salaries and Benefits	36,202	38,610	42,233	+6,031	+17%
Travel	100	100	100	-	0%
Support Services	14,035	12,350	13,531	-504	-4%
Other Related Expenses	11,946	11,223	11,481	-465	-4%
Total, Program Direction	62,283	62,283	67,345	+5,062	+8%
Federal FTEs – OCFO	**230**	**220**	**220**	**-10**	**-4%**
Federal FTEs – WCF	**22**	**22**	**22**	**-**	**0%**
Federal FTEs – IIJA	**8**	**5**	**5**	**-3**	**-38%**
Federal FTEs – IRA	**2**	**5**	**5**	**+3**	**150%**
Support Services					
Management Support					
Corporate Business Systems	6,635	6,225	6,400	-235	-4%
System Support/Other Support Services	7,400	6,125	7,131	-269	-4%
Total, Support Services	**14,035**	**12,350**	**13,531**	**-1,204**	**-4%**
				-	-
Other Related Expenses				-	-
Energy IT Services	3,100	2,700	2,928	-172	-6%
Security Clearance Investigations	100	100	100	-	0%
Training	225	100	100	-125	-56%
Interagency Agreements	370	390	420	+50	+14%
Working Capital Fund	8,151	7,933	7,933	-218	-3%
Total, Other Related Expenses	**11,946**	**11,223**	**11,481**	**-465**	**-4%**

FY 2025 Budget Request Highlights

The FY 2025 Request is $67,345,000, an increase of $5,062,000 from the FY 2023 Enacted budget. The FTE level was adjusted to 220 to more accurately reflect the increase in salary and benefits, reduction in carryover, and increased cybersecurity and system costs. This budget Request includes the FY 2024 5.2 percent and the FY 2025 2.1 percent pay raise for federal employees and Federal Employees Retirement Systems (FERS) benefits. With the additional funding, OCFO will continue to support the effective management and ensure the financial integrity of DOE programs, activities, and resources including IIJA and IRA implementation activities, and support efforts to implement a planning, programming, budgeting, and execution (PPBE) process within the Department. OCFO will continue to develop, implement, and monitor DOE-wide policies and systems in budget formulation and execution, finance and accounting, internal controls and financial policy, corporate financial systems, and strategic planning.

In FY 2025, OCFO is requesting funds for increased personnel costs, travel requirements, and the continued implementation of the Robotic Process Automation (RPA) initiative within OCFO and DOE.

OCFO is continuing to oversee the implementation of DOE Policy (P) 410.3, *Program Management*, which established expectations, principles for program management, and program evaluation and evidence-based decision making to accomplish the Agency's mission and goals efficiently and effectively per various statutory, regulatory, administrative, and agency requirements.

Office of the Chief Financial Capital Officer (OCFO)
Program Direction

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $62,283,000	**$67,345,000**	**+$5,062,000**
Salaries and Benefits $36,202 ,000	**$42,233,000**	**+$6,031,000**
Funds 230 full-time equivalent employees (FTE).	Funds 220 FTEs.	Increase reflects a 5.2 percent pay raise in FY 2024 and a 2.1 percent in FY 2025 for federal employees and FERS. The FTEs have been adjusted to more accurately reflect the increases in salary and benefits and provides funding for PPBE implementation.
Support Services $14,035,000	**$13,53,000**	**-$504,000**
The FY 2023 OCFO budget funds the operation and maintenance, and cybersecurity requirements of the DOE enterprise financial, procurement, and human capital business systems, including the Integrated Data Warehouse, Foreign Travel Management System, automaton of the agency financial report, Robotic Processing Automation (to meet the PMA Cross-Agency Priority (CAP) goal), and the Audit automation tasking system. Funding is also provided for technical system support and other services (to include PMIAA).	The FY 2025 OCFO budget funds the basic operation and maintenance, and cybersecurity requirements of the DOE enterprise financial, procurement, and human capital business systems, including the Integrated Data Warehouse, Foreign Travel Management System, Robotic Processing Automation project (to meet the PMA CAP goal), MoveLINQS Government Relocation Accounting System, and the Departmental Audit Reporting Tracking System (DARTS).	Decreases and postpones enhancements and upgrades, system replacements and cybersecurity compliance.
Other Related Expenses $11,946,000	**$11,481,000**	**-$465,000**
Funding supports employee training, interagency agreements, IT desktop technical support requirements, security clearance investigations, and WCF.	Funding supports interagency agreements, security clearance investigations, and WCF.	Decreases: - Delay the corporate business systems upgrades and enhancements - Reflect reduction in WCF bill as footprint decreased.

Office of Energy Justice and Equity (EJE)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
34,140	34,140	36,530	+2,390

Mission

The Office of Energy Justice and Equity (EJE) formerly known as the Office of Economic Impact and Diversity (ED) is tasked by statutory authority (42 USC 7141) with: (1) advising the Secretary of Energy on the effect of energy policies, regulations, and other actions of the Department and its components on minorities and minority business enterprises (MBEs), and on ways to ensure that minorities are afforded an opportunity to participate fully in Departmental energy programs; (2) conducting an ongoing research program, with the assistance of the Administrator of the Energy Information Administration (EIA) and other federal agencies as the Director determines appropriate, to determine the effects (including socio-economic and environmental effects) of national energy programs, policies, and regulations of the department on minorities; (3) developing and recommending to the Secretary of Energy policies to assist minorities and MBEs; (4) conducting research on energy burden, economic opportunities for minorities and commercialization of energy-related technologies; (5) providing management and technical assistance to minority serving institutions (MSIs) and MBEs; and (6) providing financial assistance in the form of loans to any MBE under such rules prescribed by the Director to facilitate research, development, demonstration, and contract activities of the Department. Through its Office of Civil Rights and Equal Employment Opportunity (OCR-EEO), EJE also ensures compliance with Title VI and VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, Sections 501/504 of the Rehabilitation Act of 1973, the Genetic Information Nondiscrimination Act, Title IX of the Education Amendments of 1972, the Age Discrimination Act, the Equal Pay Act, the Pregnant Workers Fairness Act, and related civil rights statutes.

Overview

The Office of Energy Justice and Equity's mission is intertwined throughout every aspect of the Department. EJE touches on all aspects of the DOE mission through:

- Increasing participation of underrepresented groups in DOE programs through outreach, community-centered education, and technical assistance. Such activities advance and support energy justice across DOE, enhancing the Department's ability to achieve its mission. Key activities include leading engagements, including webinars, in partnership with DOE colleagues; providing resources and toolkits on DOE programs; providing technical assistance and support to DOE colleagues on issues of energy justice, equitable deployment, equitable procurement, and diversity, equity, inclusion, and accessibility (DEIA); and coordinating cross-cutting equity-focused initiatives and activities across the DOE complex and National Laboratories.
- Conducting energy justice policy research and analysis, in partnership with the Office of Energy Information Administration (EIA), members of academia, and federal colleagues to advance energy equity across the DOE complex and in federal energy policy. Research includes the identification of the socio-economic and environmental effects of DOE and State-level energy programs; a national analysis of energy poverty and energy burden, using EIA datasets; equitable deep decarbonization; and equitable deployment of clean energy resources. Policy and technical assistance efforts include collaboration with DOE program offices to develop programs that accelerate the adoption of clean energy technologies and increase participation in the clean energy economy for underserved communities.
- Providing technical assistance and support to help MSIs and MBEs participate competitively in prizes, contracts, and funding opportunities. The technical assistance not only helps identify opportunities in DOE, but also helps to bring awareness to capabilities for these entities to expand their portfolio in the clean energy space. Specifically, MSIs may not be aware that they can use their institutions to respond to federal requirements like building prototypes or giving students hands-on experience that opens doors to future careers. Technical assistance removes barriers that help develop strong partnerships, create quality proposals, and respond to multiple streams of funded opportunities. Students benefit through specific training development to help them transition from internship

programs such as EJE's Minority Educational Institutions Student Partnership Program (MEISPP) and other DOE student internships to direct employment with DOE.

- Advancing the principles of civil rights and equal opportunity across the DOE complex and through Office of Civil Rights and Equal Employment Opportunity program partnerships, data analytics, policy development, technical assistance, education, compliance and enforcement activities, and adjudication of allegations of discrimination.
- Leading on DEIA across the agency. Key activities include developing and implementing an agency-wide DEIA Strategic Plan; standing up a DEIA Senior Leadership Council; providing technical assistance, DEIA training and organizational development to Departmental staff and management; conducting DEIA outreach and engagement, support the workforce through ERG management and to ensure a diverse workforce.
- Leading several communities of practice for senior leadership and staff focused on equity, energy, and environmental justice and community engagement.
- Helping faculty from MSIs learn about clean energy through the Faculty Applied Clean Energy Science (FACES) program will help build out curriculums for students in Science, Technology, Engineering, and Math (STEM). This access to the knowledge of students' professors expands their understanding of environmental and social sciences and develop leaders to improve the opportunities of the future.

FY 2023 Key Accomplishments

- Executed a $1.5 million Cooperative Agreement with Texas Southern University's Historically Black Colleges and Universities (HBCU) Consortium to create community capacity to participate in Community Benefits Plans and Community Benefits Agreements.
- Executed a $6.3 million Cooperative Agreement with Black Owners of Solar Services (B.O.S.S.) to increase MBE involvement in DOE Bipartisan Infrastructure Law (BIL)/Inflation Reduction Act (IRA) opportunities and appropriated programs.
- Implemented DOE's Energy Justice to the People Roadshow, traveling with a delegation ranging from 14 to 43 federal employees to the Rio Grande Valley and to Port Arthur, TX, and Lake Charles, LA to make community members, academic partners, and local elected officials aware of DOE opportunities.
- Hosted DOE's first annual MBE Summit to educate stakeholders on DOE's programs and to identify barriers to participation in DOE solicitations.
- Designed a "How to Prepare a Quality Funding Application" Workshop to offer to MSI faculty.
- Created a framework to implement DOE's novel Community Benefits Plans, which require funding applicants to submit materials related to community engagement, community impact, workforce, and DEIA.
- Embedded energy justice Equity and Justice Metrics into BIL reporting.
- Ensured at least 70 percent (currently 78 percent) of federal supervisors complete a required DEIA training on DEIA promising practices for talent processes and mitigation of implicit bias.
- Senior Leadership and Political Appointees spoke at over 170 engagements, including keynotes, panels, fireside chats, and conferences.
- Established an EJE quarterly newsletter, as well as a text to subscribe platform to increase internal and external engagement and communication.
- Submitted DOE's second Equity Action Plan.

Office of Energy Justice and Equity
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Energy Justice and Equity					
Salaries and Benefits	19,151	25,500	21,000	+1,849	+10%
Travel	300	100	100	(200)	-67%
Support Services	10,354	6,220	12,935	+2,581	-+25%
Other Related Expenses	4,335	2,320	2,495	(1,840)	-42%
Total, Program Direction	**34,140**	**34,140**	**36,530**	**+2,390**	**+7%**
Federal FTEs	**100**	**110**	**110**	**+10**	**+10%**
Contractor Headcount	**7**	**7**	**4**	**-3**	**-43%**
Support Services					
Office of Minority Programs	4,500	3,770	4,770	+270	+6%
Office of Civil Rights & Equal Employment Opportunity	921	615	940	+19	+2%
EEO Field Site Services	583	300	625	+42	+7%
Office of Energy Justice Policy/Analysis	4,000	1,335	6,100	+2,100	+53%
Office of Diversity, Equity, Inclusion, & Accessibility	350	200	500	+150	+43%
Total Support Services	**10,354**	**6,220**	**12,935**	**+2,581**	**+25%**
Other Related Expenses					
Working Capital Fund	2,800	1,100	1,195	(1,605)	-57%
Energy Information Technology System	1,175	1,100	1,200	+25	+2%
Training	360	120	100	(260)	-72%
Total, Other Related Expenses	**4,335**	**2,320**	**2,495**	**(1,840)**	**-42%**

Energy Justice and Equity (EJE)
Program Direction

FY 2025 Budget Request Highlights

The Department requests **$36,530,000** in FY 2025 for EJE to fund 110 FTEs to continue driving initiatives to achieve energy equity and environmental justice across the DOE complex and labs in accordance with administrative directives and EJE's core statutory mandate. This Request supports a new senior Energy Justice Fellowship program with two faculty or researchers for one year to increase access to new researchers and built the EJ Policy/Analysis career employee pipeline. Ongoing initiatives led by EJE include helping to create climate and clean energy jobs and accelerate clean energy business creation in historically marginalized and overburdened communities; providing technical assistance (TA) to MSIs and MBEs to increase their ability to access DOE programs and opportunities; augmenting training programs geared towards helping historically disadvantaged populations, including the formerly incarcerated and those in impoverished communities; and identifying and eradicating systemic barriers to DOE opportunities and benefits for underserved communities.

In FY 2025, EJE's Office of Energy Justice Policy and Analysis will continue ongoing research on relevant DOE and other federal policies that lessen energy burdens for disadvantaged individuals and communities and increase access to clean energy technology. Policy analysis and technical assistance efforts includes ongoing enhancements of DOE's Justice40 dashboard to better measure, track, and report benefits to disadvantaged communities for the Department's over 140 covered programs across the Department and collaboration with DOE program offices to develop programs that accelerate the adoption of clean energy technologies in historically marginalized populations. The office will provide technical assistance and support across DOE in accordance with EJE's congressional mandate. These efforts will facilitate the coordination of energy, equity, and environmental justice initiatives and activities more effectively within DOE and its National Laboratories, as well as with other federal partners and external entities.

EJE's Office of Diversity, Equity, Inclusion, and Accessibility (DEIA) will, in coordination with relevant partners, continue oversight of DOE's DEIA Strategic Plan, which includes implementing and monitoring 31 crosscutting DOE DEIA goals. The office will prioritize efforts to advance DOE Equity Action Plan; promote DEIA principles within DOE, and institutionalize EJ in decision making; continue developing competencies for DEIA training and provide DEIA subject matter expertise and technical assistance to DOE program and staff offices. This office will deepen workforce engagement, serve as the Department's leaders in DEIA outreach to underserved and underrepresented groups, and engage and support the workforce through Employee Resource Groups (ERGs) and DEIA initiatives, as well as strengthen external partnerships through targeted outreach opportunities with diverse organizations.

In FY 2025, EJE will continue leading DOE's efforts to expand the inclusion and participation of underserved communities, women, veterans, and formerly incarcerated persons across all department programs. EJE supports these Departmental efforts through its minority education; STEM enhancement; workforce development; and training related projects ("Minority Education, Workforce, and Training" program), and by creating partnerships with federal, state, non-profit, and private agencies engaged in sustaining our nation's energy sector. EJE will continue to engage with communities to increase awareness of, and commitment to, the principles of equity and DEIA as they relate to the DOE workplace and to recipients of DOE financial assistance.

In FY 2025, EJE's Office of Minority Programs (OMP) will continue to execute its statutory mandates as outlined in Public Law 95-619 (the National Energy Conservation Policy Act), including the provision of technical assistance to MSIs and MBEs to enable these enterprises and institutions to participate in the research, development, demonstration, and contract activities of the Department. FY 2025 funding will allow OMP to provide technical assistance aimed at increasing MBE and MSI capacity for greater participation in DOE programs, in underserved communities. These projects include internship programs, faculty development programs and many efforts that support hundreds of minority students and faculty members in HBCUs, Hispanic-Serving Institutions (HSIs), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISI), and other MSIs. Funding for these activities will increase access to clean energy careers and opportunities. Pursuant to Public Law 95-619, OMP will provide technical assistance programs that encourage, promote, and assist MBEs in establishing and expanding energy-related business opportunities to provide clean energy jobs to workers in these communities.

In FY 2025, EJE's Office of Civil Rights and Equal Employment Opportunity (OCR-EEO) will continue to directly oversee EEO complaint processing for the entire DOE enterprise (except for the National Nuclear Security Administration (NNSA) and Bonneville Power Administration) and will continue to expand external civil rights compliance and enforcement activities to support DOE Program and Staff Offices and applicants for and recipients of DOE financial assistance. In FY 2025, OCR-EEO will continue to maintain and leverage the elements of DOE's Model EEO Program, strengthen the EEO community of practice through strategic intra- and inter-agency partnerships, enhance its barrier analysis related to the DOE federal workforce through increased data analytics and collaborations with stakeholders, and increase the reach of its training on the prevention of discrimination, harassment, sexual harassment, and retaliation. OCR-EEO will also amplify DOE's Limited English Proficiency Plan, continue its external civil rights pre-award program related to applicants for DOE financial assistance, as well as its post-award compliance reviews pursuant to Title IX and Title VI, increase the reach of its external civil rights' technical assistance, and strengthen intra- and inter-agency partnerships to advance external civil rights compliance and enforcement efforts.

Office of Energy Justice and Equity
Funding ($K)

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
$34,140 Program Direction	**$36,530 Program Direction**	**+$2,390**
$19,151 Salaries and Benefits	**$21,000 Salaries and Benefits**	**+$1,849**
Provides funding for 100 FTEs who directly support ED's missions, including DEIA.	Provides funding for 110 FTEs who directly support EJE's missions, including DEIA. Increase of 10 FTEs will support implementation of the DOE DEIA Strategic Plan and ongoing support for EI platform. Additionally supports creation of database to conduct barrier analysis pursuant to EEOC requirements and creation of online training module for DOE workforce.	Increase in Salaries & Benefits (S&B) supports additional 10 FTEs (1 Front Office/8 OCR-EEO/1 DEIA), combined civilian pay raise of 5.2 percent in FY 2024 and 2 percent in FY 2025, and increase of FERS for staff of 110 FTEs.
$300 Travel	**$100 Travel**	**-$200**
Funding supports continued travel associated with stakeholder partnering/outreach, minority businesses and education projects oversight/partnering, and civil rights and EEO compliance/enforcement activities.	Continuation of FY 2023 activities at reduced level.	Reflects reduced travel requirements to sustain ongoing outreach and community engagement activities.
$10,354 Support Services	**$12,935 Support Services**	**+$2,581**
($4,500) Supports community-based technical assistance and capacity building, expanded support for MBEs through region-specific assistance networks, and expanded continuation of high performing ongoing MSI projects. Technical assistance effort aimed at helping MBEs and MSIs compete competitively for historic Bipartisan Infrastructure Law and Inflation Reduction Act opportunities and strengthening overall national ecosystem of support for underrepresented communities.	($4,770) Consolidates funding support for ongoing contracted administrative and support services across EJE divisions and front office priorities. Provides technical/financial assistance to MBEs.	+$270 Increases service contract requirements to include technical assistance for Minority Business Enterprises, analytical capacity for impact evaluations, and language access planning
($921) Supports OCR-EEO HQ contracted services in the areas of investigative services and complaints processing supporting the DOE Headquarters in Washington D.C.; EEO case tracking system and associated authority to operate/ information security systems support, EEO database to support federal workforce barrier analysis (based on EEOC	($940) Continuation of FY 2023 activities.	No major change.

requirements), and OCR-EEO Headquarters docket control/legal administrative support.		
($4,000) Supports third-party evaluation services to analyze DOE's Justice40 benefits accrued to disadvantaged communities. Supports three-year contract to evaluate over 140 Justice40 covered programs across the Department. Maintains technical services support provided by four DOE National Laboratories as needed to support ED's Energy Justice research and analysis.	($6,100) Continuation of FY23 activities, in support of third-party evaluation services to analyze the benefits of DOE's energy justice policies for disadvantaged communities. Funds will enable enhancements of DOE's Justice40 dashboard to better measure, track, and report benefits to disadvantaged communities for the Department's evaluation of over 140 energy justice covered programs across the Department. Maintains technical services support provided by four DOE National Laboratories as needed to support EJE's energy justice research and analysis. Supports a new senior Energy Justice Fellowship program with two faculty or researchers for one year to increase access to new researchers and built the EJ Policy/Analysis career employee pipeline.	+$2,100 Funding supports enhancements to DOE Justice40 Dashboard and provides one-year stipend/research funds for two faculty or researchers for Energy Justice Fellowship program.
($350) Supports DEIA development, facilitation, and deployment of programs and training to advance DEIA knowledge and accountability across the DOE. Supports Employee Resource Groups (ERGs) contributions to DOE's DEIA strategic goals as well as strengthen external partnerships through targeted outreach to diverse organizations. Provides DEIA subject matter expertise and technical assistance (TA) to DOE program offices.	($500) Supports continuation of FY23 activities and prioritizes efforts to advance DOE Equity Action Plan; promote DEIA principles within DOE, and institutionalize EJ in decision making.	+$150 Increased funding for DEIA training and technical assistance across the DOE complex while expanding outreach and partnering with external entities and DOE ERGs.
$4,335 Other Related Expenses	**$2,495 Other Related Expenses**	**-1,840**
Working Capital Fund (WCF), Energy IT Services (EITS), and staff training and development, and other services.	Continuation of FY23 activities.	Decrease aligns with actual vs estimated annual WCF and training costs.

International Affairs (IA)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
32,000	32,000	37,874	+5,874

Mission
The Department of Energy's (DOE) Office of International Affairs (IA) has primary responsibility for setting international energy policy and leading all bilateral and multilateral energy collaborations involving the Secretary, Deputy Secretary, and other DOE senior leadership, including connecting DOE's program offices and its 17 National Labs to partner countries. IA is also responsible for protecting critical U.S. industries and technological innovation by tracking and investigating all foreign investment in U.S. energy companies or other firms with energy interests, as well as foreign contracts with the National Labs.

Overview
IA will continue to pursue international energy cooperation through key bilateral and multilateral forums, with the objectives of ensuring energy security, accelerating the transition to net zero greenhouse gas emissions, creating good paying American jobs, enhancing U.S. competitiveness on critical energy technologies, and addressing the distributional impacts of foreign policy decisions (consistent with the Foreign Policy for the Middle Class agenda).

IA requests funding for the following programs: Energy Security and Clean Energy Initiatives ($1,850,000.00); Technical Assistance ($1,350,000); the U.S.-Israel Energy Center of Excellence ($4,000,000); and the BIRD Energy Program ($2,000,000). These activities are implemented through Headquarters contracts or the National Laboratories. In addition, IA requests $23,450,000.00 to fund the salary, benefits, travel, support services, and other related expenses for 93 federal staff to develop, coordinate, and implement the Administration's international energy policy objectives. Our people are our most important asset, staffers will continue to support bilateral and multilateral relationships, market development and international economic opportunities, especially for American-made clean energy technologies.

FY 2023 Key Accomplishments

- Successfully **advanced U.S. domestic and international energy priorities, including enhancing market access for U.S. energy goods and services,** in the energy tracks of the G7, G20, the Asia Pacific Economic Cooperation (APEC) platform, the Clean Energy Ministerial, Mission Innovation, Global Power Systems Transformation Consortium and other fora.
- Expanded **clean energy and energy security cooperation with critical bilateral partners**, including India[1], Brazil[2], Chile[3], Argentina, Nigeria, Egypt, Indonesia, Thailand, Vietnam, Singapore, the European Union[4], the Republic of Korea[5], Canada[6], Australia, Japan[7], the United Kingdom[8], France[9], Poland[10], 23 Central and Eastern European and partner countries through our Partnership for Transatlantic Energy and Climate Cooperation platform, as well as several other parties through more limited engagements. Workflows under the partnership are supported financially by Energy Security and Clean Energy Initiative funding.
- Successfully **led a USG effort to engage with Polish officials for the country's first civil nuclear tender**, which resulted in the Polish selection of Westinghouse's AP1000 technology[11]. The first phase of the project represents the creation or maintenance of 62,500 well-paying jobs in 17 states. The second phase will double this amount. DOE IA is leading similar efforts to land U.S. nuclear contracts in Bulgaria, Czech Republic, Slovenia, and Slovakia, and contributing to the effort for Romania.
- Stood up the **new Office of Research, Technology, and Economic Security** to support DOE programs in due diligence reviews and risk mitigation to ensure our national security, economic competitiveness, and technological leadership imperatives are duly incorporated into its financial assistance and loan activities.
- Continued to **support Ukraine's energy security** amid Russian attacks against their electricity grid. This includes procuring nearly 20 tons of electrical equipment (891 individual large high voltage items) to support emergency restoration and longer-term analysis on Ukraine's energy sector resilience and reconstruction.
- Supported the interagency process to produce guidance defining key terms in the statutory phrase **"Foreign Entity of Concern"** (FEOC) in BIL and IRA.
- Hosted several high-impact ministerial events, including:
    - The first APEC Energy Minister's Meeting[12] in eight years
    - The fourth Ministerial Meeting of the Partnership for Transatlantic Energy and Climate Cooperation (P-TECC), the U.S.'s premier multilateral partnership with Central and Eastern European Countries on energy issues.

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[1] India - U.S. and India Advance Partnership on Clean Energy | Department of Energy

[2] Brazil - United States and Brazil Strengthen Bilateral Clean Energy Cooperation with a Renewed Commitment to Mobilize Private Sector and Community Engagement | Department of Energy

[3] Chile - Secretary Jennifer Granholm on X: "During @APEC, Chilean Minister of Energy @DiegoPardow and I signed a Memorandum of Cooperation to expand our countries' collaboration on a range of clean energy issues, including advancing just energy transitions and clean hydrogen. US CL https://t.co/rw0MLBYXxf" / X (twitter.com)

[4] European Union - EU-US Energy Council reiterates importance of bilateral cooperation (europa.eu)

[5] The Republic of Korea - Secretary Granholm and Minister Lee Commit to Strengthening Clean Energy Cooperation | Department of Energy

[6] Canada - Allies in Action: A Recap of President Biden and Sec. Granholm's Visit to Canada | Department of Energy

[7] Japan - Readout of Secretary Granholm's Visit to Japan for the G7 Energy, Climate, Energy, and Environment Ministerial Meeting | Department of Energy

[8] The United Kingdom - Readout of Secretary Jennifer M. Granholm Visit to the United Kingdom | Department of Energy

[9] France - U.S.-France Bilateral Clean Energy Partnership Joint Statement | Department of Energy

[10] Poland - Poland and U.S. Announce Strategic Partnership to Launch Poland's Civil Nuclear Program | Department of Energy

[11] The Polish Selection of Westinghouse's AP1000 Technology - Market Development | Department of Energy

[12] APEC Energy Minister's Meeting - ICYMI: Secretary Granholm Hosted 13th APEC Energy Ministerial Meeting | Department of Energy

Office of International Affairs (IA)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Energy Security and Clean Energy Initiatives	1,200	1,200	1,850	+650	+54%
Technical Assistance	1,350	1,350	1,350	0	0%
U.S.-Israel Energy Center of Excellence	4,000	4,000	4,000	0	0%
BIRD Energy Program	2,000	2,000	2,000	0	0%
TOTAL PROGRAM SUPPORT	**8,550**	**8,550**	**9,200**	**650**	**+8%**
Salaries and Benefits	18,150	18,150	22,050	+3,900	+21%
Travel	800	800	1,300	+500	+63%
Support Services					
Subscriptions / Publications	100	100	300	+200	+200%
Management Support Services	100	100	350	+250	+250%
Other Related Expenses					
Working Capital Fund	3,100	3,100	3,375	275	+9%
Energy IT and Other Services	1,150	1,150	1,210	60	+5%
Training	50	50	89	+39	+78%
TOTAL PROGRAM DIRECTION	**23,450**	**23,450**	**28,674**	**5,224**	**+22%**
Total Appropriation, International Affairs	**32,000**	**32,000**	**37,874**	**+5,874**	**+18%**
*Office of Research, Technology, and Economic Security**	*0*	*0*	*8,500*	*+8,500*	-
Federal FTEs	**93**	**93**	**93**	**0**	**0%**

**Office of Research, Technology, and Economic Security funded via Fee-For-Service*

FY 2025 Budget Request Highlights

Energy Security and Clean Energy Initiatives
Energy Security and Clean Energy Initiatives provide technology innovation, resilience, sector development, training, and aims to protect the security of energy infrastructure in strategic U.S. partner countries through collaboration with DOE's National Laboratories and other experts, with a focus on country-appropriate technologies or policy solutions. Initiatives are designed to decarbonize and improve resilience of energy systems abroad, reduce vulnerability in the supply of critical materials, secure markets for clean energy resources, and build cooperation among trading partners in nearly every region of the world.

Technical Assistance
Multilateral institutions help drive global action and are an important (and efficient) tool for expanding U.S. influence, driving global change and creating opportunities for U.S. industry in every corner of the planet. IA serves as DOE's focal point for all clean energy engagement through these multilateral institutions, ensuring alignment between institutional and U.S. efforts, and reducing unnecessary duplication of efforts or lost opportunities to maximize the responsible and efficient use of U.S. energy investments in these institutions.

Binational Industrial Research and Development (BIRD) Energy Program
IA requests $2 million for the BIRD Energy Program which provides maximum conditional grants up to $1,500,000. The BIRD Foundation was established by the U.S. and Israel Governments in 1977 and launched in 2009 under the Energy Independence and Security Act of 2007 to support research and development benefitting both the U.S. and Israel. The program focuses on commercializing clean energy technologies that improve economic competitiveness, create jobs, and increase energy security. To date, BIRD Energy has funded over 60 cooperative Israel-U.S. collaborations for a total government investment of approximately $50 million and about $65 million in funds matched by the private sector and has resulted in commercialization of seven new clean energy technologies and attracted more than $927 million in venture capital and other follow-on investments to commercialize clean energy technologies.

U.S.-Israel Energy Center of Excellence
IA requests $4 million to contribute as matching funds to the U.S. – Israel Energy Center of Excellence (Energy Center) on behalf of the U.S. Government. Matching contributions are also provided by the Israeli Government and private partners from the U.S. and Israel. The goal of the Energy Center is to promote energy security and economic development through the research and development (R&D) of innovative energy technologies in Fossil Energy, Energy Storage, Energy Cyber, and Energy-Water Nexus by facilitating expanded cooperation between consortia of U.S. and Israeli companies, universities, and research institutions. It is implemented under a cooperation agreement between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority, and is administered by the BIRD Foundation.

Ongoing Workstreams (Activities requiring only staff time)

Committee on Foreign Investment in the U.S. (CFIUS)
IA ensures the Department's compliance with the Foreign Investment Risk Review and Modernization Act of 2018 (FIRRMA), which modernizes CFIUS' process to better enable timely and effective reviews of covered transactions. This ensures that the U.S. maintains an open policy on foreign investment while properly screening inbound investments to ensure U.S. vital national security interests are protected.

Under FIRRMA, DOE CFIUS assists at a technical level with capacity building among U.S. friends and allies overseas, especially in Europe among NATO partners and member states of the European Union. DOE CFIUS intends to increase and expand international outreach focused on ensuring partner governments are able to maintain a proper balance between open foreign investment regimes to attract high quality investment, while ensuring vital national security interests are protected from increasingly aggressive predatory investment practices by countries less friendly to the U.S.

Market Development
The Office of Market Development's mission is to advance policies that foster incentives for decarbonization of the global energy sector while bolstering U.S. jobs, enhancing our innovation edge against our key competitors, and fostering resilient, secure energy markets and supply chains. The Office of Market Development aims to enhance and revitalize U.S. competitiveness in the rapidly expanding global clean energy and infrastructure marketplace, while creating clean energy jobs in the U.S. economy across the country, and for fossil-dependent and disadvantaged communities. In FY 2025, Market Development will advance three main objectives:

- Mobilizing for Near-Term Energy Transition Investment Needs: EO 14008 calls on DOE to advance international collaborations on innovation and deployment of clean energy. Market Development will coordinate a technology and finance-driven approach to support other countries meeting their energy security and clean energy objectives through deployment of U.S.-sourced energy technologies and solutions.
- Harnessing Over-the-Horizon Energy Transition Opportunities: Through close partnerships with programmatic offices and National Labs, Market Development will identify policy levers and strategic partnerships to enhance U.S. competitiveness in net-zero energy technologies and develop frameworks to leverage international markets capable of maturing technologies from developmental to commercial deployment.
- Addressing Resilience and Security: Market Development will lead engagements to help other countries improve the resilience of their energy systems and supply chains, including a focus on critical minerals.

Multilateral Engagement
The Office of Multilateral Climate and Clean Energy Engagement seeks to advance U.S. leadership and DOE mission objectives, especially related to energy security and clean energy innovation and deployment, through international organizations and multilateral forums including (but not limited) the International Energy Agency, Clean Energy Ministerial, Mission Innovation, G7, G20, the Global Power System Transformation Consortium (G-PST) and UN Agencies.

The Office is DOE's conduit for leveraging key multilateral engagement platforms and related workstreams to enhance the impact of U.S. energy policy at home and abroad. Key efforts include:

- Rationalizing the international energy architecture: DOE is engaging with the G7, G20, UN, IEA, and other key multilateral forums to advance and accelerate clean energy innovation, development, and deployment.
- Streamlining the clean energy innovation to deployment timeline: Through engagement with forums such as the Clean Energy Ministerial and Mission Innovation, DOE will address problems such as gaps in scaling up technologies, identifying appropriate incentives, market rules, risk mitigation, and implementing appropriate clean energy standards. All these actions are taken against a backdrop of engagement with industry enhance private investment with targeted overseas development assistance.
- Pursuing a sectoral approach to clean technology deployment: DOE will cluster multilateral initiatives by sector as appropriate across key multilateral forums as natural centers of gravity.
- Sustained action on critical minerals: Acknowledging that critical minerals are essential for clean energy transitions, IA will address the viability and security of clean energy supply chains, including critical minerals and materials, and acting on opportunities for collective action to manage risks.

International Clean Energy Policy Development and Coordination
IA serves as DOE's representative on internationally focused Policy Coordination Committees (PCCs) managed by the National Security Council (NSC) and the National Economic Council (NEC); and serves as the conduit for energy policy and technical expertise across DOE and other Agencies. To achieve its mission, IA collaborates with DOE Senior Leadership, program offices, and the DOE National Laboratory complex, coordinating across the enterprise to leverage technical, policy, and market expertise with international partners. IA develops policies and provides senior-level advice on international energy matters in line with Administration goals and priorities. IA works to coordinate the U.S. Government's international energy relationships with foreign governments, energy ministries, and International Organizations, working in concert with the Departments of State, Defense, Interior, Commerce and other relevant federal agencies to promote the clean energy transition to net-zero emissions by 2050, advance universal energy access, spur technological innovation, open international clean energy markets to U.S. businesses, and promote energy security fundamentals and practices.

International Working Groups, Meetings, and Activities

IA supports U.S. government leadership through a network of international relationships with energy partners that further our nation's international energy goals. The Request fully funds IA participation in and implementation of interagency working groups, international meetings, activities, and policy areas, including:

- International Energy Agency
- U.S.-EU Energy Council
- UN meetings, including the COP
- Partnership for Transatlantic Energy and Climate Cooperation (P-TECC)
- Three Seas Initiative (3SI)
- Clean Energy Ministerial/Steering Committee
- Conference on Critical Minerals
- Mission Innovation Ministerial/Steering Committee
- ASEAN - U.S. Energy Ministerial
- U.S.-Australia Net Zero Technology Partnership
- Global Biofuels Alliance
- U.S.-UAE Partnership for Accelerating Clean Energy (PACE)
- U.S.- Saudi Arabia Partnership Framework for Advancing Clean Energy - DOE/Ministry of Energy Cooperation Roadmap
- U.S.-Mexico Energy Business Council
- Japan-U.S. Strategic Energy Partnership
- U.S.-Korea Energy Policy Dialogue
- U.S.-Indonesia Energy Policy Dialogue
- U.S.-Poland Energy Dialogue
- U.S.-France Bilateral Clean Energy Partnership
- U.S.-UK Strategic Energy Dialogue
- U.S.-Germany Climate and Energy Partnership
- U.S.-Kazakhstan Strategic Energy Dialogue
- Baltic 3+1 Energy Dialogue
- Asia-Pacific Economic Cooperation (APEC) Energy Working Group and Ministers Meetings
- North American Energy Ministerial
- East Mediterranean Gas Forum
- Quad Climate Working Group
- U.S.-Philippines Energy Policy Dialogue
- U.S.-Israel Energy Meetings
- U.S.-Brazil Energy Forum
- U.S.-India Strategic Clean Energy Partnership
- G-7 Working Groups and Ministers Meetings
- G20 Working Groups and Ministers Meetings
- Global Methane Pledge
- U.S.-Ukraine Energy Cooperation
- Net Zero Producers Forum
- U.S.-Chile Energy Working Group
- International Renewable Energy Agency
- IEA Technology Collaboration Programs
- Power Africa
- Just Energy Transition Partnership (JETP) - South Africa
- Green Grid Initiative – One Sun One World One Grid

Foreign Engagements with National Laboratories

IA also manages and reviews the DOE approval process for DOE's 17 National Laboratories' international partnerships, which include, *inter alia*, Strategic Partnership Projects (SPP); Cooperative Research and Development Agreements (CRADA); Agreements for Commercializing Technology (ACT); and other mechanisms. IA reviews these agreements to ensure that the foreign engagements of the laboratories meet the requirements of DOE Order 485.1A to: (1) align consistently with the strategic interests and foreign policies of the U.S., (2) be legally sound and compliant with U.S. laws and regulations, and (3) address research security and counterintelligence considerations.

Interagency Appropriations Transfers and Reimbursable Work

IA federal staff also implement projects funded by other agencies through appropriations transfers or reimbursable work. The received funds occasionally fund IA federal staff travel and support services contracts, but not salaries, benefits, or administrative expenses.

Office of Research, Technology, and Economic Security

The Office of Research, Technology, and Economic Security (RTES Office) supports DOE programs as a fee-for-service in due diligence reviews and risk mitigation to ensure our national security, economic competitiveness, and technological leadership imperatives are duly incorporated into DOE's financial assistance and loan activities. The RTES Office's responsibilities include identifying and addressing potential security risks that threaten the scientific enterprise; establishing best practices for programs; conducting outreach activities for external stakeholders; educating DOE programs on potential security risks; and conducting risk assessments of DOE proposals, loans, and awards.

International Affairs (IA)
Program Direction
($K)

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Energy Security and Clean Energy Initiatives $1,200	**$1,850**	**+$650**
Energy Security and Clean Energy Initiatives provide support to partner countries and organizations through world class analysis in technology innovation, resilience, sector development, training, and other activities through National Laboratories or headquarters contracts**.**	Requested funding supports expansion of and continuation of FY 2023 activities.	Increase supports at least 4 additional bilateral workstreams in countries that are geopolitical priorities, countries who represent opportunities for mutually beneficial R&D collaboration, or countries who offer opportunities for technology-specific cooperation.
Salaries and Benefits $18,150	**$22,050**	**+$3,900**
Use of prior year balances supports Salary and Benefits of federal employee expenses for 93 FTEs.	Funds salaries and benefits for staff of 93 FTEs and shared cost in support of the Department's Overseas Presence.	Increase supports full funding of 93 FTEs, includes CY 2024 (5.2 percent) and CY 2025 (2 percent) pay increase, FERS increase, and additional $1M to support the Department's overseas presence.
Travel $800	**$1,300**	**+$500**
Travel to support the President, the Secretary, and others supporting meetings and events pertaining to energy policy, science and technology, and multilateral national security engagements.	Continuation of FY 2023 activities.	Increase reflects expanded travel to overseas countries to support new bilateral workstreams in countries that are geopolitical priorities and represent mutually beneficial R&D collaboration/opportunities for technology specific cooperation.
Support Services $200	**$650**	**+$450**
Subscriptions and Publications Management Support Contracts for administrative functions	Continuation of FY 2023 activities.	Provides access to new resources and additional seats on existing subscriptions for accurate and real-time market analysis that informs decision makers across the U.S. government.
Other Related Expenses $4,300	**$4,585**	**+$335**
Funding supports WCF, IT Equipment and Services (EITS), Training, Secure Communications, Security Investigations, Supplies.	Continuation of FY 2024 Activities.	Reflects increased cost of EITS equipment/services Personnel Security Investigations.

Office of the Chief Information Officer
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
215,000	215,000	229,433	+14,434

Mission
The Office of the Chief Information Officer (OCIO) enables the Department of Energy's missions in energy, science, and nuclear security through the power of information and technology in a manner that balances risk with outcomes.

Overview
OCIO's priority is to continue the modernization of DOE's Information Technology (IT)/Operational Technology (OT) infrastructure, cybersecurity, and IT services to provide the capacity, flexibility, and resiliency required of a modern and secure enterprise, including enhancing security of the critical infrastructure assets owned by DOE's Power Marketing Administrations. The FY 2025 Request supports the President's Management Agenda priorities by leveraging process improvements focusing on digital services, innovation, efficiency, and customer experience. The OCIO will continue to make investments that deliver mission in balance with other cost drivers including sustainment, IT modernization and innovation. We continue to work toward implementation of a Zero Trust Architecture and address new cyber threats that impact our computing environment. We will invest in our IT workforce bringing in new talent, embracing diversity, and developing succession planning. Additionally, the OCIO will continue to engage with federal interagency partners and like-minded international partners to leverage best practices in technology innovation and cybersecurity to improve the Department's overall posture.

FY 2023 Key Accomplishments

- Advanced IT Policies and strategies (e.g. enhanced identity management and tenant trust) for the federal government and DOE enterprise
- Developed AI initiatives such as the Smart Search algorithm for the Office of Small Disadvantaged Business Utilization
- Developed a Generative AI Reference Guide in response to ChatGPT concerns
- Updated numerous policies and directives
- Streamlined hiring processes for the clean energy corps and the Infrastructure Investment and Jobs Act
- Began implementation of the Secure 5G and Beyond Act
- Provided significant contribution to the White House and interagency on cybersecurity and advanced wireless (e.g., National Cybersecurity Strategy, National Cyber Workforce and Education Strategy, National Spectrum Strategy, Quad-related 5G and supplier diversity activities)
- Signed an MOU with Israel related to cyber defense that has the White House and interagency attention
- Secured our networks through cybersecurity best practices to protect against and detect adverse activities, vigilant monitoring, collaboration with Cybersecurity and Infrastructure Security Agency (CISA), and executing a robust Vulnerability Disclosure Program

Office of the Chief Information Officer
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Chief Information Officer					
Cybersecurity					
Protecting Networks and Information (Protect)	30,985	30,985	31,985	+1,000	+3%
Detect, Analyze, and Mitigate Intrusions (Detect and Respond)	31,431	31,431	31,431	0	0%
Shaping the Cybersecurity Environment (Identify and Recover)	29,945	29,945	36,681	+6,736	+22%
Total, Cybersecurity	**92,361**	**92,361**	**100,097**	**+7,736**	**+8%**
Cyber Modernization Response and Recovery	**40,275**	**40,275**	**40,715**	**+440**	**+1%**
Corporate IT Program Support					
IT Portfolio Summary	22,881	22,881	25,637	+2,756	+12%
IT Infrastructure	4,170	4,170	4,170	0	0%
End User-Energy Information Technology Services (EITS)	4,184	4,184	4,184	0	0%
Total, Corporate IT Program Support	**31,235**	**31,235**	**33,991**	**+2,756**	**+9%**
Program Direction					
Salaries and Benefits	30,963	30,963	32,439	+1,476	+5%
Travel	336	336	400	+64	+19%
Support Services	3,325	3,325	3,575	+250	+8%
Other Related Expenses	16,505	16,505	18,217	+1,712	+10%
Total, Program Direction	**51,129**	**51,129**	**54,631**	**+3,502**	**+7%**
Total, Chief Information Officer	**215,000**	**215,000**	**229,434**	**+14,434**	**+7%**
Federal FTEs	142	142	143	0	

Office of the Chief Information Officer

Highlights of the FY 2025 Budget Request

The FY 2025 Request is $229,433,563 which is an increase of $14,433,375 or 7 percent from the FY 2023 Enacted amount and provides a down payment on IT infrastructure and cybersecurity requirements at the Department of Energy going forward. This increase is composed of the following: (1) Advanced Wireless Strategy ($6,735,619), (2) Technology Transformation Services ($1,200,000), (3) an increase to Program Direction to cover cost of living increases for Federal FTEs and other related costs ($3,502,381), 4) Artificial Inteligence ($1,000,000), 5) support to the U.S. Digital Service ($1,555,563) and 6) and an increase to Cyber Modernization and Response activities ($439,812). Details on these activities related to these increases are provided in the Budget narratives.

The FY 2025 Request continues to support the President's Management Agenda priorities of IT Modernization and Cybersecurity initiatives that leverage process improvements, focuses on digital services delivery and provides for continued incremental progress in funding ongoing activities. OCIO's priority is to continue the modernization of DOE's IT infrastructure and IT services to provide the capacity, flexibility, and resiliency required for a modern and secure enterprise, including enhancing the security of the critical infrastructure assets owned by DOE's Power Marketing Administrations.

The OCIO continues to provide leadership, coordination, policy direction, governance, oversight and strategic support and services across the entire DOE enterprise, while also providing direct IT and cybersecurity services to the vast majority of DOE headquarters programs.

The OCIO will lead spectrum management activities across the DOE enterprise and ensure coordination of wireless research and development across DOE and with our interagency partners to meet our security and functionality requirements. The OCIO will also continue to lead the DOE geospatial Program Management Office (PMO) and represent DOE's geospatial program with interagency partners.

The proposed modernization and technology development initiatives included in the FY 2025 Request will continue to provide a down payment on the overall resources required to reduce the threat of cyber attacks to both DOE's IT and OT assets through technical tools and automation, scale capacity commensurate with demand, and establish enabling IT enterprise capabilities. This will allow for commercial/managed IT service implementation with engineered and inherent cybersecurity capabilities and provide foundational requirements for enhanced cybersecurity tools, products, and capabilities. Cyber vulnerabilities will continue to be addressed through funds specifically dedicated to cyber response and recovery management in the FY 2025 Request.

The OCIO will focus on opportunities to increase DOE enterprise-wide asset visibility through real-time information availability, integrated incident reporting and metrics and tool modernization to increase data integration; strengthening enterprise risk management practices and execution of enterprise-wide assessments and risk register reporting; and delivering improved cybersecurity training, education, and awareness. Additionally, the OCIO works closely with federal interagency partners and like-minded international partners to leverage best practices in technology innovation and cybersecurity to improve the Department's overall security posture.

OCIO Sources for Funding Activities	FY 2025 Request	WCF	Customer (EITS) [3]	Total
CYBERSECURITY				
Protecting Networks and Information (Protect)	31,985	-	4,761	36,746
Detect, Analyze, and Mitigate Intrusions (Detect and Respond)	31,431	-	7,747	39,178
Shaping the Cybersecurity Environment (Identify and Recover)	36,681	-	13,347	50,028
TOTAL, CYBERSECURITY	**100,097**	**-**	**25,855**	**125,952**
CYBER MODERNIZATION RESPONSE AND RECOVERY	**40,715**	**-**	**-**	**40,715**
CORPORATE IT PROGRAM SUPPORT				
IT Portfolio Summary[1]	25,637	8,767	-	34,404
IT Infrastructure	4,170	-	-	4,170
End User –Energy Information Technology Services (EITS)	4,184	42,482	131,612	178,278
TOTAL, CORPORATE IT PROGRAM SUPPORT	**33,991**	**51,249**	**131,612**	**216,852**
PROGRAM DIRECTION				
Federal Salaries & Benefits	32,439	-	-	32,439
Travel	400	-	-	400
Support Services	3,575	-	-	3,575
Other Related Expenses	18,217	-	-	18,217
TOTAL, PROGRAM DIRECTION	**54,631**	**-**	**-**	**54,631**
OCIO payments into Shared Services and WCF[2]		(3,610)	(9,518)	(13,128)
Total, Chief Information Officer	**229,434**	**47,639**	**147,949**	**425,022**
Federal FTEs	**143**	**3**	**-**	**146**

[1] The Working Capital Fund (WCF) Corporate IT Program Support reflects the WCF Request for $51,249,000 which is comprised of $8,767,000 for the Interagency Transfers business line under IT Portfolio Summary and $42,482,000 is for End User – EITS Telecommunications business line.

[2] OCIO provides funds to Shared Services and WCF as a customer as well as the rest of the contributing program offices. In order to not double count those payments in the totals available, a bottom line adjustment was made

[3] Shared Services funding provided by program offices but executed by the CIO. Included in this chart to provide a complete picture of CIO expenditures in support of our IT mission.

Office of the Chief Information Officer

Cybersecurity

Overview

The OCIO leads the Department's Cybersecurity program for the entire enterprise, including the Power Marketing Administrations, on behalf of the Secretary and in accordance with the Federal Information Security Modernization Act of 2014. In addition to providing unclassified network services to DOE Headquarters and participating field sites, OCIO is also responsible for protecting DOE networks and information; detecting, analyzing, and mitigating intrusions; providing continuous monitoring of the network and infrastructure; and managing the DOE cybersecurity environment. The following summarizes the Cybersecurity portfolio of work and provides information on the anticipated activities.

Highlights of the FY 2025 Budget Request

- Improve transparency and understanding of the Department's security posture and risk management process through increased data integration across the Department; real-time information availability; integrated incident reporting data and metrics; and tool modernization.
- Strengthen enterprise risk management practices to support defensible business decisions through sustainment of the Enterprise Cybersecurity Risk Management program, Supply Chain Risk Management program, and execution of enterprise-wide assessments and risk register reporting.
- Deliver improved cybersecurity training, education, and awareness through enriched cybersecurity training curriculums, awareness and learning opportunities, and collaboration with internal and external cybersecurity communities of interest.
- Continue migration of data center applications to the cloud and optimization of multi-cloud (the distribution of cloud resources over a number of clouds) operations and application workloads.
- Continue implementation of Trusted Internet Connection (TIC) 3.0 and Zero-Trust Networking capabilities.
- Deploy new capabilities in Customer Relationship Management (CRM), Workforce Enablement, Digital Worker Services, Identity Management, Infrastructure Services, and IT Service Management.
- Complete all computer and storage workloads out of Germantown data center and into the Poly-cloud environment.
- Implement CRM programs to include government and contractor FTEs focused on OCIO strategic objectioves and meeting customer requirements through innovative IT solutions.
- Transition 20 percent of EITS devices to Internet Protocol Version 6 (IPv6) and Zero-Trust improvements to include secure DNS and strict HTTPS.
- Improve overall cybersecurity posture through analysis of browser isolation solutions.
- Improve and increase monitoring of network traffic by 10 percent.
- Improve chain of custody procedures for EITS customers.

Funding Breakout and Analysis

This section summarizes the program and activities associated with the overall projected OCIO cybersecurity budget. It captures activities under three budget lines aligned to the NIST Cyber Security Framework (CSF):

- Protect – Awareness and Training, Information Protection Processes, and Protective Technology
- Detect and Respond – Response Planning, Detection, Analysis, Mitigation, and Improved Communication
- Identify and Recover – Continuous Monitoring, Risk Assessment/Management, Business Processes, Governance, Asset Management, Recovery Planning, and Improvements

Budget Line: Protecting Networks and Information - Protect ($31,985,000 – Request; $4,760,771 – Customer) (TOTAL = $36,745,771)

Provide programs to protect DOE networks and the information which resides on them.

Activity: Data Center Modernization ($2,700,000)
Funding is being requested to continue the migration of on-premises data center workloads to the DOE enterprise cloud Infrastructure as a Service (IaaS), Software as a Service (SaaS), Platform as a Service (PaaS) environments in Amazon AWS and Microsoft Azure. Funding will also support the optimization of poly-cloud operations and applications within the cloud environments to include deployment of additional PaaS and SaaS solutions within the AWS and Azure environments. This initiative also supports and is aligned with the federal Data Center Optimization Initiative (DCOI) and will assist in driving the Department towards compliance while driving down Total Cost of Ownership (TCO) by leveraging cloud native solutions to automate workflow

Activity: Infrastructure IT Modernization ($2,500,000)
This initiative will focus on new capabilities in Customer Relationship Management (CRM), Workforce Enablement, Digital Worker Services, Identity Management, Infrastructure Services, and IT Service Management as part of the overall DOE IT Modernization. This includes, modernizing DOE's IT infrastructure, services, and operations to a level consistent with the needed capacity, flexibility, and resiliency of a modern secure enterprise. This funding will support continued identification and implementation of new technologies, managed services, and commercial cloud services solutions to improve cybersecurity, scale capacity commensurate with demand, and establish IT enterprise capabilities in support of DOE enterprise users and the DOE mission.

Activity: Design and Engineering (Previously Policy and Development- IT Modernization) ($2,573,000)
This funding supports Google Cloud Platform (GCP) Operations and Maintenance to further develop the FedRAMP authorized Cloud platform and maintain a security Authorization to Operate (ATO). As part of the OCIO effort to drive AI-led innovation, OCIO is spearheading expansion of the AI foundation through offering a robust and secure set of solutions for both experimentation and scaled operations of the GCP platform. Specifically, the capability will mature an enterprise offering for use case intake, governance, business adoption, and enable advance IT deployments for Machine Learning and flavors of Artificial Intelligence.

Activity: Network Modernization - DOEnet/ESnet (Energy Sciences Network) & Trusted Internet Connection (TIC) 3.0 ($2,395,000)
The Department maintains a corporate business Wide Area Network (WAN), DOEnet, supporting enterprise business services. DOE continues to evolve from a decentralized entity to one focused on integration and collaboration, which requires modernization of the DOE wide area network. This funding will continue the efforts to improve operational performance, security, and resiliency, while expanding opportunities for multi-site collaborations through modernization of the Department's wide area network architecture. This funding will support DOE's efforts to transition to Internet Protocol Version 6 (IPv6). Identify and implement additional Trusted Internet Connection (TIC) 3.0 and Zero-Trust Network (ZTN) capabilities and solutions aligned with the Department of Homeland Security (DHS) guidance in support of the continued shift from on-premises TIC infrastructure to commercially managed services and solutions to deliver an improved mobile/remote access experience for DOE users and support the expanded use of cloud services.

Activity: Identity, Credential, and Access Management (ICAM) ($4,500,000)

Funding supports the requirement for PIV or equivalent Identity Assurance Level (IAL)/Federation Assurance Level (FAL)/Authenticator Assurance Level (AAL) credentials for network access for privileged and un-privileged accounts. DOE has achieved the OMB goal to require PIV or equivalent to access un-privileged network user accounts and will focus efforts on the OMB goal for privileged network user accounts. Funding will enable expansion of the digital identity repository of DOE sites. The DOE identity management service supports 377,546 identities of which 236,868 are current active identities. Funding will expand authentication services directly supporting a current total of 170 DOE applications in production or in process as well as federated to 4 authentication hubs and expansion of authentication services to DOE sites which will result in raising the requirement for use of the proper credential based on a role-based risk assessment. Funding also supports continued federation services with MAX.gov and Login.gov, ongoing cloud infrastructure costs, enterprise service support for the DOE-wide global address list including exchange of encryption certificates and physical access for a number of sites, and enterprise licensing of identity and access management commercial products.

Activity: Managing DOE Spectrum Program ($1,553,000)

Funding will provide Spectrum Management technical, logistical, and administrative support, as well as ongoing oversight and advocacy at the national and international level. The DOE Spectrum Program is mandated under Title 47, US Code of Federal Regulations, 901, et. seq., and manages DOE radio frequency spectrum-dependent resources for NNSA, Power Marketing Administrations (PMAs), Office of Secure Transportation, and National Laboratory spectrum-dependent assets. DOE is the 9th largest holder of radio frequencies with more than 7,300 individual radio assignments across 34 sites receiving services from OSM including Headquarters, the National Labs, the PMAs, and NNSA sites. Critical DOE missions and essential functions utilizing Spectrum services include the National Power Grid, Interstate Electricity Transmission, Satellite Missions, Nuclear Emergency Search, Radiological Assistance, Secure Transportation and Safeguards, and Protective Force Communications.

Activity: Coordinate Cyber Response, Cybersecurity Awareness, and Role-Based Training ($4,600,000)

This funding supports the continuation of role-based training to ensure the Department's authorizing officials, system owners, and information systems security officers have the best training available to provide critical risk management support. The Cyber Forensics and Incident Response Exercise (CyberFIRE) program is a flagship training program that develops cyber incident responder specialized skills needed to defend information technology (IT) and operational technology (OT) infrastructure, to mitigate cyber threats through extensive training and enables the development of advanced teams of incident responders. This funding provides for two events per year, bringing together incident responders from across DOE, the public sector, private sector, and international partners. Smaller events are held with members of the private sector and academia. Funding in this activity is to develop and improve cybersecurity training and awareness by:

- Developing world-class cyber leadership and workforce to improve recruitment and retention; and partnering with IM-10 to enhance the cyber work force skills with the SANS Fire Training programs;
- Building a cybersecurity Community of Practice across the DOE enterprise and externally through partnerships with other Federal stakeholders;
- Improving Authorizing Official (AO), Information System Security Officer (ISSO), System Owner, and other designated cybersecurity role-based and risk-based investment training for DOE leader enablement;
- Improving cyber professional workforce through education and training opportunities via monthly and quarterly community moderated forums, cloud-based technology, and hands-on education channels; and
- Enhancing workforce engagement through enriched cybersecurity training curriculums; providing full-spectrum awareness and learning opportunities; improving qualitative risk assessments; facilitating collaboration with internal and external cybersecurity communities of interest, and leading the annual cybersecurity awareness month activities each October.

Activity: Operations Technology (OT)/ Control Systems (CS) Technology ($1,000,000)

This funding will support testing of new processes and piloting of technologies that improve the Department's ability to detect, monitor and protect these critical systems. As a member of the DHS CISA-led Control Systems Interagency Working Group and with the responsibility to manage and oversee a vast number of industrial control systems and

critical infrastructure supporting the electrical grid, DOE is expected to engage and act on Executive Order (EO) 13920, *Securing the US Bulk-Power System*. DOE has commissioned an internal Control Systems Working Group to define the DOE control systems environment and execute a strategy to remediate cybersecurity control gaps and institute process improvements to ensure the security of the Nation's Bulk-Power System while maintaining compliance with the North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection standards.

Activity: Control Systems (CS) and Operational Technology (OT) Modernization ($2,158,000)
Funding will provide expansion of cloud-based data storage, analytics platforms, communications links to move data, sensors and analytical tools designed for CS/OT and training from industry experts in the field of control systems and operational technology to improve visibility, increase monitoring, shared situational awareness, and collaboration.

Activity: Emerging Technologies ($1,800,000)
Funding will support strategy and architecture activities for the Department through the Innovation Foundry. The Emerging Technology architects gather and analyze business opportunities; establish and validate risk mitigation strategies; identify use cases; develop architecture designs that show efficiencies in areas such as business processes, decision making, and cost reductions; and pass technical specifications to Innovation Foundry build teams. The effort will help the agency align with the objectives outlined in EO 13859, *Maintaining American Leadership in Artificial Intelligence*, and will assist in the adoption of new technologies. This activity includes the following:

- Provide technical evaluations and recommendations
- Identify promising technologies for possible Departmental integration
- Recommend ways to integrate products and services into an operational environment

Activity: Cybersecurity Program Management Support ($581,000)
Funding will provide support for OCIO leadership in the areas of cybersecurity program management and administrative support for cybersecurity projects to include tracking, monitoring, and reporting project status and providing strategic guidance and recommendations to OCIO leadership to accomplish the strategic goals of the organization.

Activity: Program Management Oversight for Cybersecurity ($2,625,000)
Funding will provide program integration and innovation support for managing IT Support Services strategic sourcing vehicle for OCIO contracts in the areas of Cybersecurity:

- Provide program management in support of projects, including tracking, monitoring, and reporting project status and providing strategic guidance and recommendations to OCIO leadership to support evidence-based and data-driven decision-making to accomplish strategic goals of the organization.
- Support IT projects assessing and shaping the demand pipeline for services across the agency to enable the OCIO to streamline the investment decision process for new IT products and services.
- Provide strategic design and innovation in order to clearly define and map issues, uncovering the customer pain points at project onset and developing an understanding of customer needs, preferences, and behaviors to design future state operations and enhance service delivery.
- Provide organizational change management in support of IT projects in order to account for the impact new initiatives have on operations, culture, and employees; and ensures the capability to sustain continual IT refresh and innovation.

Activity: Anonymized Browser ($500,000)
Funding is for Anonymized Remote Browser Isolation solution to provide an additional layer of protection for DOE users and assets by separating browsing activity from endpoint hardware, thereby reducing the device's and the organization's attack surface. If a user clicks on a malicious link in a browser session, that payload would be executed in the Remote Browser instance and not on the DOE user's desktop and when the session is ended, anything malicious is deleted.

Activity: Platform Engineering ($1,500,000)
Funding will support the Platform Engineering work required for the following:

- Near-term: Bring the EITS Azure cloud environment into parity with the EITS Amazon Web Services environment to ensure that current state capabilities, security configuration, governance, and monitoring are consistent across platforms.
- Longer-term: Develop and implement standardized policies, procedures, and governance to mature current state EITS cloud platform services into a Polycloud capability end state.

Initial maturity efforts will include: developing a Polycloud strategy to ensure consistency in operational security implementation of vulnerability scanning and configuration compliance monitoring; developing automation opportunities with cloud offering to increase the efficiency and further reduce compliance risk by minimizing opportunities for human error; expanding existing Infrastructure as a Service (IaaS) services to include Platform as a Service (PaaS) and Marketplace offerings; leveraging opportunities to securely offer containers, and developing policies and capabilities for leveraging data at rest encryption across Polycloud capabilities. The Platform Engineering effort work is necessary to move away from segmented cloud service implementations and into an EITS Polycloud services that caters to many needs but delivers and offers those services and capabilities in a secure, compliant, and consistent manner.

Activity: Artificial Intelligence ($1,000,000)

Funding will support the implementation of Executive Order 14110 *Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence in* the development and use of Artificial Intelligence (AI). OCIO will support Department-wide efforts to develop guidelines and best practices for AI safety, such as the DOE AI playbook (DOE Generative AI Reference Guide) and manage AI in DOE critical infrastructure and cybersecurity to assess for potential risks, critical failures, and physical and cyber-attacks. To accomplish these goals, OCIO will deploy a cloud-based Department-wide responsible AI toolbox to support risk assessment activities, such as AI red-teaming, to ensure the adoption of safe, secure and trustworthy AI.

Customer funding provided as part of Energy Information Technology Services (EITS) ($4,760,771)*

*Cyber for EITS Protect ($4,760,771)**

Funds secure data transmissions to include credentialing and access management, data safeguarding, secure data transmission, and system security testing and analysis for EITS customers. Improved capabilities surrounding data loss prevention with an overall increase in secure data transmissions. Accomplishments also include implemented and automated security testing.

** WCF and customer fund dollars include OCIO contributions*

Budget Line: Detect, Analyze, and Mitigate Intrusions – Detect and Respond ($31,431,000 – Request; $7,747,000 Customer) (TOTAL= $39,178,000)

Expand operational visibility of the DOE complex through increased real-time information availability, integrated incident reporting data and metrics, and tool modernization to increase data integration. Visibility into cybersecurity operations across the DOE sites, labs, and offices is a critical component of ensuring strong cybersecurity. Oversight into current processes will help identify gaps and vulnerabilities in our systems. Programs being able to create this visibility and plug those gaps will be critical in the Department's cybersecurity strategy moving forward.

Activity: Security Operations Center (SOC) Assessment/Pursuit/Hunt ($250,000)

Establishing a standardized Security Operations Center (SOC) assessment model to evaluate SOC maturity across the DOE enterprise and enable better visibility of gaps and prioritization of requirements across the enterprise will continue to be evaluated against other higher prioirtiy activities. The funding will be used to establish, train and test concepts for cybersecurity incident response Pursuit/Hunt teams which will significantly enhance our ability to proactively respond to and defeat a wide range of cybersecurity threats.

Activity: Integrated Joint Cybersecurity Coordination Center (iJC3) ($14,300,000)

Funding for iJC3 improvements will include maturing the Big Data Platform (BDP) cybersecurity alerting functionality, leveraging Continuous Diagnostics and Mitigiation (CDM) data to reduce DOE enterprise-wide vulnerability exposure,

and expanding automation of enterprise-wide vulnerability management to reduce the time from CISA notification to resolution. Enhancing and maturing the iJC3 will lead to greater enterprise visibility to stay ahead of adversaries and cyber threats. iJC3 leads the coordination of all cyber information for the Department, identifies trends, and gains significant insight into cyber operations, helping to inform critical decision making and enhance situational awareness. This will enable stronger stakeholder awareness and cross-collaboration amongst the various department elements, ensuring that resources are being allocated efficiently across the Department.

Activity: Automated Indicator Sharing Modernization ($900,000)
Funding for this activity enables sustainment of a commercial off-the-shelf solution supporting machine-to-machine sharing of cyber threat intelligence, speeding up proactive defense and distributed detection for the DOE enterprise. This will provide automated signature delivery and indicators of compromise to automatically update cyber defenses, such as intrusion detection systems, intrusion prevention systems, and firewalls.

Activity: Big Data Platform ($9,181,000)
Funding supports continuing maturation of Big Data Platform (BDP), a data lake that contains DOE cyber pertinent data, performs cyber analytics, and facilitates sharing cyber data throughout the Department. BDP and incremental planned growth for Amazon Web Services GovCloud storage and compute will enable improved data analytics and visualization of Department-wide cybersecurity threats and trends. The funding will add storage enabling the Department to meet the increased logging requirements by aggregating the most critical data needed to support Department-wide incident response and threat hunting. This will allow OCIO to be more accountable to the Department and the broader federal government through performance metrics and improved reporting.

Activity: Cybersecurity Tools and Licensing ($4,200,000)
Funding supports sustainment, modernization, and operationalization of cybersecurity products or services, such as hardware, software, applications, and equipment designed to protect the DOE IT infrastructure and improve the iJC3's ability to detect, report, respond, and recover. Operationalizing cybersecurity products and services will enable more timely access to critical data and automated process support.

Activity: Deployable Incident Response Teams, Network Modeling, and Enhanced Exercise Program ($248,000)
Funding supports the identification, exercising, and equipping of incident responders across the DOE enterprise that can support crisis action planning and virtual or on-site incident response support during a major cybersecurity incident. Providing enhanced tools to perform on-site network modeling of effected networks.

Activity: Cyber Modernization Continuation/Maturity ($2,000,000)
Funding will be used to fund prioritized efforts in the Departmental Elements and National Laboratories to conduct pilots of new technology and sustain current efforts aligned to building a Zero Trust Architecture and securing cloud infrastructure across the Department to better defend DOE's critical information and infrastructure.

Activity: FireEye PCAP ($202,000)
FireEye PCAP (Packet Capture) is an application programming interface for capturing network traffic. In keeping with the White House OMB Memo 21-31, PCAP is the requirement for Enterprise Logging Level 1 application-level traffic. The network forensic tool will help detect a broad array of security incidents, assist in investigations to determine scope and impact, effectively contain threats, and provide quicker recovery from events. The equipment is for monitoring and analyzing network traffic and protocol-based communications.

Activity: Encase ($150,000)
Encase is used in forensics to recover evidence from compromised hard drives. It allows the OCIO to conduct in-depth forensic analysis of user files to collect evidence such as documents, pictures, internet history and Windows Registry information. Encase is also vital to preserve the chain of custody in an event that evidence is needed for litigation purposes. Encase also plays a critical role in all incident response investigations by allowing the incident response team to remotely triage workstations that may have malicious code, potential compromise, attempted intrusions, etc. It is also used during classified data spillage incidents to remotely keyword search workstations. The requested funding will be dedicated to licensing renewal for cybersecurity software used for digital forensics analysis and reporting by Enterprise Assurance Incident Response Team.

Customer funding provided as part of EITS ($7,747,000)*
Cyber for EITS Detect ($7,747,000)*
Funding anti-phishing and malware defense, intrusion prevention and incident management and response for EITS customers.

** WCF and customer fund dollars include OCIO contributions*

Budget Line: Shaping the Cybersecurity Environment – Identify and Recover ($36,680,619 – Request; $13,347,000 Customer) (TOTAL = $50,027,619)

To enable DOE to identify, assess, select, monitor, and report on risks, DOE will continue to mature its cybersecurity risk methodology to blend qualitative and quantitative risk management principles and demonstrate business use cases to answer tough questions. DOE will sustain and improve its supply chain as a service program, continue to improve business processes, streamline the security authorization process, and continue to emphasize operational risk versus compliance gaps.

Activity: Vulnerability Disclosure Program/Crowdsourced Penetration Testing (Sustain Bug Bounty) ($3,100,000)
In accordance with DHS/OMB requirements, the Department will continue to mature its Vulnerability Disclosure Program (VDP) across all public facing systems and websites. This funding will sustain the existing contract to manage the DOE VDP solution. It will also provide the portal for responsible vulnerability disclosure, triage of submissions,

coordination of remediation and communication with researchers and sustain crowd source penetration testing. VDP and crowd source penetration testing are critical assessment tools that enable the identification, remediation and/or mitigation of vulnerabilities before they can be exploited by our adversaries.

Activity: Cybersecurity Modernization ($2,700,000)
Funding supports modernizing DOE's infrastructure and cloud-based security through a secure, robust, and capable infrastructure and network, built on interoperable standards and architecture principles. Projects that make up the initiative, when completed, will support continued maturation and automation of the EITS Site Security Operations Center (SOC) capabilities in alignment with the overall DOE Enterprise. Specifically, FY 2024 funding will support continued modernization and automation of cybersecurity operations capabilities, including the transition from legacy on-premises capabilities and technologies to cloud native tools and capabilities, deployment of Artificial Intelligence (using Machine Learning) solutions to support automated log correlation activities, implementation of controls and methodologies to align with the DOE Controlled Unclassified Information (CUI) Order, support for enterprise initiatives, such as Metadata Taxonomy and Risk Management dashboards.

Activity: Supply Chain Risk Management as a Service ($4,000,000)
This funding is to sustain the enterprise Cybersecurity Supply Chain Risk Management (SCRM) program that provides proactive supply chain security support for the DOE Enterprise. The program provides critical capabilities that guide, educate, and manage supply chain risks to National Security Systems and Information and Communications Technology (ICT) components and includes shared services, a common lexicon, and best practice procedures in procurement, delivery, and deployment of IT products and services that are used across the enterprise and select Federal Departments/Agencies. This program is a critical enabler in supporting the Department's ability to meet FITARA requirements, EO 14028 & M-22-18 requirements, as well as regulatory requirements levied on the Power Marketing Administrations by NERC and FERC.

Activity: Enterprise Architecture (Previously Requirements Analysis and Integration) ($1,450,000)
Funding this activity supports maturing the DOE Enterprise Architecture Program initially focusing on management of the Technical Reference Model (TRM) on commercial off the shelf (COTS) software and expansion and Application Rationalization. This activity will continue furthering Business Architecture through DOE Business Reference Modeling, defining and integrating the Application Reference Model and defining a DOE Security Reference Model. A major objective of the Enterprise Architecture program is to conduct application rationalization to incrementally consolidate and retire systems and applications performing similar functions. The goal of the Enterprise Architecture program is to have a clear line of sight from the business and mission drivers to applications supported by COTS products captured in the Technical Reference Model. Funding will also support the expansion of the Enterprise Architecture repository tools to the broader DOE community.

Activity: Advanced Wireless Implementation ($6,735,619)
The OCIO, as the policy lead for 5G and spectrum management within the Department, will codify an advanced wireless strategy and develop an implementation program to support advanced wireless activities, including the research, development, and deployment of advanced wireless to fulfill DOE and national missions, and provide both structure and leadership to ensure coordinated and effective curation, sharing, and innovation. Achieving the intent of this scope will require a long-term commitment by the OCIO and the ability to cooperatively engage other DOE elements and appropriately fund the National Laboratories to provide cutting edge reliable solutions. We will be encouraging multi-Lab collaborations. The type of work envisioned may include such things as development of a Grid Flexible Energy Resource Security Test-platform (Grid FERST) to focus on security, resilience, and removing cost barriers to fast-track testing, integration, and verification of new energy resource systems; maturing techniques for dynamic spectrum sharing and use of millimeter wave frequencies; and providing wireless broadband capability to rural and disadvantaged communities by engaging and assisting energy transmission and distribution agencies to develop, engineer, and evaluate wireless broadband solutions. This effort directly supports implementation of the Secure 5G and Beyond Act of 2020 and the National Strategy to Secure 5G. This activity with begin when FY 2024 appropriations are available.

Activity: Cybersecurity Strategic Communication Support ($720,000)
This funding is to add contractor support to help to drive cybersecurity by advancing our priorities through enhancing OCIO public advocacy/diplomacy and communications (including via social media and multimedia), executing thorough communications research, crafting quality briefing materials, and supporting various other executive-level actions. This

activity provides cybersecurity strategic communications support to OCIO leadership in advancing the Department's cybersecurity missions through policy, standards, and services for the enterprise information system.

Activity: Cybersecurity Emergency Management Support ($300,000)
Operational and mission support for continuity of operations (COOP) and disaster recovery (DR) planning. Support includes planning and training for a comprehensive array of potential emergencies or disasters that may impact the continuity of operations and the performance of mission essential functions. This includes the development of tabletop exercises, SOPs, creating metrics to measure success and inform decision-making, updating portfolio plans, testing emergency communications and personnel accountability, maintaining vital records, and preparing for devolution and reconstitution contingencies. Plan and execute a tabletop exercise to test and refine SOPs and emergency communications.

Activity: Enterprise (EITS Customer Base) Identity ($2,369,000)
Funding is requested to provide additional licenses for Identity Governance and Administration system. Saviynt will provide for centralized collection of user identity data, full identity lifecycle management, and automated account provisioning. The new system will replace the legacy Management Information System (MIS) identity management data collection system. Scope of this system increased from an initial user base of EITS active directory (AD) users to a larger user base that accommodates all users of EITS systems including DAYS (ServiceNow) and Azure Active Directory. It also includes customers outside the EITS user base who use the contractor sponsorship workflow in MIS. Expansion of the scope of the project allows us to be a service provider to customers beyond our AD user base. Additional licenses are needed to support the expanded user base. This is a recurring annual fee for Saviynt SaaS services. This funding Request accounts for both licensing and labor associated with implementing Identity and Access Management (IAM) driving towards compliance with EO 14028. Implement a service catalogue management and automation of catalogue items and life cycle events. Expand the use of single sign-on capabilities with Azure Active Directory and automated and reporting of analytics through MyIdentity (Saviynt).

Activity: Strategy and Program Management, Security Authorization and Physical/Personnel Security Support and Planning, Policy, and Enterprise Risk Management ($12,890,000)
Funding is requested to continue to support contractor labor capacity to account for tasks and demands related to: Mature and expand Enterprise Cyber Risk Management (ECRM) program; Mature Security Authorization Process; Optimize DOE- sponsored authorizations under the FedRAMP program; Compliance and Oversight Process Improvements; EO implementation Program Management and the continued management of the OCIO led Control Systems Working Group (CSWG) to develop a holistic roadmap to secure Operational Technology systems.

Activity: Continuous Diagnostics and Mitigation (CDM) Modernization CM License Lifecycle Maintenance of Enterprise Renewals ($1,616,000)
As responsibilities shift from DHS to DOE, funding is required to sustain enterprise licenses for critical CDM capabilities. Improving operational visibility and continuous monitoring relies heavily on our ability to know what is on our networks and the attack surfaces associated with those networks. DOE, in partnership with DHS and their CDM program office, has made major investments in hardware and software asset management, continuous monitoring and reporting capabilities for the Department. The CDM program provides critical resources to help DOE comply with federal monitoring and reporting requirements through capability deployments and centralized data.

Activity: CDM Contract Labor FTEs ($800,000)
The funding Request is for contract labor to support Software Asset Management, continuous monitoring, and reporting requirement. (In accordance with M-20-04, agencies are required to submit separate, CDM-specific line items in budget submissions.)

Customer funding provided as part of EITS ($13,347,000)*
*Cyber for EITS ($13,347,000)**

Funding provides for authorization and policy and continuous diagnostics and mitigation (CDM) for EITS customers. Reduce agency threat surface, increasing visibility into the federal cybersecurity posture, and improving federal cybersecurity response capabilities.

** WCF and customer fund dollars include OCIO contributions*

Cybersecurity

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Cybersecurity $92,361,000	**$100,096,619**	**+$7,735,619**
Protecting Networks and Information (Protect) $30,985,000	**$31,985,000**	**+$1,000,000**
Funds will support a Coordinated Cyber Response, Network Security Modernization- Infrastructure IT Modernization, Network Security Modernization-Data Center Modernization, Network Security Modernization- DOEnet/Esnet (Energy Sciences Network) & Trusted Internet Connections (TIC)/ Independent Assessment, Identity Credential and Access Management (ICAM), IT Modernization Support, Cybersecurity Training and Awareness, Bug Bounty, Program Management Oversight Emerging Technologies, Spectrum, and Cybersecurity Program Management, Anonymized Browser (Isolation), Emerging Technologies, Coordinated Cyber Response/Cyber Training and Awareness, Control Systems (CS) and Operational Technology Modernization (site Assessment & Tools), Operations Technology (OT) / Control Systems (CS) Initiatives and Platform Engineering are the planned initiatives.	Continue program activities in FY 2025. Along with the new activity added in FY 2025 following the Executive Order for Artificial Intelligence (+$1,000,000).	New activity, Artificial Intelligence, (+$1,000,000)

Activities and Explanation of Changes Continued

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Shaping the Cybersecurity Environment (Identify and Recover) $29,945,000	**$36,680,619**	**+$6,735,619**
Funds will support the following initiatives: Planning, Policy and Enterprise Risk Management; Cyber Supply Chain, MEGABYTE Act Tool, Requirements Analysis and Integration; iJC3 Cyber Operational Technology (OT) Protection; Strategy and Program Management; Security Authorization and Physical/Personnel Security Support; Data Center Optimization Initiative; 21st Century IDEA Act; Cybersecurity Strategic Communication; and Cybersecurity Emergency Management. Continuous Diagnostics and Mitigation (CDM) Modernization CM License Lifecycle Maintenance of Enterprise Renewals; CDM Contract Labor FTEs, Cybersecurity Modernization, Enterprise Identity (EITS Customer Base), Strategy and Program Management, Security Authorization and Physical/Personnel Security Support and Planning, Policy and Enterprise Risk Management, Vulnerability Disclosure Program/ Crowd Source Pen Testing.	Continued FY 2023 Enacted program activities and adds new FY 2025 activity: Advanced Wireless Implementation ($6,735,619)	Increase funds Advanced Wireless Implementation.

Cyber Modernization Response and Recovery

Overview

The FY 2025 President's Budget Requests $40,714,812 which is an increase of $439,812 from the FY 2023 Enacted amount to address the impacts of cyber incidents at the Department of Energy. The purpose of the funding is to further fill enhancement and modernization gaps in order to meet EO 14028 and other unfunded mandates and does not focus on wholesale replacement of IT systems at this time. The funding Request targets critical cybersecurity needs and prioritizes basic cybersecurity enhancements, including: cloud security, Security Operations Center (SOC) enhancements, Continuous Diagnostic Measuring (CDM), encryption, Multi-Factor Authentication (MFA), increased logging functions, and enhanced monitoring tools. The additional funding will go towards supporting the Identity Services and Implement Zero Trust Principles.

Funding Breakout and Analysis

This section summarizes the program, activities, and the budget lines associated and aligned with the overall OCIO Cyber Modernization Response and Recovery:

- Cloud Technology Adoption
- Detection and Response (EDR/Logging)
- Multifactor Authentication (MFA) and Data Encryption
- Zero Trust Architecture

Budget Line: **Cloud Technology Adoption - ($13,966,920 – Request) (TOTAL = $13,966,920)**

Activity: Cloud Technology Adoption ($13,966,920)

Funding will be used to continue to migrate applications to the cloud to meet the requirements of EO 14028, Improving the Nation's Cybersecurity. This effort will define cloud adoption standards and commonly used cloud architecture patterns for the major Cloud Service Providers (Amazon Web Services, Azure, and Google Cloud Platform) in alignment with the three key pillars of OMB's Federal Cloud Computing Strategy: security, procurement, and workforce. The cloud architecture patterns will be based off common migration use cases derived from asset inventories and discovery and will consider different stages of cloud maturity. An integrated platform service offering, and enterprise repository will be established for pre-configured architecture components to allow for re-usable accelerators for cloud technology adoption. Development, security, and operations (DevSecOps) is the approach for automation and platform design to integrate security with cloud migrations. Funding will be used to implement DevSecOps tools to ensure consistent standards are applied for cloud migrations and runtimes. Funding will support defining cloud policy and governance, including cloud services configuration, integration, and authorized use to maintain security and compliance standards across providers. This effort will enable the front door for enterprise cloud knowledge management, providing the cloud education and expert support necessary for customers.

Budget Line: **Detection and Response (EDR/Logging) - ($13,817,470 – Request) (TOTAL = $13,817,470)**

Activity: Upgrade Boundary Monitoring Sensors ($2,488,786)

Continue to monitor the footprint of network sensors; further facilitate the technology refresh of the Cooperative Protection Program (CPP) legacy hardware solution; and procure security monitoring sensors and AWS Gov cloud infrastructure to serve as phase one of a full technology refresh of the CPP custom government-off-the-shelf (GOTS) system. The refresh will include 43 sensors to support 22 DOE field sites, National Laboratories, PMA sites, and retain sufficient inventory to pre-stage new sensors and support the replacement of faulty equipment.

Activity: Logging and Endpoint Detection and Response (EDR) ($6,871,156)

Continue integrated endpoint security solution that combines real-time continuous monitoring and collection of endpoint data to mitigate cybersecurity threats. Integrating automation throughout these capabilities will improve the response to cybersecurity threats and provide analytic tools to thwart future attacks. Additionally, will support monitoring services and provide enterprise visibility into infrastructure and applications to continuously monitor

vulnerabilities. Funds will also be allocated towards implementing cyber analytic tools that analyze anomalous behavior to improve threat detection. Funds will be allocated towards implementing user and entity behavior analytics using commercial tools. Cyber Analytics will assist in baselining user traffic, perform anomaly detection, insider threat detection and enable custom alerting. Using analytics, teams can act on detection, automate quarantine, and review user behavior history. Funding will be used to continue to implement logging as a service with event correlation for incident and problem management to enable visibility into data for security and operations. Standardizing logging for applications will simplify monitoring and alerting layers placed on top of the logging data.

Activity: Operational Technology (OT) Cybersecurity ($1,114,382)
Supports Departmental Elements who own and operate Operational Technology in furthering modernization efforts and other unfunded mandates (MFA, Logging, Encryption). Funding will be used to help owners and operators of OT tackle compliance requirements that require unique considerations for OT environments.

Activity: Security Operations Centers (SOC) Capability Maturity ($3,343,146)
Supports ongoing implementation of Security Information and Event Management (SIEM) and Security Orchestration, Automation, and Response (SOAR) capabilities to aid DOE in preventing, detecting, assessing, responding, and investigating cyber incidents. Assessments of the current SOC maturity will inform areas of improvement. Funds will be allocated towards streamlining SOC operations and improving maturity. This effort also aligns with the Information Sharing EO category.

Budget Line: **Multifactor Authentication (MFA) and Data Encryption - ($5,945,599 – Request) (TOTAL = $5,945,599)**

Activity: Identity Services ($5,945,599)
Funding will enable enterprise sites and entities to utilize mature enterprise identity offerings for application integration. Funds will support completion of the roadmap for enterprise identity services in support of AWS, Azure, and Google Cloud Platform (GCP), including application integration and Privileged Access Management (PAM). Providing a suite of capabilities to strengthen identity proofing for temporary staff not included in the scope of HSPD-12 to elevate all staff to the highest Identity Assurance Level (IAL3) defined by NIST in Special Publication 800-63-3. To acquire software licenses promulgated by USAccess to issued derived PIV credentials which are impersonator resistant to both mobile devices and Yubikey containers, expand PKI impersonator resistant software certificates, develop requirements to integrate internal identity service with USAccess, acquire Yubikey devices to replace legacy smartcards, accelerate adoption of single sign-on using multifactor authentication, license and support enterprise privilege access management (PAM) solution to protect accounts with elevated rights, implement PKI key recovery services for USAccess and internal DOE PKI, and modernize the Energy Global Directory Service exchanging PKI certificates DOE-wide supporting encryption of sensitive information.

Budget Line: **Zero Trust Architecture - ($6,984,823 – Request) (TOTAL = $6,984,823)**

Activity: Implement Zero Trust Principles ($6,984,823)
Funding will be used for updating the Zero Trust (ZT) Framework and Maturity Assessment Model. The updated ZT framework will be used as a guide for assessing progress in adopting ZT in accordance with EO 14028 and ZT standards. After updated ZT maturity assessments are conducted, updated ZT technical roadmaps will be developed. Activities will also include establishing and promoting cyber workforce training opportunities and developing ZT related shared services. This effort will also include pilot programs for cryptographic inventories and solution sets to help shape the roadmap for the transition to post-quantum cryptography.

Activities and Explanation of Changes Continued

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Cyber Modernization Response and Recovery $40,275,000	**Cyber Modernization Response and Recovery $40,714,812**	**+$439,812**
Funding will be targeted to support cloud security, Security Operations Center (SOC) enhancements, encryption, multifactor authentication, increased logging functions, and enhanced monitoring tools.	Continue program activities in FY 2025.	Increased funding will further fill enhancement and modernization gaps in order to meet EO 14028 and other unfunded mandates.

Corporate IT Program Support

Overview

OCIO is requesting $33,990,563 which is an increase of $2,755,563 to support new activity Technology Transformation Services in FY 2025 for Corporate IT Program Support, which provides capital planning guidance, robust privacy and records management, IT products and services, and an efficient and effective IT platform.

Highlights of the FY 2025 Budget Request

- Enhanced services and automation in Enterprise Governance and FITARA operations
- Increased support for information technology service management platforms and engineering skills for new projects
- Continue to improve the use of cloud based tools and FedRamp sponsorship for expanded enterprise use of EITS Cloud Network
- Increased support for building business architecture models and Innovation Foundry Development
- Additional funding for professional services for sandbox subscriptions, tools, and advanced configurations.
- Funding of Technology Transformation Services, a reimbursement program in support of the General Services Administration (GSA) FedRAMP, U.S. Web Design System, and Digital Analytics Program.
- Expand current pilot efforts to identify legacy electronic records and migrate them into a compliant records management environment in Office 365; acquiring and configuring a tool to capture carrier-based text messages; and configuring existing tools to identify records and manage records in an automated manner.
- Revise a Privacy Impact Assessment (PIA) process and template set to provide a streamlined and automated approval process, enhanced transparency, and reflect a transition to a risk-based approach to privacy assessment.
- Implement a fully compliant marking solution for documents and emails in EITS; publication of playbooks to aid in implementing CUI in additional environments across the DOE enterprise; acquiring and implementing intelligent data management tools to identify sensitive CUI material in existing records; and continuing to grow awareness of program requirements through community engagement, training, and customer support.
- Full alignment of customer engagement program with information technology infrastructure library (ITIL) principles and guidelines.

Budget Line: IT Portfolio Summary ($25,636,563– Request; $8,767,000 – WCF) (TOTAL = $34,403,563)

Activity: IT Investments for Mission Delivery and Management Support ($1,410,000)

Funding supports enterprise-wide solution delivery and transformation with improved data ingestion, curation, usage and sharing of solutions ensuring compliance with the Federal Data Strategy, Geospatial Data Act, and Foundations for Evidence-Based Policymaking Act. Outcomes include agile methodology and assist with transitioning from legacy practices through approaches, such as Learning Agendas. The Innovation Foundry will help DOE entities to adopt new ways of doing business through both technology and processes. This funding supports product management and enterprise-wide adoption and transformation of products and services, online capabilities such as knowledge bases, communities of interest, and exchanges that allow for information to be shared across the agency.

Activity: Program Management Oversight ($4,875,000)

Provides Program Integration and innovation support for managing OCIO IT Support Services contracts. Specifically, funds will support:

- Providing program management on projects, including tracking, monitoring, contractor oversight, and reporting project status and providing strategic guidance and recommendations to OCIO leadership to support evidence-based and data-driven decision-making to accomplish strategic goals of the OCIO.
- Supporting IT projects, assessing and shaping the demand pipeline for IT services across the agency, which will enable the OCIO to streamline the investment decision process for new IT products and services.
- Providing strategic design and innovation in order to clearly define and map issues, uncovering the root cause of customer pain points at project onset and developing an understanding of customer needs, preferences, and behaviors to design future state operations and enhance service delivery.

- Providing organizational change management in support of IT projects in order to account for the impact new initiatives have on operations, culture, and employees; and ensuring the capability to sustain continual IT refresh and innovation.

Activity: Proof of Concepts and Pilots ($557,000)
The project drives innovation by using technology in new ways to create a more efficient organization and improve alignment between technology initiatives and business goals. Funding is requested for resources to develop use cases and to showcase next generation IT solutions to the DOE enterprise such as by using Artificial Intelligence for service automation and low-code to centralize processes and explore rationalization. The resources will perform customer outreach, prototype high-level IT solutions, and determine the path to production. Existing governance and OCIO cloud offerings will be leveraged, if feasible, to provision the environment and deploy the solution.

Activity: Enterprise IT Portfolio Management (ITPfM) and IT Budgeting ($2,500,000)
Supports Enterprise-wide coordination of Clinger-Cohen and Federal Information Technology Acquisition Reform Act (FITARA) requirements as pertain to IT Portfolio Management (ITPfM), IT investment performance oversight, and IT budgeting. Funding will enable OCIO's continued leadership of the Department's annual IT Portfolio submission process, implementation of the Technology Business Management (TBM) methodology, management of the ITPfM Help Desk, and cross-Departmental collaboration on IT budgeting and cloud cost management. Funding also supports applications used to manage the Department's IT Portfolio, meet OMB reporting requirements, and perform TBM analytics.

Activity: Enterprise FITARA Management, IT Governance, Policy, and Federal-wide Initiatives ($3,344,000)
Supports leadership, guidance, and management of DOE IT Governance, FITARA, Section 508, Information Collection, E-Government, and IT policy. Funding will support continued management of an integrated governance framework that enables informed decision making, mission enhancement, operational excellence, IT acquisition, and risk management across the Enterprise; strategic and tactical IT policy development, maintenance, and implementation through coordination with internal and external governance groups; OCIO's IT acquisition processes as required by FITARA; and leadership and coordination of DOE's E-Government, Section 508, IPv6, FITARA, Paperwork Reduction Act (PRA), and other Federal-wide IT initiatives. Funding supports Section 508 compliance.

Activity: Enterprise IT Data Collection, Reporting, and Analytics ($1,500,000)
Supports Departmental collection, validation, and analysis of Enterprise IT data in response to the annual Federal Information Security Management Act (FISMA) and Privacy Report to the Department of Homeland Security (DHS), Office of Management and Budget (OMB), Congress and the Government Accountability Office (GAO); the Integrated Data Collection to OMB; and several other routine and ad hoc IT data calls. Funding will enable continuing data call automation, enhanced data call efficiency, and improved respondent experience. Funding also supports applications for data collection, analysis, and reporting.

Activity: Technology Transformation Services (General Services Administration) ($1,200,000)
Supports Technology Transformation Services reimbursement program for the General Services Administration (GSA). This will include the transition of three existing programs (FedRAMP, the US Web Design System, and the Data & Analytics portfolio).

Activity: Policy and Performance Management ($4,045,000)
Funding will support the DOE Enterprise Records Management, Controlled Unclassified Information (CUI), Forms Management, and Privacy Programs, as described in the sub-activities below.

Sub-Activity: Records Management ($2,280,000)
Supports preserving individual rights, keeping mission critical information available to the Department, and preserving the history of the US by managing DOE's federal records in accordance with National Archives and Records Administration (NARA) and other Federal agency requirements. Additional funds requested support configuration of automated records management solutions within existing tools following EITS's successful implementation of NARA's Capstone Approach to managing emails. The records management solution will support Departmental elements, both as they currently operate, and as they participate in the consolidation to Office 365. The end result will be a secure and scalable enterprise-wide solution, providing a consistent, accessible, and automated approach to electronic document and records management requirements.

Sub- Activity: Privacy Information Management ($1,765,000)

Funding fosters the protection of individual privacy interests and the promotion of fair information practice principles by supporting HQ-driven enterprise-wide privacy information management activities in accordance with Privacy Act, E-Government Act, and OMB Privacy directives to ensure compliance with federal laws, regulations, and standards, under the direction of the DOE Senior Agency Official for Privacy (SAOP), who is also the CIO. Additional funds are requested to procure an automated privacy compliance workflow management solution that will service the DOE enterprise. An automated solution is necessary to ensure that privacy documentation is compliant with federal requirements for the creation and management of electronic information and forms. In addition, the Privacy Program will continue to grow and leverage the DOE Privacy Compliance Monitoring Program (PCMP) to review and assess DOE Element compliance with new requirements flowing from revisions to DOE Order 206.1 and other applicable Federal privacy laws and OMB privacy requirements. The PCMP will use site visits to meet with key field personnel, provide training, and conduct preliminary compliance evaluations.

Activity: FedRAMP ($650,000)

Funding will foster automation of privacy enhancing technology and records management tools by supporting FedRAMP preparation, compliance and sponsorship for expanded enterprise use on EITS Cloud Network of cloud-based tools including automated privacy dashboards, automated PIA workflows, and data loss prevention tools.

Activity: Controlled Unclassified Information (CUI) Implementation ($1,500,000)

The CUI program provides the means to identify and protect the Department's most sensitive unclassified information. The program was created by EO 1356 and is codified at 32 CFR part 2002. The Request will support the development of guidance to DOE programs and officers, the development and delivery of enterprise-wide outreach and training, and the acquisition and implementation of novel technological solutions to support records identification and digital marking capabilities.

Activity: Records and Forms Digitization (was: *Digital Forms Modernization)* ($2,500,000)

This program will create a modern, cost effective, automated, and user-friendly approach to electronic records management. DOE currently holds more than 13,000 cubic feet of permanent and temporary federal records in paper format. By mid-2024, the National Archives and Records Administration (NARA) will cease accepting paper records from Federal Agencies. This means all existing paper records not sent to NARA before then will need to be digitized before they are sent to NARA. Currently, DOE lacks the ability to digitize a large volume of records. This Request will help establish scanning and quality control processes, whereby the records program can have confidence that newly generated electronic copies can serve as the authoritative record copy. The program will first focus on existing HQ records but will also help jumpstart the effort across the Department. This program will also generate a fully electronic environment to develop and manage DOE forms across their entire lifecycle, from creation and approval to operational use and approval routing. It will incorporate processes for OMB review and Paperwork Reduction Act, Privacy Act, and compliance with Section 508 of the Americans with Disabilities Act. This effort will reduce the creation of paper records requiring digitization and meet agency requirements to manage all records electronically.

Activity: United States Digital Services (USDS) ($1,555,563)

Funding would be used to support the USDS for digital service expertise and assistance attracting and hiring technical talent to de-risk large-scale or high-priority technical implementations and launches, respond in urgent situations, and/or provide technology strategy and planning support.

Summary of Funding from Working Capital Fund (WCF) – Interagency Transfers business line ($8,767,000)*

Records Storage at NARA

Funding supports the annual agreement with NARA to provide records services and storage consistent with approved records schedules.

- *Integrated Acquisition Environment*
  Provides for Interagency Agreement with the General Services Administration (GSA) to provide packaged services.

- *E- Government initiatives*
  Initiatives include consolidation studies of lines of businesses and other intergovernmental systems.

- *OPM Credit Monitoring*
  Funds credit monitoring services for all DOE employees following the Office of Personnel Management (OPM) Personally Identifiable Information (PII) data breach.

**WCF and customer fund dollars include OCIO contributions*

Budget Line: End User – IT Infrastructure ($4,170,000 – Request) (TOTAL = $4,170,000)

Activity: MEGABYTE Act Tool ($250,000)

Request will support tools to aggregate software deployed across DOE into the enterprise architecture repository for real time access by elements across DOE. The resulting data is consumed into the enterprise architecture tool to form the DOE-wide Technical Reference Model containing COTS software products deployed across DOE. Software contained in the Technical Reference Model is reviewed for conformance to the DOE enterprise architecture policies to assure COTS software no longer supported by the vendor is removed from the environment. The Technical Reference Model informs the DOE Enterprise-wide Agreement program to achieve the objectives of the MEGABYTE Act to consolidate software acquisitions to achieve savings from aggregated acquisitions using DOE, GSA, and other Government-wide acquisition vehicles. The DOE Enterprise Architecture Governance Board (EAGB) reviews candidate software for addition to the Enterprise-Wide Agreement program on a bi-monthly basis.

Activity: 21st Century IDEA Act ($2,020,000)

The agency has procured an enterprise cloud service to provide digital forms with electronic signatures and enterprise Web Modernization tools to fix and validate the 20 most visited websites. The agency is required under the 21st Century IDEA to report annually on the 21st Century IDEA web modernization and other efforts to meet requirements set forth in the Act. New OMB Memo will drive new requirements for the agency and have to report for IDC reporting. This activity includes the sub-activities listed below:

Sub-Activity: Web Modernization Enterprise Tool to perform 508 compliance across the Agency ($500,000)

To ensure the agency is compliant with the 21st Century IDEA Act and the Web Modernization guidelines, this tool will be run against the 20 domains and numerous sub-domains across the agency. The tool and expertise are needed to support compliance.

Sub-Activity: Digitization of Paper-based Forms ($1,220,000)

Funding supports managed cloud infrastructure as well as provides the professional services to document and automate workflows and approvals in order to continue support of paper-based forms to digital. Increased demand for not only converting from paper to digital there is increased demand for business automation of the forms to include routing, approvals, dashboards and reporting.

Sub-Activity: Electronic Signature ($300,000)

In support of M-19-17 and M-00-15, this funding will support the infrastructure needed to provide electronic signatures to the public domain. This will include the information technology service management platform licenses and staff that will provide helpdesk support, maintenance, and operations support of the platform.

Activity: Data Center Optimization Initiative (DCOI) Program ($1,900,000)

This initiative is aligned with the federal Data Center Optimization Initiative (DCOI) and will assist in driving the Department towards compliance while driving down Total Cost of Ownership (TCO) by leveraging cloud native solutions to automate workflow. Continued funding supports:

- New requirements being released under the "Data Center Enhancement Act" will need to be addressed to support the goals set forth in the new legislation.
- Migration of on-premises data center workloads to the DOE enterprise cloud Infrastructure as a Service (Iaas), Software as a Service (SaaS), Platform as a Service (PaaS) environments in Amazon AWS and Microsoft Azure.
- Optimization of poly-cloud operations and applications within the cloud environments to include deployment of additional PaaS and SaaS solutions within the AWS and Azure environments.
- Automated reporting and development work of the Enterprise Data Analytics Repository System (eDARS).

Budget Line: End User - EITS ($4,184,000 – Request; $42,482,000 – WCF; $131,612,000 Customer) (TOTAL = $178,278,000)

Activity: EITS Payment ($3,996,000)

Funds desktop services for the EITS business line.

Activity: Customer Advocacy Support ($188,000)
To provide a dedicated forum to understand our customers lines of business. The formal standup of Customer Advocacy is pivotal and central to an effective Information Technology Service Management (ITSM) strategy. Funding is for personnel to perform customer engagement in support of ITSM.

Summary of Funding from Working Capital Fund – Telecommunications business line ($42,482,000)*
Provides connectivity for DOE Headquarters and field operations through Local and Wide Area Networks and telecommunications (telephone) services. LAN connections provide access to the EITS application host systems and cybersecurity for the internet, e-mail, and other applications. Provides for the annual network technology refresh as part of lifecycle management, which is necessary to address current risks in the areas of security and availability in the core and distribution layers of existing DOE network infrastructure. By investing in a more modern network infrastructure, the Department will enhance network cybersecurity controls and will further support the collaboration capabilities being requested within the Department.

Summary of Funding from Customers – Shared Services direct billing ($131,612,000)*
Provides for End User Services, including asset management, help desk and deskside support, and information technology service management platform application support.

**WCF and customer fund dollars include OCIO contributions*

Corporate IT Program Support

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Corporate IT Program Support $31,235,000	**$33,990,563**	**+$2,755,563**
IT Portfolio Summary $22,881,000	**$25,636,563**	**+$2,755,563**
Funding will support the following activities: IT Investments for Mission Delivery and Management Support; Program Management Oversight; Proof of Concepts; IT Investments for Governance, Federal Information Technology Acquisition Reform Act (FITARA), TBM Implementation, Paperwork Reduction Act (PRA), FITARA, Section 508, IPv6, Digital Transformation and OCIO Functions; Policy and Performance Management; Enterprise Project Management Office(ePMO) Tools; Folio/ Electronic Capital Planning and Investment Control (CPIC) Tools and FedRAMP.	Continuation of activities in FY 2023 with addition funding toward GSA Technology Transformation Services and the United States Digital Service.	Increases supports GSA Technology Transformation Services (+$1,200,000and support to the United States Digital Service (+$1,555,563)

Program Direction

Overview

OCIO is requesting $54,631,569 for Program Direction to provide funding for 143 FTEs and associated costs for the overall management OCIO corporate program management and operations, acquisitions/contract administration, human capital management and budget support, as well as Working Capital Fund requirements.

Highlights of the FY 2025 Budget Request

The Office of the Chief Information Officer (OCIO) is responsible for managing and executing critical cybersecurity defense, data protection, and policy and program oversight. Additionally, in FY 2021 the release of EO 14028, *Improve the Nation's Cybersecurity*, levies requirements for moving to a Zero Trust Architecture, enhancing Cloud Security, and improved incident response to accomplish program management, governance, and execution of required tasks. Specific projects are focused on secure cloud implementations, data encryption, supply chain risk management, and zero-trust architecture. Identification and security of critical information, to include records and privacy data are critical elements of the Department's strategy to improve the cybersecurity posture of the Department.

Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Headquarters					
Salaries and Benefits	30,963	32,439	32,439	+1,476	+5%
Travel	336	400	400	+64	+19%
Support Services	3,325	3,575	3,575	+250	+8%
Other Related Expenses	16,505	18,217	18,217	+1,712	+10%
Total, Program Direction	**51,129**	**54,631**	**54,631**	**+3,502**	**+7%**
Federal FTEs- Program Direction Funded	142	142	143	+1	+0.7%
Federal FTEs- WCF Funded	3	3	3	-	0%
Support Services					
Technical Support Services	1,515	1,765	1,765	+250	+17%
Business, Finance, and Procurement	1,810	1,810	1,810	-	0%
Total, Support Services	**3,325**	**3,575**	**3,575**	**+250**	**+8%**
Other Related Expenses					
Training	160	185	185	+25	+16%
Working Capital Fund (WCF)	13,162	13,500	13,500	+338	+3%
Desktop Services	2,671	3,932	3,932	+1,261	+47%
Security Investigations	512	600	600	+88	+17%
Total, Other Related Expenses	**16,505**	**18,217**	**18,217**	**+1,712**	**10%**

Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
$51,129,188	**$54,631,569**	**+$3,502,381**
$30,963,000	**$32,439,520**	**+$1,476,520**
Funding supports federal staff salaries and related benefits for 142 FTEs.	Funding supports federal staff salaries and related benefits for 143 FTEs.	This increase provides pay raise and FERS increase for 143 FTEs.
$336,000	**$400,000**	**+$64,000**
Funding supports mission-critical travel for federal staff.	Funding supports mission-critical travel for federal staff.	Increase outreach activities to collaborate with field sites on technology enhancements and OCIO priorities.
Support Services $3,325,000	**$3,575,000**	**+$250,000**
($1,515,000) Funding sustains operations within the front office of the CIO. Funds support contractor activities and memberships/subscription services for the CIO and senior staff.	($1,765,000) Continuation of activities with an increase for IT professional support services.	Increase for IT Management support services/consulting for management.
Other Related Expenses $16,505,188	**$18,217,049**	**+$1,711,861**
($160,000) Training costs to ensure all FTEs are appropriately trained to perform their duties, and development opportunities are available to CIO's federal staff.	($185,000) Continuation of activities increase associated with additional requirements for staff.	+$25,000 to cover anticipated Training costs.
($13,162,188) WCF funding level accounts for estimated OCIO overhead expenses.	($13,500,000) Continuation of activities consistent with estimates from the Working Capital Fund Board.	+$337,812 to cover anticipated WCF costs.
($2,671,000) Desktop Services funds are used to provide IT services and hardware to employees.	($3,932,049) Continuation of activities consistent with estimates from EITS Program.	+$1,261,049 to cover anticipated increase in EITS Shared Service costs.
($512,000) Security Investigations	($600,000) Continuation of activities.	+$88,000 to cover anticipated Security Investigations costs

Industrial Emissions Technology Coordination
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
$0	$0	$2,000	+$2,000

Mission

The Department of Energy is developing and executing on a joint strategy across the research, development, demonstration and deployment (RDD&D) spectrum to reduce industrial emissions and increase U.S. competitiveness. The coordination activities include aligning resources across RDD&D, developing shared analysis and understanding, creating collaborative communication tools, and informing budget development and execution. Through this coordinated effort DOE will provide a cohesive perspective and avenue for engagement with external stakeholders.

Overview

The funds requested in FY 2025 will provide shared resources (staff, analysis, stakeholder engagement, etc.) necessary to effectively carry out the activities and coordination of clean industrial research, development, demonstration, and deployment, and coordination of energy and technology programs.

Given the range of technologies and systems interdependencies, a coordinated effort is a key piece of DOE's approach to achieve a net-zero carbon economy by 2050, with the potential to contribute to a reduction of 400 million metric tons (MMT) of CO_2 of industrial emissions in the most energy and emissions intensive industrial subsectors by 2050. Additionally, industrial decarbonization investments can improve manufacturing productivity, develop innovative products, reduce environmental impacts, and meet expanding societal needs while enabling jobs and maintaining the Nation's prosperity throughout the 21st century and beyond.

The coordination efforts are informed by robust strategic analysis, including the DOE Industrial Decarbonization Roadmap and the Industrial Decarbonization Pathways to Commercial Lift Off Reports. Two Energy Earthshot™ goals also guide these activities: 1) the Industrial Heat Shot™ to develop cost-competitive industrial heat decarbonization technologies with greater than 85 percent lower greenhouse gas (GHG) emissions by 2035 and 2) the Clean Fuels and Products Shot™ focused on alternative sources of carbon to advance cost-effective technologies with at least 85 percent lower GHG emissions by 2035.

The coordination effort established under the Secretary and Deputy Secretary, is led by the Offices of Manufacturing and Energy Supply Chain (MESC), Clean Energy Demonstrations, and Energy Efficiency and Renewable Energy's (EERE) Industrial Efficiency and Decarbonization Office (IEDO) and spans across multiple other Offices. These include additional Program Offices from Energy Efficiency and Renewable Energy (EERE), Fossil Energy and Carbon Management (FECM), Science (SC), Nuclear Energy (NE), Technology Transitions (OTT), Advanced Research Projects Agency-Energy (ARPA-E), Electricity (OE); Cybersecurity, Energy Security and Emergency Response (CESER); Energy Justice & Equity (EJE); Policy (OP); International Affairs (IA); and Loan Programs (LPO).

Industrial Emissions Technology Coordination
Program Direction Funding
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Industrial Emissions Technology Coordination (IETC)					
Salaries and Benefits	0	0	500	+500	N/A
Travel	0	0	75	+75	N/A
Support Services	0	0	1,395	+1,395	N/A
Other Related Expenses	0	0	30	+30	N/A
Total, Industrial Emissions Technology Coordination	**0**	**0**	**2,000**	**+2,000**	**N/A**
Federal FTEs	0	0	2	+2	N/A
Support Services					
Other Support Services	0	0	1,395	+1,395	N/A
Total, Support Services	**0**	**0**	**1,395**	**+1,395**	**N/A**
Other Related Expenses					
Working Capital Fund	0	0	0	+0	N/A
Training	0	0	10	+10	N/A
Energy IT Services	0	0	20	+20	N/A
Total, Other Related Expenses	**0**	**0**	**30**	**+30**	**N/A**

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs. FY 2023 Enacted
Program Direction $0	**$2,000,000**	**$2,000,000**
Salaries and Benefits $0	**$500,000**	**$500,000**
	• Funding for salaries and benefits for 2 FTEs; one in the Office of the Undersecretary for Infrastructure and the other in the Office of the Undersecretary for Innovation.	• Funding provides for salaries/benefits, overtime, lump sum leave, award allocations and performance awards for 2 FTEs.
Travel $0	**$75,000**	**$75,000**
	• Travel to support 2 FTEs, as well as detailees and fellows.	• Funding supports staff travel, including travel to support workshops, external engagements, and support strategic coordination with allies and partners.
Support Services $0	**$1,395,000**	**$1,395,000**
	• Supports ability to obtain research tools, annual subscriptions, lab support, and other specialized contractor support used for analysis activities.	• Support services needed for the office to operate effectively.
Other Related Expenses $0	**$30,000**	**$30,000**
	• Provides funding to support business costs associated with the Department's Working Capital Fund; IT equipment and support for 2 FTEs.	• Funding for necessary overhead expenses associated with 2 FTEs.

Office of Management (MA)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
66,000	66,000	77,000	+11,000

Mission

To provide the Department of Energy with centralized direction and oversight for the full range of management, procurement, and administrative services.

Overview

The Office of Management (MA) provides Department-wide leadership for a variety of corporate management functions including Acquisition, Real Property, Sustainability, Aviation, Departmental Directives, and several administrative functions. These services are critical in supporting the mission of the Department and its program offices, as well as keeping the Headquarters (HQ) operational. MA's activities include policy development and oversight, delivery of procurement services to DOE HQ organizations, Conference Management, and the management of HQ facilities. MA also fulfills the statutory and Executive Order responsibilities of the Senior Real Property Officer, Senior Procurement Executive, Chief Sustainability Officer, and the Department's Advisory Committee Management Officer.

In FY 2025, MA will accomplish its mission through its program office components and associated Departmental budget lines:

- Acquisition Management – Provide corporate oversight, leadership, and develop and assist in the implementation of DOE-wide policies, procedures, programs, and management systems pertaining to procurement and financial assistance, contract management, professional development, and related activities to provide procurement services to Headquarters elements. The Director, Office of Acquisition Management serves as the Senior Procurement Executive.
- Administration – Manage HQ facilities and support services, including operations management, leased and office space management, supply management, travel (domestic and international), transportation/courier services, concession services (through the General Services Administration), exchange visitor program, mail/printing service, and the Department's Freedom of Information Act program.
- Asset Management – Develop and maintain DOE policies, regulations, standards, and procedures while tracking performance pertaining to real estate, facilities and infrastructure management, and personal property to include motor vehicle fleet management. Assist senior leadership with planning and execution decisions related to the acquisition, utilization, condition, maintenance, and disposition as they relate to real and personal property. Manage DOE's real property database and excess screening process. Manage the professional development, training, and certification of personal property and realty specialists. The Director of Asset Management serves as the Senior Real Property Officer, and the Head of the Contracting Activity for Real Estate.
- Sustainability Performance Office – Manage and implement DOE's Strategic Sustainability Performance Plan, DOE's Climate Adaptation and Resilience Plan, and provide oversight of energy, water, sustainable buildings, zero emission vehicles, and resource assessments at DOE sites and National Laboratories. Ensure implementation of statutory and executive requirements for sustainability across the Department. Coordinate data collection, reporting, and analysis of DOE's sustainability data, including energy, water, petroleum, and resource use. The Director of Office of Management serves as the Chief Sustainability Officer.
- Aviation Management – Manage all DOE-owned aircraft, manned and unmanned, and contract aviation services world-wide by developing and implementing policies and procedures; provide technical and management assistance to program leaders and field elements with aviation responsibilities; and conduct oversight over all DOE elements that own or use aviation as a part of their mission.

- Directives Program – Manage the Department's Directive System, the primary system for establishing, promulgating, and maintaining long-term, crosscutting, departmental policies and procedures. Support the Department's Secretarial Delegations of Authority system. Directives facilitate the achievement of DOE's strategic and operational goals, while ensuring safe, secure, efficient, cost-effective operations and compliance with applicable legal requirements.
- Executive Secretariat – Facilitate quality document management of executive correspondence, departmental actions and decisions; ensure timely delivery of Congressional reporting requirements, executive commitments and information; serve as the Department's Advisory Committee Management Officer and manage the Department's Advisory Committee Management Program.
- Ombudsman – Provide independent, confidential, and informal option for all DOE federal employees to address any workplace issues and help the Department's senior leaders, managers, and supervisors minimize unwarranted distractions; increase employee engagement; and expeditiously address individual and organization matters.
- Secretary of Energy Advisory Board – Administer and coordinate the activities of the Board and its subcommittees for the Secretary to obtain timely, balanced, and independent external advice on issues of national importance related to the missions of the Department.
- Scheduling and Advance – Manage scheduling, logistical, and advance preparations for the Office of the Secretary.

FY 2023 Key Accomplishments

- Managed more than $25 billion in annual contract obligations, $9 billion in financial assistance obligations for the agency and provided support for the Loan Programs Office (LPO) in financing $19 billion of loans and loan guarantees.
- The Acquisition Career Management Program (ACMP) at the Department worked across the complex to achieve a 92% certification rate for Contracting Officers in FY 2023. The program is responsible for close to 600 Contracting Officers and over 1,400 Contracting Officer Representatives. The ACMP sponsored and conducted training for over 1,200 individuals, which was a 35% increase over the prior year.
- Contracting Robotic Process Automation (RPA) BOTS -The Offices of Management (MA) and the Chief Financial Officer (CFO) teamed up to deploy software robotics, or "bots," to automate routine tasks required for Federal procurement. Newly deployed bots reduced the time spent by contracting professionals on "back-office" operations, freeing them up to focus more time on complex acquisition work.
- Ordered approximately 500 light duty zero-emission vehicles (ZEVs) which accounts for nearly half of all light duty vehicle orders in FY 2023.
- Implemented actions to increase use of clean electricity at DOE sites, including enhanced energy conservation measures, increased deployment of onsite Carbon Pollution-Free Electricity (CFE), and transitioning to 100% CFE procurement through memorandums of understanding between DOE and electricity utility service providers.
- Managed the Department of Energy's (DOE) conference reporting process as required by Public Law. This activity included managing the approval process for 15 reportable Agency sponsored conferences exceeding $100,000 in costs to the Department. These conferences played an important role in advancing US leadership both domestically and internationally in providing opportunities for collaboration with academia, the scientific community, and other stakeholders on our national security, environment, energy, and science missions.
- Supported the development and publication of 24 Departmental directives actions while redeveloping directives processes and procedures for a more timely, accurate, and effective directives development process.

Office of Management (MA)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	34,851	34,851	37,522	+2,671	8%
Travel	867	867	867	0	0%
Support Services	8,211	8,211	9,853	+1,642	20%
Other Related Expenses	20,071	20,071	19,758	-313	-2%
Electric Vehicles	2,000	2,000	9,000	+7,000	350%
Total, Program Direction	**66,000**	**66,000**	**77,000**	**11,000**	**17%**
Federal FTEs—MA	**206**	**206**	**206**	**0**	**0%**
Federal FTEs—WCF	**40**	**38**	**38**	**-2**	**-5%**
IIJA Funded FTEs	**12**	**12**	**12**	**0**	**0%**
Support Services					
Management Support	5,155	5,155	5,622	+467	9%
Other Support Services	3,056	3,056	4,231	+1,175	38%
Total, Support Services	**8,211**	**8,211**	**9,853**	**1,642**	**20%**
Other Related Expenses					
Training	151	151	151	0	**0%**
Energy IT Services (EITS)	4,458	4,458	4,670	+212	**5%**
Working Capital Fund (WCF)	13,743	13,743	13,125	-618	**-4%**
Other Services	1,719	1,719	1,812	+93	**5%**
Total, Other Related Expenses	**20,071**	**20,071**	**19,758**	**-313**	**-2%**

FY 2025 Budget Request Highlights

The FY 2025 Budget Request of $77,000,000 supports up to 206 full time equivalent employees that provide essential support for MA's mission success and fulfillment and includes $9,000,000 for additional ZEV purchases, leases and charging infrastructure. The highlights of specific activities, services, and initiatives are as follows:

- Continued transition from GSA-leased gas-powered vehicles to GSA-leased ZEVs to further the President's goal of electrifying the Federal motor vehicle fleet by acquiring 100 percent light-duty ZEVs annually by 2027 and acquiring 100 percent medium- and heavy-duty ZEVs annually by 2035. The $9,000,000 request would allow DOE to order 340 ZEVs and install at least 800 new EV charging ports to help accommodate the transition to a 100% ZEV light duty fleet by 2027.
- Investments to increase efficiencies by automating routine tasks using Robotic Process Automation (RPA) and Artificial Intelligence (AI) for the DOE Acquisition and Financial Community.
- Continued support of the agency's Sustainability goals to include reducing greenhouse gas emissions, energy, water, waste, fleet petroleum, as well as increasing renewable and clean energy, sustainable procurement, electronics stewardship, and the number of alternative vehicles and sustainable buildings throughout the DOE complex. The Sustainability Performance Office (SPO) within MA continues to consolidate sustainability requirements with other DOE organizations to reduce the reporting burden on programs and sites. By evaluating the sustainability data from across the DOE complex, SPO highlights opportunities for increased efficiencies and cost savings, thus supporting DOE's core mission. The request supports operating the DOE Sustainability Dashboard, a tool for tracking performance toward the Administration's sustainability goals across DOE sites and the National Labs. The Dashboard features analytics managing sustainability at sites and within program offices and serves as the official source of sustainability data at DOE.

- Supports MA's Cybersecurity initiative & Conference Management policy compliance, and travel policy support for the agency in keeping with the Federal Travel Regulations.
- Continued support of department wide contractual support services used for systems, services, staff, activities, and initiatives, and examples of agency focused programs/initiatives are as follows: Department's Directives System, Federal Information Management System/Condition Assessment Information System, eDocs Correspondence System, and Acquisition Career Management Program.
- Continued management of DOE's Freedom of Information Act (FOIA) contractual support for day-to-day operational processing and surge activity of inquiries to the Department.

Office of Management (MA)
Program Direction
($K)

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $66,000	**$77,000**	**+$11,000**
Salaries and Benefits $34,851	**$37,522**	**+$2,671**
Funding supports salaries/benefits, pay raise adjustment, overtime, lump sum leave, awards allocations, and performance awards for up to 206 FTEs.	Continued funding supports salaries/benefits, overtime, lump sum leave, awards allocations, and performance awards for up to 206 FTEs. Additional funding to cover cost of living adjustment and with-in grade increases.	+$2,671 to cover the FY 2024 (5.2 percent) and FY 2025 (2 percent) estimated pay increases..
Support Services $8,211	**$9,853**	**+$1,642**
Funding supports continuation of MA activities including ACMP, Cross Agency Priority Goals/Council Payment, SPD contractual requirements, FOIA processing costs, Directives Program System, and other contractual requirements.	Funding supports FOIA, Sustainability Performance Dashboard, STRIPES DME, and other contractual support services cost.	+$1,142 to cover increased cost of the FOIA contract due to recompete (FY24) to include surge capacity. +$500 to integrate RPA and AI initiatives with DOE's STRIPES procurement platform and increase efficiencies of procurement staff
Other Related Expenses $20,071	**$19,758**	**-$313**
Other related expenses funding supports continuation of EITS, WCF, training and other services necessary for organizational mission support.	Continuation of FY 2023 activities. Funding covers operational expenses for EITS and contractual services cost escalations.	+$305 for contractual services cost escalations and EITS costs to cover laptops, software, support services, and other essential equipment/services. -$618 for WCF projected costs due to a decrease in leased/occupied space of MA staff.
Zero Emission Vehicles $2,000	**$9,000**	**+$7,000**
Funding for electric vehicles purchases and leases to further the President's goal of electrifying the Federal motor vehicle fleet.	Continued Department's transition from GSA-leased gas-powered vehicles to GSA-leased electric vehicles to further the President's goal of electrifying the Federal motor vehicle fleet.	+$7,000 for additional electric vehicles purchases, leases and charging equipment.

Office of Project Management
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
13,550	13,550	16,312	+2,762

Mission

The Office of Project Management (PM) provides the Department of Energy (DOE) leadership and assistance in developing and implementing DOE-wide policies, procedures, programs, and management systems pertaining to project management. The Director, Office of Project Management (PM-1) serves as the Deputy Secretary's senior advisor for project management. PM-1 is directly accountable to and supports the Deputy Secretary as the Executive Secretariat of the Department's Energy Systems Acquisition Advisory Board (ESAAB) and the Project Management Risk Committee (PMRC). The Deputy Secretary, as the department's Chief Executive for Project Management (CE), chairs the ESAAB. PM conducts statutorily required independent cost estimates and conducts external independent reviews to validate performance baselines as required by DOE Order 413.3B for capital asset projects with a Total Project Cost (TPC) of $100,000,000 or greater. PM manages the department's Project Management Career Development Program (PMCDP) for DOE's Federal Project Directors (FPD).

Overview

In FY 2025, PM will accomplish its mission through its program office functions:

- **Energy Systems Acquisition Advisory Board (ESAAB).** Reviews all capital asset projects with a Total Project Cost (TPC) of $100,000,000 or greater and focuses on projects at risk of not meeting their performance baselines and on making critical decisions for capital asset projects with a TPC of $750,000,000 or greater. The ESAAB is a standing board that meets at least once quarterly and is supported by the PMRC, which provides enterprise-wide project management risk assessment and expert advice and meets at least monthly. Additional ESAAB and PMRC meetings are scheduled as necessary to support departmental objectives and Program Office and project team schedules.
- **Project Management Policy and Systems (PMPS).** Provides DOE-wide policy, guidance, and oversight for project management; provides senior leaders with monthly project status reports with independent assessments of all capital asset projects with a TPC greater than $50,000,000 with a goal of driving improvements in project management and project delivery outcomes. PM maintains the Project Assessment and Reporting System (PARS)--the department's independent central repository for project performance data, project management metrics, key project documentation, and provides data analytic tools for project performance assessments and performance forecasting to support and inform project team and Program Office decision-making across the department.
- **Independent Cost Reviews/Estimates (ICRs/ICEs).** Conducts ICRs or prepares statutorily required ICEs at critical decisions including re-baselining, as required by DOE Order 413.3B for capital asset projects with a TPC of $100,000,000 or greater. All costs associated with the conduct of ICRs/ICEs, to include PM federal staff travel, is funded by the appropriate Program Office/Project.
- **Project Oversight.** Conducts and funds all External Independent Reviews (EIRs) to validate the project performance baselines (scope, cost, and schedule) of all capital asset projects with a TPC of $100,000,000 or greater, and ensures projects are ready to be brought forward to the appropriate Project Management Executive (PME) for authorization to proceed prior to each critical decision.
- **Project Assessments.** Conducts annual Independent Project Peer Reviews (PPRs) of all active energy programs capital asset projects with a TPC of $100,000,000 or greater under the purview of the Office of the Under Secretary of Science and Innovation, the Office of Petroleum Reserves, under the purview of the Under Secretary for Infrastructure, and all Office of Environmental Management (EM) projects with a TPC of $400,000,000 or greater and EM projects that have experienced post CD-3 (Approve Start of Construction) challenges.
- **Earned Value Management System (EVMS) Certification.** Conducts and funds initial certification and periodic surveillance reviews to ensure contractors' EVMS, for capital asset projects, comply with industry standards. All

costs associated with the conduct of Reviews for Cause (RFC) and recertification of a contractor's system that had its certification withdrawn, to include PM federal staff travel, are funded by the Program Office/Project requiring the RFC or recertification reviews.

- **Project Management Support Office.** Serves as the Project Management Support Office (PMSO) for all energy programs under the purview of the Office of the Under Secretary of Science and Innovation and the Office of Petroleum Reserves, under the purview of the Under Secretary for Infrastructure. In collaboration with the Program Offices, PM performs all PMSO functions in accordance with DOE Order 413.3B, as appropriate.
- **Professional Development.** Manages the department's PMCDP to include the professional development, training, and certification of FPDs, and serves as co-chair and Executive Secretariat for the FPD Certification Review Board (CRB).

FY 2023 Key Accomplishments

- Hosted six ESAAB meetings including the approval of performance baselines consisting of scope, schedule, cost, and key performance parameters. For example:
    - Approval of performance baselines for the Los Alamos Plutonium Pit Production Project (LAP4) 30 Base Equipment Installation (30B) Subproject (Total Project Cost (TPC): $1,864M) and the Advanced Sources and Detectors (ASD) Major Item of Equipment (MIE) (TPC: $1,800M).
    - .
- Hosted 12 PMRC meetings and conducted 10 virtual reviews supporting Project Management Executive (PME) critical decisions at the Under Secretary and Program Secretarial Officer levels for 14 projects totaling over $7,708M.
- Executed 12 ICRs and 7 EIRs to inform PMEs and support critical decisions on capital asset projects totaling over $30 billion.
    - ICEs and EIRs were supported by the analysis of construction industry dynamics, including availability and cost of materials and bulk commodities, availably and productivity of construction craft, supply chain disruptions including a reduction in the vendor base and backlog for specialized/engineered equipment fabricators, and higher transportation costs, etc.
    - Five EIRs supported the establishment of revised performance baselines for projects impacted by the COVID-19 pandemic.
- Provided training and certification for 212 FPDs through the Project Management Career Development (PMCDP) program and Certification Review Board (CRB).
    - Conducted 39 web-based training courses with 499 participants.
    - CRB reviewed and approved initial or advanced certifications for 35 FPDs.

Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Program Direction					
Salaries and Benefits	6,554	6,554	7,040	+486	7%
Travel	274	274	325	+51	19%
Support Services	5,087	5,087	7,312	+2,225	44%
Other Related Expenses	1,635	1,635	1,635	0	0%
Total, Program Direction	**13,550**	**13,550**	**16,312**	**+2,762**	**20%**
Federal FTEs	**30**	**30**	**30**	**0**	**0%**
Support Services					
External Independent Reviews (EIRs)	1,683	1,683	1,798	+115	7%
Project Peer Reviews (PPRs)	0	0	698	+698	100%
Earned Value Management System (EVMS) Certification	1,247	1,247	1,247	0	0%
Project Assessment and Reporting System (PARS)	2,000	2,000	2,500	+500	25%
Cost Estimating/Cost Analysis Improvement	0	0	912	+912	100%
Other Support Services	157	157	157	0	0%
Total, Support Services	**5,087**	**5,087**	**7,312**	**+2,225**	44%
Other Related Expenses					
Training	20	20	20	0	0%
Energy IT Services	533	533	533	0	0%
Working Capital Fund (WCF)	1,082	1,082	1,082	0	0%
Total, Other Related Expenses	**1,635**	**1,635**	**1,635**	**0**	**0%**

Highlights of the FY 2025 Budget Request

In FY 2025, the Department requests $16,312,000 to support operational levels and fund onboard departmental staffing. Additionally, this request supports the following:

- Independent PPRs directed by the Deputy Secretary for projects that fall under the purview of the Under Secretary for Infrastructure (S3), Under Secretary for Science and Innovation (S4), and select Office of Environmental Management (EM) projects that have experienced performance challenges. These reviews, conducted throughout the lifecycle of the project, evaluate the technical, managerial, cost, scope, and other key aspects of the project so that necessary course corrections can be identified, and projects can be delivered within the original scope, cost, and schedule targets. Scheduled PPRs include:
  - Office of Cybersecurity, Energy Security, and Emergency Response's (CESER) Strategic Petroleum Reserve Life Extension Phase 2 (SPR-LE2). Three SPR-LE2 subprojects, Bryan Mound and Big Hill in Texas and Bayou Choctaw in Louisiana, are in execution with a combined TPC of $1.4B.
  - Office of Nuclear Energy's (NE) Laboratory for Operations and Testing in the United States (LOTUS) project, in planning and design with a Preliminary Cost Estimate Range (PCER) of $66M - $98M.
  - Office of Energy Efficiency and Renewable Energy's (EERE) Energy Materials and Processing at Scale (EMAPS) Research Capability project, in planning and design with a PCER of $201M - $224M.
  - The Safety Significant Confinement Ventilation System (SSCVS) and Utility Shaft (US) projects, both in execution at the Waste Isolation Pilot Plant (WIPP) with a TPC of $494M and $288M, respectively.
- Operational costs for PARS, the department's project management information system (PMIS) of record, including:
  -
  - Conversion of DOE contractor project performance data uploads from legacy data structures (i.e., MDB & CSV) to JavaScript Object Notation (JSON) to fully leverage commercial project management software and tools; reduces the time lag between on-site project cost reconciliation and upload of project performance (cost and schedule) data to support an accelerated decision-cycle; enhances the department's cybersecurity posture by moving DOE/NNSA contractors away from unsupported technologies.
- Maintenance and periodic update of cost and schedule estimating relationships and project benchmarks for DOE's/NNSA's unique project portfolio to reflect the dynamic post-COVID construction industry/market and ensure the reliability of PM's independent estimates in accordance with GAO best practices.
- EIR support for critical national security projects, including:
  - Savannah River Plutonium Processing Facility (SRPPF), SRS – Current status: CD-1, *Approve Alternative Selection and Cost Range*; $6.9B to $11.1B, which is being updated based on design maturity; SRPPF will be executed through 6 subprojects, each requiring an EIR. While the Administration Building subproject achieved CD-2/3 in December 2023, the remaining 5 subprojects are targeted for CD-2/3, *Approve Performance Baseline/Approve Start of Construction* in Q1 and Q2, FY 2026. Due to the subprojects size and complexity, the EIRs must start in FY 2025 to support NNSA's goal of producing 50 war reserve plutonium pits at the Savannah River Site as close to 2030 as possible.
  - Lithium Processing Facility (LPF), Y-12 National Security Complex – Current status: CD-1, *Approve Alternative Selection and Cost Range*; $955M to $1,645M, which is being updated based upon design maturity and the inclusion of additional scope. LPF is currently targeted for CD-2/3, *Approve Performance Baseline/Approve Start of Construction* in Q1 FY2026. Due the project's size and complexity, the EIR must start in FY2025 to support NNSA's execution schedule.

Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $13,550,000	**$16,312,000**	**+$2,762,000**
Salaries and Benefits $6,554,000	**$7,040,000**	**+$486,000**
Funding in support of 30 FTEs.	Continuation of FY2023 activities.	The increase assumes COLA pay increase for CY2024 (5.2 percent) and CY2025 at (2 percent) in civilian salaries, FERS increase, and supplemental funds for performance award pool increase in FY 2025.
Travel $274,000	**$325,000**	**+$51,000**
Funding in support of PM staff travel. Travel is necessary to support review activities (excluding Baseline Change Proposals (BCPs), Reviews for Cause (RFC), and Earned Value Management System (EVMS) recertification reviews) of program/project activities in the field.	Continuation of FY2023 activities.	Supports the increase in travel costs.
Support Services $5,087,000	**$7,312,000**	**+$2,225,000**
Funding in support of contractual requirements, including External Independent Reviews (EIRs), Project Peer Reviews (PPRs), Earned Value Management System (EVMS) certification and surveillance reviews, Project Assessment and Reporting System (PARS).	Funding supports the continuation of FY2023 activities including updating of cost and schedule estimating relationships and project benchmarks to improve reliability of PM's independent estimates, and establishment of cost sharing (~50 percent) for PM-3 PPRs per Secretarial direction.	Supports accelerated adoption of the JSON schema to enhance cybersecurity and project performance reporting data uploads across the complex ; updating of cost and schedule estimating relationships and project benchmarks to reflect the post COVID construction industry/market to ensure the reliability of PM estimates in accordance with Government Accounting Office (GAO) best practices ; Increase in PPRs scheduled resulting from Secretary directed mission for PM to serve as Project Management Support Office (PMSO) for energy programs.

Chief Human Capital Officer (HC)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
35,300	35,300	39,000	+3,700

Mission
The Office of the Chief Human Capital Officer (HC) enables the Department of Energy to achieve critical missions for the Nation by providing innovative solutions to effectively attract, develop, employ, and retain the best Federal workforce for the Department.

Overview
In support of the Department, HC strives to provide the most efficient and effective human resources (HR) services and human capital programs and meet its fundamental deliverable to customers—enhancing the Department's ability to fill vacant positions in a timely manner with quality hires. This is accomplished through collaborative and responsive partnerships, proactive problem identification and resolution, and innovative and sound human capital management services. HC advises and assists the Secretary and Deputy Secretary of Energy (and other agency officials) in recruiting, staffing, developing, training, and managing a highly skilled, productive, and diverse workforce, in accordance with merit system principles and all applicable statutory requirements.

FY 2023 Key Accomplishments

- Implemented new 5-year HC Strategic Plan and annual HC Operating Plan.
- Initiated the design, development, and deployment of a Human Capital Management (HCM) dashboard.
- Received Deputy Secretary approval to purchase, develop, and implement a new Department-wide Human Resources Information Technology (HRIT) system.
- Launched the Talent Teams initiative in DOE, including hiring program staff and developing early program policies and operating guidelines.
- Implemented DOE-wide fully automated position management capability.
- Developed a new employee onboarding handbook and launched a DOE New Employee Orientation flipbook providing an overview of DOE's history, our mission, organizational structure as well as overview of benefits/entitlements and resources to support new employees.
- Implemented candidate assessment tools such as USA Hire and Federal Supervisor Assessment (FSA).
- Conducted focus groups with customers and launched a series of hiring efficiencies for DOE HQ customers, reducing time to hire by 7 percent while managing a 20+percent increase in hiring.
- Developed and launched a DOE-wide executive development program with Secretarial support, "*Let's Lead!*".
- Modernized the employee relations and reasonable accommodation case tracking systems, incorporating workflows and dashboards to enhance visibility, timeliness, and workload coverage.
- Coordinated DOE's efforts and response to OMB's directive on organizational health and performance.

Chief Human Capital Officer (HC)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	26,365	27,334	30,089	+3,724	+14%
Travel	150	150	150	-	0%
Support Services	1,100	1,160	1,496	+396	+36%
Other Related Expenses	7,685	6,656	7,265	-420	-5%
Total, Program Direction	**35,300**	**35,300**	**39,000**	**+3,700**	**+10%**
Federal FTEs	**134**	**134**	**144**	**+10**	**+7%**
WCF Funded	**14**	**14**	**14**	**-**	**0%**
HC Shared Service Center (HCSSC) FTEs*	**90**	**90**	**90**	**-**	**0%**
IIJA Funded FTEs (18 HC + 3 EHSS)	**21**	**21**	**21**	**-**	**0%**
Support Services					
Management Support					
Training and Education	100	100	100	-	0%
Other Support	1,000	1,060	1,396	+396	+40%
Total, Support Services	**1,100**	**1,160**	**1,496**	**+396**	**+36%**
Other Related Expenses					
Other Services	2,074	1,045	2,326	+252	+12%
Energy IT Services	973	973	1,073	+100	+10%
Working Capital Fund	4,638	4,638	3,866	-772	-17%
Total, Other Related Expenses	**7,685**	**6,656**	**7,265**	**-420**	**-5%**

***A portion of HCSSC Operations and 90 FTEs are funded separately through Memoranda of Agreements from six programs outside of HC (Energy Efficiency and Renewable Energy, Environmental Management, Energy Information Administration, Fossil Energy and Carbon Management, Nuclear Energy, and Science).

FY 2025 Budget Request Highlights

The Department requests $39,000,000 in FY 2025 for HC to sustain planned FY 2024 staffing and operational levels to continue closing the gap between enacted and current departmental staffing levels, to support the increased departmental population over the employee lifecycle, and to ensure proper support for planned HRIT modernization activities, while maintaining our vital customer service mission. This request will provide sufficient resources to support ongoing initiatives related to developing more agile, cost-effective operations and a long-term vision for modernizing and streamlining hiring practices and improving the ability of the DOE workforce to deliver mission outcomes. This includes rebuilding capacity across DOE and reducing time-to-hire. Additionally, it will enable HC to enhance its operational capacity to carry out personnel actions and conduct strategic workforce planning and development of effective talent management strategies related to proposed Departmental programmatic changes in the FY 2025 budget. HC is strategically positioned to provide oversight of human capital matters that pertain to DOE programmatic priorities and guide the Department's strategy to obtain, develop, engage, and retain our workforce of the future while simultaneously increasing targeted outreach to underserved communities. This level will also support the transition from recruitment to support focus for the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) surge and the pre-deployment of a new Department-wide HRIT system.

HC Shared Service Center ($28,358,000)

The HC Shared Service Center (HCSSC) continues to support the unique missions and Federal employees (executive and non-executive) of HC's 32 HQ customers and their associated field offices through an all-inclusive shared service approach on the full range of HC services and functions. This Budget Request provides for 138 FTEs to support core HC mission functions and to continue closing the gap between enacted and current departmental staffing levels, strengthening the Department's Intern Hiring program, and supporting the increased departmental population over the employee lifecycle.

The FY 2025 Request does not include $18,000,000 for 90 FTEs directed by HC for human capital work, which are funded by other DOE Programs via Memorandum of Agreements (MOAs): Environmental Management (30 FTEs), Energy Efficiency and Renewable Energy (12 FTEs), Energy Information Administration (2 FTEs), Fossil Energy and Carbon Management (15 FTEs), Nuclear Energy (5 FTEs) and Science (26 FTEs).

Talent Teams and Assessments ($1,331,000)

In FY 2023, in compliance with Executive Order 13932 Modernizing and Reforming the Assessment of Federal Job Candidates, HC launched the Talent Teams initiative in DOE, including hiring program staff and developing early program policies and operating guidelines, and implemented candidate assessment tools such as USA Hire and Federal Supervisor Assessment (FSA). These teams will continue to work with subject matter experts from our serviced organizations to develop and/or implement additional assessment and outreach tools as well as automated solutions to analyze and streamline the hiring process while more effectively assessing job applicants based on demonstrated job-related competencies. Additionally, these teams will continue to work with our Office of Recruitment and Advisory services to increase our targeted outreach to underserved communities. This Budget Request provides $1,231,000 to continue support of 6 FTEs to staff these teams and $100,000 for the development or procurement of assessment and outreach tools to include the continued use of USA Hire, as well as the implementation of FSA across a wider group of DOE customers.

HR Information Technology Enhancements ($500,000)

The Request provides $500,000 to support the expansion of the HC Work Intake Tracking Tool (WITT), HCnet (DOE's internal online HC platform), and its PowerBi platform. WITT provides a path to track incoming hiring actions to identify trends and proactively alleviate process bottlenecks. In FY 2025, HC will integrate WITT with USA Staffing and our Candidate Status Tracker to provide real-time status of federal hiring actions providing transparency to hiring managers. HC will also add more interactive video content and guided content paths to HCnet to better convey complex policies in a simplified manner

and guide department audiences to the right content for their needs, ensuring a more modern, searchable, and useful tool for human capital information for departmental employees, managers, and HR practitioners. Finally, HC will expand its Power BI platform by adding Power Pages, a website building tool, which will bring data-driven decision-making capabilities to a broader audience of DOE customers.

Human Capital Management (HCM) Dashboard Initiative ($800,000)

The Request provides $800,000 for the development and maintenance of HC-related data dashboard capabilities. These dashboards will facilitate the collection and analysis of Organizational Health and Federal Employee Viewpoint Survey data to understand the changing needs of the DOE workforce and plan strategies for optimizing workforce performance. Additionally, these dashboards provide visual status of position management information, staffing levels, and candidate status at various points in the hiring process. These dashboards will provide DOE senior leaders and front-line managers with real-time data, to help them align their decision making with the needs of a 21st century workforce.

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $35,300,000	**$40,144,000**	**+$4,844,000**
Salaries and Benefits $26,365,000	**$30,089,000**	**+$3,724,000**
Provides for a total of 134 full time equivalents (FTEs). Supports 93 percent of approved staffing plan level, including FTEs to accelerate hiring and outreach efforts and to establish Talent Teams, as well as workers' compensation payments. FTEs support core HC mission functions of policy development, oversight, and automation; learning and development; HR operations and services (including executive resources, staffing/classification, benefits, and labor management relations); strategic alignment and measurement of human capital management; and internal business management.	Supports increase funding to support 144 FTEs per approved staffing plan to perform core HC mission functions. Fully funds Talent Teams, workers' compensation payments, and FTEs needed for the transition from recruitment to support focus for the BIL/IRA surge.	Supports 10 additional FTEs (to support HRIT modernization and data analytics and to support the increased department population across the employee lifecycle, as well as to support hiring of early career developmental personnel, and includes FY 2024 (5.2 percent) and FY 2025 (2 percent) estimated pay increases, FERS increase, and supplemental funds for performance awards in FY 2025.
Support Services $1,100,000	**$1,496,000**	**+$396,000**
Includes funding for: HC staff training; HC core contractors and services for the HC Shared Service Center (HCSSC); implementation of new contractor support vehicle to perform surge staffing actions and increase hiring capacity to quickly close the Department's hiring gaps; HC share of DOE Consolidated HR Service Support (retirement calculator, Employee Assistance Program - Worklife); other HC Licenses & subscriptions; and other HR tools (Partnership for Public Service, CHCO Council, survey tool, CyberFeds, Federal Executive Board).	Continuation of HC core contract and consolidated HR service support; HC subscriptions and licenses; and augmentation of support services for HR surge work from contractor support due to variability of staffing within the department (separations, retirements, onboards).	Supports inflationary cost increases.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Other Related Expenses $7,685,000	**$7,265,000**	**-$420,000**
Other Related Expenses (ORE) provides for Working Capital Fund (WCF) and Energy IT Services (EITS). Includes funding for HC-internal office administration needs such as software and hardware, small automation system support, and rent for HR HC Shared Service Center (HCSSC) facility in Oak Ridge. Also includes funds for the modernization of HR IT systems/tools, data analytic tools, workforce forecasting models, centralized DOE Corporate Recruitment initiatives, HR IT platform improvements, and customized tools to improve/automate manual HR processes (e.g., licenses for SharePoint, Business Intelligence, Lever, and Dashboard contractor support).	Continuation of WCF and EITS services, as well as HC Headquarters Security Investigations, and HR IT modernization efforts.	Decrease accounts for offsets between reduced WCF costs (-$772K) due to office space reduction, inflationary cost increases for EITS (+$100K), and inflationary cost increases and additional requirements costs for other services such as USA Staffing, USA Hire and other assessments, security investigations, reasonable accommodations, and office administration tools such as hardware and software (+$252K)

Office of Small and Disadvantaged Business Utilization (OSDBU)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
4,200	4,200	5,241	+1,041

Mission

The Office of Small and Disadvantaged Business Utilization (OSDBU) was established by the Small Business Act (SBA) of 1953, as amended by Public Law 95-507. The OSDBU is responsible for advocating the use of small businesses, including Small Disadvantaged Businesses (SDB), certified 8(a) businesses, small businesses from Historically Underutilized Business Zones (HUBZone), Service-Disabled Veteran-Owned Small Businesses (SDVOSB), and Women-Owned Small Businesses (WOSB). This involves promoting small business prime and subcontracting opportunities in accordance with Federal laws, regulations, and policies and reporting to Congress on DOE utilization of small businesses.

Overview

The OSDBU, as required by Congressional mandate, leads the oversight of the Department of Energy (DOE) and National Nuclear Security Administration (NNSA)-wide Small Business Program in support of the execution of DOE's $45+ billion procurement base to maximize participation of small businesses in performing the DOE mission. The OSDBU, in direct partnership with the DOE and NNSA Senior Procurement Executives, serves as the Departmental advocate for the small business community and the DOE program and procurement offices. The goals of the OSDBU are to institutionalize the use of small businesses and to fully integrate them into the DOE's competitive base of contractors and to help the Department meet its statutory goals for small business utilization. To accomplish this goal, the OSDBU established and executes its mission through three strategic objectives: 1) make it easier for small businesses to do business with DOE; 2) maximize small business opportunities by cultivating more productive and collaborative relationships with internal DOE Stakeholders; and 3) maximize small business awards and improve performance in the four SBA socioeconomic categories of 8(a), HUBZone, SDVOSB, and WOSB.

The OSDBU is organizationally structured to accomplish the objectives through four enabling activities:

1) Availing the technical advice and expertise of the OSDBU staff and the cadre of Departmental Small Business Program Managers (matrixed to OSDBU) to both DOE program officials and small businesses;

2) Promulgating educational resources such as the DOE Acquisition Forecast, trainings, and informational exchanges;

3) Adhering to OSDBU compliance requirements such as the 15 U.S. Code § 644(k), also known as the SBA Act, establishing a cadre of Small Business Technical Advisors within the agency to support the implementation of small business procurements, Form-4220 Reporting, Category Management considerations, and threshold reviews; and

4) Planning and execution of outreach activities such as networking and matchmaking at DOE's Annual Small Business Forum and Expo; targeted outreach events focused on socioeconomic categories; administering and providing information and counseling concerning DOE's Mentor-Protégé Program, as well as customer support to small businesses.

FY 2023 Key Accomplishments

- The OSDBU was instrumental in leading DOE's investment of over $11 billion in contracts and subcontracts with small businesses. That is more than ever before, by a factor of almost a billion dollars, and demonstrates DOE's commitment to federal mission resilience.

- Earned an “A” grade on the FY 2022 Small Business Procurement Scorecard from the U.S. Small Business Administration (SBA). DOE awarded 21.26 percent of its available procurement base through small business prime contracting, exceeding the goal of 13.08 percent. In small business subcontracting, DOE awarded 49.70 percent of its available procurement base, exceeding the goal of 49 percent.

- On July 11-12, 2023, the OSDBU hosted the 2023 DOE Small Business Forum & Expo for the first time in four years.

    - Directly interacted with over 1,200 attendees and 100 exhibitors to share resources and educate on best practices, networking with businesses to increase their acquisitions with DOE and partners.
    - Awards ceremony honored and recognized the outstanding achievements of businesses and internal DOE stakeholders who have helped promote and expand the utilization of small businesses.
    - The EPIC Pitch Competition, in collaboration with the National Renewable Energy Laboratory (NREL) and the Office of Technology Transitions (OTT), featured 8 cutting-edge clean tech startups pitching their unique ideas for a clean energy breakthrough and competing for over $160,000 in cash prizes.

- Collaborated with the National Nuclear Security Administration (NNSA) and the Office of Acquisition Management (OAM) to improve the Departmental Acquisition Forecast tool and enhance the DOE Mentor Protégé Program, thereby improving the customer experience and mission effectiveness.

- The OSDBU partnered with the National Laboratories to host a series maximizing opportunities for SDVOSB, WOSB, SDB, and HUBZone businesses. DOE awarded more than $20 million from the opportunity days that provided in-depth information, resources, and a wide range of opportunities to support the Department’s mission, including advancing the clean energy transition.

- Achieved full compliance with the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), which requires federal agencies to perform regulatory flexibility analysis, provide guidance, and help small businesses comply with the agency’s statutes and regulations.

Office of Small and Disadvantaged Business Utilization (OSDBU)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salary & Benefits	3,100	3,100	3,518	+418	+13%
Travel	80	80	150	+70	+88%
Support Services	405	405	848	+443	+109%
Other Related Expenses	615	615	725	+110	+18%
Total, Program Direction	**4,200**	**4,200**	**5,241**	**+1,041**	**+25%**
Federal FTEs	**17**	**17**	**17**	**0**	**0%**
Other Related Expenses					
EITS	95	95	123	+28	+29%
Working Capital Fund	500	500	581	+81	+16%
Training	20	20	21	+1	+5%
Total, Other Related Expenses	**615**	**615**	**725**	**+110**	**+18%**

FY 2025 Budget Request Highlights

The FY 2025 Request is $5,241,000, an increase of $1,041,000 from the FY 2023 Enacted budget. The Request supports increased personnel costs for 17 FTEs, includes the federal pay raise of 5.2 percent in FY 2024 and 2 percent in FY 2025, and includes cost escalation for Federal Employees Retirement System (FERS) benefits, and increased travel costs necessary for outreach and advocacy for small and disadvantaged businesses.

This Request includes $848,000 to support four new Small Business Forums/Expos specific to each socio-economic category (8(a), HUBZone, SDVOSB, and WOSB). The Request provides for improvements to DOE's public-facing acquisition forecasting tools and interactive dashboards, implements artificial intelligence-based communication tools, and enables capture of data analytics to support policy direction and decision making. Current tools are not keeping pace with standards set by other agencies, contributing to poor scorecard ratings for DOE acquisition forecasting.

Office of Small and Disadvantaged Business Utilization (OSDBU)
Program Direction

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs. FY 2023 Enacted
Program Direction $4,200,000	**$5,241,000**	**+$1,041,000**
Salaries and Benefits $3,100,000	**$3,518,000**	**+$418,000**
Provides funding for 17 FTEs proactively and effectively executing small business advocacy and compliance activities, ensuring requisite laws and regulations are upheld across the complex operations of DOE M&O and major facility contractors.	Provides funding plus anticipated labor rate and benefit increases for 17 FTEs.	Change anticipates labor rate and benefit increases for federal employees that promote retention of seasoned, highly qualified staff. Competitive pay further affects recruitment crucial for succession planning and program growth.
Travel $80,000	**$150,000**	**+$70,000**
Funds travel to meet with small businesses for one-on-one counseling, group trainings, and outreach events via regional seminars and annual expos.	Continuation of FY 2023 activities.	Increased travel costs necessary for outreach and advocacy for small and disadvantaged businesses. Includes travel required as the host agency for DOE's Annual Small Business Expo.
Support Services $405,000	**$848,000**	**+$443,000**
Funds contract labor and services supporting management initiatives for annual and regional public outreach events; data analytics and ongoing website and dashboard development to enhance customer experience, remove communication barriers, and make it easier for small and disadvantaged businesses to connect and collaborate with DOE.	Continuation of FY 2023 activities; funds 4 new National and Regional Forums and Expos specific to each socio-economic category, and enhancements to DOE's public-facing acquisition forecasting tools and interactive dashboards; Expands data analytics to support policy making decisions.	Increase funds 4 new Small Business Forums/Expos and improves data analytics and ongoing website and dashboard development.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs. FY 2023 Enacted
Other Related Expenses $615,000	**$725,000**	**+$110,000**
Funding for IT services, Working Capital Fund expenditures, staff training and development, and participation in EPIC Pitch Competition.	Continuation of FY 2023 activities and funds new artificial intelligence Chatbot capabilities for response to public inquiries on small business acquisitions and tech requirements of procurement bidding.	+$28,000 funds EITS increase to support Chatbot capabilities. +$81,000 funds estimated WCF costs in FY 2025.

General Counsel (GC)
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
41,725	41,725	41,725	0

Mission
The Office of the General Counsel (GC) is responsible for providing legal services to all Department of Energy offices, and for determining the Department's authoritative position on any question of law with respect to all Department offices and programs, except for those belonging exclusively to the Federal Energy Regulatory Commission.

Overview
GC's responsibilities include the provision of legal opinions, advice, and services to administrative and program offices, and participation in or management of both administrative and judicial litigation. GC is responsible for the coordination and clearance of proposed legislation affecting energy policy and Department activities. The General Counsel serves as the Department's Regulatory Policy Officer under Executive Order 12866 and is responsible for ensuring consistency and legal sufficiency of the Department's regulations. GC administers and monitors standards of conduct requirements, conducts patent program and intellectual property activities, and coordinates rulemaking actions of the Department with other federal agencies. As requested by DOE Programs that manage their own National Environmental Policy Act (NEPA) policy and compliance reviews, GC environmental attorneys also provide legal advice and counsel regarding NEPA on an ad hoc basis.

FY 2023 Key Accomplishments
- Legal work to increase domestic manufacturing requirements for DOE funded technologies and to support critical supply chains.
- Supported DOE programs, Department of Treasury, and Internal Revenue Service in Inflation Reduction Act energy tax credit implementation.
- Supported establishment of Research, Technology, and Economic Security Vetting Center within the Office of International Affairs.
- Developed interagency MOU and proposed rule to accelerate permitting timelines for electric transmission lines.
- Legal work on grid recovery in Puerto Rico supporting emergency orders under the Federal Power Act 202 (c) – most recently December 2022 in Texas as a result of extreme cold weather.

General Counsel (GC)
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	30,815	30,974	31,044	+229	+1%
Travel and Training	100	100	100	-	-
Support Services	1,374	1,424	1,194	-180	-13%
1826-1325Other Related Expenses	9,436	9,227	9,387	-49	-1%
Total, Program Direction	**41,725**	**41,725**	**41,725**	**0**	
FTEs Paid by GC DA Funds	134	134	134	0	0
FTEs Paid through MOAs	68	70	70	+2	+3%
FTEs Paid through IIJA	4	4	4	0	0%
FTEs Paid through IRA	2	7.5	7.5	+5.5	+275%
Total GC FTE's	**208**	**215.5**	**215.5**	**+7.5**	**+4%**
Support Services					
Administrative Support	430	430	200	-230	-53%
Technical Support	544	544	544	0	0%
Intellectual Property System	150	150	150	0	0%
Financial Disclosure System	250	300	300	+50	+20%
Total, Support Services	**1,374**	**1,424**	**1,194**	**-180**	**-13%**
Other Related Expenses					
Energy IT Services	1,325	1,706	1,826	+501	+38%
Working Capital Fund	6,801	6,211	6,211	-590	-9%
Other Services	1,310	1,310	1,350	+40	+3%
Total, Other Related Expenses	**9,436**	**9,227**	**9,387**	**-49**	**-1%**

General Counsel (GC)
Program Direction

FY 2025 Budget Request Highlights

The Office of the General Counsel's (GC) Request of $41,725,000 funds salaries and benefits for 134 FTE funded under the GC DA appropriation.

This Request does not include 70 GC FTE funded by other DOE Programs via Memorandum of Agreements (MOAs): 1) 28 FTEs) funded by NE to manage the Nuclear Waste Fund, administer the Standard Contract, and provide legal services for nuclear waste disposal activities, including interim storage; this MOA is funded indefinitely; 2) 16 FTEs funded by EERE to provide legal counsel and review of all EERE rulemakings and guidance documents, statutory interpretation of EERE authorities, and legislative review of all EERE-related legislation. Of the 16 FTEs funded by EERE, 3 are funded through FY 2024 and 13 are funded indefinitely ; 3) 14 FTEs funded by OCED to lead efforts to deliver clean energy technology demonstration projects at scale in partnership with the private sector; current MOA is funded through FY 2025 4) 2 FTEs funded by EM to support complex procurements, defend bid protests, and address environmental law issues, including Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERLA) clean-up; current MOA is funded indefinitely 5) 1 FTE funded by MESC to support comprehensive legal advice and assistance to MESC programmatic activities pertaining to manufacturing and energy supply chains program; current MOA funded through FY 2026 6) 1 FTE funded by FECM to provide legal advice and assistance for programmatic activities related to carbon management programs; current MOA funded through FY 2025 7) 2 FTE funded by GDO to provide legal services and non-legal support pertaining to GDO's portfolio; current MOA funded through 2025 8) 1 FTE funded by FEMP to provide legal advice to allow FEMP to guide Federal agencies in meeting the statutory and Executive Branch energy and water goals for the Federal government; current MOA funded through FY 2025 9) 1 FTE funded by LM to provide legal advice and assistance to LM programmatic activities to include fiscal law matters, general administrative and operational matters, government ethics and intellectual property; current MOA funded through FY 2025; 10) 1 FTE funded by SCEP to provide legal advice pertaining to SCEP's programmatic activities including but not limited to weatherization assistance, state energy program, community energy program, community engagement and partnerships; current MOA funded through FY 2025; 11) 2 FTE funded by LPO to provide legal advice pertaining to LPO's programmatic activities; current MOA 1 FTE funded through FY 2024, 1 FTE funded through FY 2026 12) 1 FTE funded by CIO to provide comprehensive legal advice and assistance to OCIO programmatic activities pertaining to OCIO's portfolio.

This Request funds continued program mission needs and ongoing overhead at reduced operating levels due to annual escalation costs of rental space, telecommunications, IT equipment and support, patent application fees, legal material, and annual maintenance of the Intellectual Property System (IP) implemented in FY2021. Additionally, the Request supports anticipated FY 2025 cost increase of 20 percent for DOE's annual subscription costs for the Electronic Financial Disclosure System (e-450).

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Salaries and Benefits $30,315,000	**$31,044,000**	**+$229,000**
Provides funding support for 134 FTE to include salaries, benefits, overtime, etc.	Provides funding support for 134 FTE to include salaries, benefits, overtime, etc.	Increase supports escalation in salaries and benefits (includes FY 2024/FY 2025 pay increase) average FTE cost in FY 2025 is $246,751).
Support Services $1,374,000	**$1,194,000**	**-$180,000**
Provides for Administrative & Technical support and includes IP & Financial Disclosure Systems (FD Online - Intelliworx).	Continuation of FY 2023 activities at reduced levels.	+$50,000 increase funds 20 percent increase in FD Online (Intelliworx) offset by -$230,000 decrease in all contract support other than 1 admin support and IT technical support.
Other Related Expenses $9,436,000	**$9,387,000**	**-$49,000**
Energy IT Services $1,325,000	$1,826,000	+$501,000
Provides GC IT service including workstations and on-site support, FISMA reviews and reporting, etc.	Provides GC IT service including workstations and on-site support, FISMA reviews and reporting, etc.	Anticipated increase due to, higher usage, increase in equipment purchases, etc.
Working Capital Fund $6,801,000	$6,211,000	-$590,000
Provides for rent, telecommunications, I-Manage, supplies, copiers, printing, etc.	Continuation of FY23 activities.	Decrease reflects return of rental space in the Forrestal building and other cost saving measures.
Other Services $1,310,000	$1,350,000	+$40,000
Provides for Online Legal subscription, Law Library Materials, US Patent Office charges for DOE patents, E-Gov, office furniture, etc.	Continuation of FY23 level activities with escalation costs.	Anticipated increase in legal subscription costs and patent fees (3 percent per year)

Office of Policy
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
23,950	23,950	34,138	+10,188

Mission

The Office of Policy (OP) serves as the principal advisor to the Secretary, Deputy Secretary, and Undersecretaries on domestic energy policy and related integration of energy systems. Additionally, the Office of Policy provides analysis and input to Congress, the White House, other agencies, and offices throughout DOE on design and implementation of domestic energy policy. Areas of focus for the Office of Policy reflect the most pressing issues of the day: energy prices; American economic competitiveness and the energy supply chain; climate change and clean energy policy; energy jobs and workforce; community access to safe, clean, affordable energy; and scientific innovation. The Office of Energy Jobs is part of the Office of Policy. Funding for the Arctic Energy Office (AE) comes from the Office of Policy.

Overview

The Office serves as a focal point for policy coordination within the Department on the analysis, formulation, development, and advancement of Secretarial and Administrative priorities. OP performs analysis, provides programmatic options, and works to design initiatives that support the transition to a secure, prosperous, equitable, and zero-emissions energy economy. OP coordinates policy and strategic cross-cutting functions across DOE elements and shapes strategy and policy consistent with service to the American people. OP performs analysis necessary to inform DOE's approach to pursue the most efficient, affordable, beneficial, and equitable pathways to achieving national goals. Much of OP's work is connected to expertise or information in the various program offices across the Department, and OP works closely with other offices to harmonize activities, maximize results, and avoid duplication, including holistically informing DOE's program development and prioritization.

OP is staffed by an interdisciplinary team of experts, with the technical skills to formulate policy pathways to achieve the Secretary's vision within the full breadth of DOE's statutory mission. OP carries out strategic studies and policy analysis and maintains and coordinates a supporting set of analytical capabilities. This work spans:

- technology policy, including energy decarbonization pathways and impacts analysis;
- deployment and infrastructure policy, including systems analysis and energy access and prices;
- state, local, tribal, and territorial policy, including integrated approaches and permitting; and
- energy jobs, job quality, and workforce development.

This Request will enable OP to enhance energy policy and analysis work as an essential function to support urgently needed energy technology, economic, jobs and workforce-related, and community activities. OP will develop statistical/analytical capability to provide trend analyses of key energy, economic, environmental, and manufacturing indicators that can be used by policymakers across government to inform decisions. The dedicated cadre of FTEs and analysis capabilities funded through this initiative will consult and share information with the Energy Information Administration and with other agencies, such as the Environmental Protection Agency, Department of the Interior, Department of Transportation, and Department of Commerce.

The Office of Energy Jobs is a significant FY 2025 priority, with goals of supporting the creation of good-paying jobs in the energy workforce, while creating pathways for energy communities. This work includes a focus on labor standards to maximize the benefits of deployment activities by ensuring job quality and equitable access to career training and employment opportunities. The Office of Energy Jobs also engages the larger community of workforce stakeholders on energy issues. The Office of Energy Jobs leads DOE-wide coordination on energy jobs and provides guidance throughout the DOE complex on fair labor practices, including as the primary resource for jobs and workforce-related consultation on the

design of DOE programs and on reports. The office administers the DOE Jobs Council and the 21st Century Energy Workforce Advisory Board and publishes the annual United States Energy and Employment Report, which is a vital and high-visibility source of data for policymakers, energy employers, and others. The Office of Policy provides significant support to interagency working groups on several topics, including the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization, as well as job creation analysis and union and employer stakeholder engagement.

The Arctic Energy Office (AE), established by the 2001 National Defense Authorization Act and supported out of the OP budget, works in collaborative, innovative, and cross-cutting ways to meet the energy, science, and national security needs of the United States and its allies in the Arctic. For the purposes of this mission, the entirety of the state of Alaska is considered as part of the Arctic and AE's Director has sustained expertise in energy issues affecting Alaska and the Arctic. AE coordinates DOE activity in Alaska and the Arctic regions and serves as a source of expertise on Arctic energy, security, and science issues. To accomplish its mission, AE collaborates with DOE offices, National Laboratories, federal and state agencies, universities, non-profits, the private sector, and local and Indigenous Tribal entities including Alaska Native Corporations and Villages. AE provides DOE support for participation in the Arctic Council. FY 2025 efforts will be aligned with the needs, opportunities and priorities set forth in the National Strategy for the Arctic Region, the DOE Arctic Strategy, and the multi-year/multi-organization Arctic research agenda.

FY 2023 Key Accomplishments

- Conducted and published analyses that informed government, public and private sector decisionmakers addressing U.S. energy systems, energy prices, emissions reductions, and system reliability.
- Published the 2023 U.S. Energy and Employment Report that provides detailed information about energy sector trends. Launched the Energy Jobs Council and the 21st Century Energy Workforce Advisory Board, which provide strategic recommendations on developing the energy workforce.
- Produced mapping tools and reports focused on supporting local economies, including an Energy Communities map and a report on Federal Support Opportunities to Remediate and Redevelop Energy Assets for rural, remote, and fossil energy communities.
- Developed key strategies to achieve the objectives set forth in the Permitting Action Plan and ensure Federal environmental reviews and permitting processes are effective, efficient, and transparent.
- Developed initial statistical and data tracking capabilities to measure progress on key economic, environmental, and security indicators.
- Through the Arctic Energy Office, enabled communities in Alaska to gain greater access to DOE programs and funding opportunities; supported international cooperation on challenges facing Artic communities to develop community-based energy programs to transition beyond diesel fuel use in remote communities; and led Alaska Hydrogen Working Group to convene a state-wide assessment on opportunities to develop hydrogen energy resources. The Artic Energy Office worked strategically on efforts to convert legacy natural gas infrastructure into CO2 storage and on enhancing safe recovery of critical minerals in the Alaska mining industry.

Office of Policy
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY23 Enacted	
				($)	(%)
Washington Headquarters					
Salaries and Benefits	8,748	8,748	9,326	+578	+7%
Travel	250	250	350	+100	+40%
Support Services	13,044	13,044	22,362	+9,318	+71%
Other Related Expenses	1,908	1,908	2,100	+192	+ 10%
Total, Program Direction	**23,950**	**23,950**	**34,138**	**+10,188**	**+43%**
Federal FTEs	**43**	**43**	**53**	**10**	**+23%**
Support Services					
Other Support Services	13,044	13,044	22,362	+9,318	+71%
Total, Support Services	**13,044**	**13,044**	**22,362**	**+9,318**	**+71%**
Other Related Expenses					
Working Capital Fund	1,358	1,358	1,413	+55	+4%
Training	100	100	107	+7	+7%
Energy IT Services	380	380	500	+120	+32%
Other Expenses	70	70	80	+10	+14%
Total, Other Related Expenses	**1,908**	**1,908**	**2,100**	**+192**	**+10%**

Office of Policy (OP)
Program Direction

FY 2025 Budget Request Highlights

- Expand use, scale, and scope of data tracking capability to reflect the growing need for OP to serve its functions for U.S. energy policy and annual energy activity across the economy, including assessing and tracking economy-wide impacts of new energy sector investments related to the Bipartisan Infrastructure Law and Inflation Reduction Act.
- Expand analytic tools that can help state, local, and federal leaders manage issues, such as reliability, cost allocation, and stranded assets. Advance policy and analytic information that supports place-based strategies, particularly in rural and remote communities.
- Provide expanded information on future energy workforce needs and strategies to deliver on those needs.
- Identify policy solutions at the State, Local, Tribal, Territorial level and with Federal permitting agencies to facilitate the siting and permitting process, to include DOE capabilities in Artificial Intelligence, technical assistance, and engagement.
- Through the Arctic Energy Office, support "Ambassadors" in Alaska Native Corporation regions, building stronger Department of Energy community engagement and more targeted programming in the Arctic region.

FY 2025 Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $23,950,000	**$34,138,000**	**$10,188,000**
Salaries and Benefits $8,748,000	**$9,326,000**	**$578,000**
Provides funding for 43 FTEs to include salaries and benefits.	Funding for salaries and benefits for 53 FTEs to support increased workload, including additional Energy Jobs and energy analysis staff. Includes funds for Arctic Energy Office.	Increase funds for additional 10 FTEs that will focus on trend analyses, key energy indicators, and partnerships to make data available. Assumes civilian pay raise in FY 2024 (5.2 percent) and FY 2025 (2 percent), overtime, lump sum leave, and FY 2025 performance awards.
Travel $250,000	**$350,000**	**$100,000**
Provides funding to support travel by staff, including travel to accompany the Secretary and DOE senior leadership.	Continuation of activities and travel to support Arctic Energy Office in Fairbanks, Alaska and Energy Jobs work across the country.	Increase funds for additional travel for additional 10 FTEs and escalation cost of long distance travel for Artic Energy Office and Office of Energy Jobs engagements with communities.
Support Services $13,044,000	**$22,362,000**	**$9,318,000**
Provides support services needed for FY 2023 technical analysis and administrative requirements including the U.S. Energy Employment Report (USEER).	Expansion of FY 2023 activities. Additionally supports ability to obtain and maintain research tools, annual subscriptions, other contractor support used for analysis activities to include data processing, systems modeling, forecasting, strategic planning, evaluation, and other approaches.	Increase reflects funding for expanded jobs analysis and an expanded statistical/analytical capability and associated dashboard that addresses key energy indicators. Benefits include timely updates on key indicators that can better inform energy policy and investment decisions.
Other Related Expenses $1,908,000	**$2,100,000**	**$192,000**
Provides funding to support business costs associated with the Department's Working Capital Fund, IT equipment and support.	Continuation of FY 2023 activities and continued services and equipment related to IT and training tools to support additional 10 FTEs.	Increase funds additional IT equipment and services for additional 10 FTEs.

Public Affairs
Program Direction
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Guidance Level	FY 2025 Request vs FY 2023 Enacted
5,936	5,936	7,972	+2,036

Mission

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

Overview

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

Through its Digital Strategy and Communications Office, PA continues to effect cost savings at the Department by consolidating website platforms, reducing duplication, and improving accessibility of information. The Digital Strategy and Communications Office drives the Department's mission online via the Energy.gov website, social networking tools, blog outreach, citizen engagement tools, and other emerging online communication technologies. Digital Strategy and Communications is an innovative and growing part of the mission, as PA seeks to serve the public in more efficient and effective ways online. Through its Digital Strategy Office PA is making government more collaborative, interactive, and engaging across the overall Department and directly with the American public.

FY 2023 Key Accomplishments

- In spring of 2023 Direct Current Podcast launched the 4th season with a premiere episode on DOE's life-saving work and collaboration with Ukraine. Other episodes include extreme weather, quantum computing, and the Manhattan Project. Since February 2023 there have been over 23,000 downloads of the season's podcast.
- Design and develop hub for DOE's external stakeholders to find actionable ways to get involved with DOE initiatives as well as for consumers to learn how to save as renters, homeowners and drivers.
- Developing compelling multimedia content and web presence showcasing consumer benefits of clean energy transition and testimonials (e.g., Interactive Investment Map, Launch of Savings Hubs, weatherization videos).
- Worked with program communicators to develop strategy, actively pitch their stories to local outlets and trades (and conduct outreach to stakeholders), worked in unison with programs to create speeches and digital content, and managed overall strategy and national media relations.

Public Affairs
Program Direction
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				($)	(%)
Washington Headquarters					
Salaries and Benefits	3,488	3,488	3,708	+220	+6%
Travel	190	190	200	+10	+5%
Support Services	955	955	939	-16	-2%
Other Related Expenses	1,303	1,303	3,125	+1,822	+140%
Total, Program Direction	**5,936**	**5,936**	**7,972**	**+2,036**	**+35%**
Federal FTEs	**22**	**22**	**23**	**+1**	**+5%**
WCF FTEs	**3**	**3**	**3**	**-**	**-**
Other Related Expenses					
Energy IT Services	626	626	716	+90	+14%
Energy.gov support					
Application server	0	0	1,065	+1,065	+100%
O&M Support staff	0	0	709	+709	+100%
Working Capital Fund	677	677	635	-42	-6%
Total, Other Related Expenses	**1,303**	**1,303**	**3,125**	**+1,822**	**+140%**

FY 2025 Budget Request Highlights

In FY 2025, the Department requests $7,972,000 to fund increased personnel costs for 23 FTEs to include the 2 percent pay raise for federal employees and Federal Employees Retirement Systems (FERS) benefits and increased travel in support of the Secretary to include video production and presentations at conferences. This Request includes $1,774,000 to support the modernization of Energy.gov to provide a faster, more organized user-experience that directs audiences to the critical information they need and rebranding DOE to enhance the Department's ability to connect with existing and new audiences in engaging and productive ways.

With the additional funding, PA will be able to support the costs of modernization of Energy.Gov to include the migration of 1,100 DOE program websites housed on micro websites to Energy.gov; additional application server to provide increased functionality to meet the dynamic needs of DOE programs on Energy.gov; and additional O&M support staff to support risk mitigation, website growth and increase of DOE programs' presence on Energy.gov. This modernization effort will result in cost savings at the Department by consolidating website platforms, decreased duplication, and improved accessibility of information.

Public Affairs (PA)
Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs. FY 2023 Enacted
Program Direction $5,936,000	**$7,972,000**	**+$2,036,000**
Salaries and Benefits $3,488,000	**$3,708,000**	**+$220,000**
Provides funding for 22 full time employees (FTEs). This includes DOE's team of media spokespersons, the media team managing digital communications and website efforts, the speechwriting team that supports the Secretary and other senior officials and program offices, and the administrative staff required to support DOE's mission.	Continuation FY 2023 activities and full funding for 23 FTEs.	The addition of 1 FTE will provide additional support to the content migration to Energy.gov as part of the modernization efforts. The increase also includes 2% pay raise for Federal employees and FERS increase in FY 2025.
Travel $190,000	**$200,000**	**+$10,000**
Travel expenses support the office's ability to provide appropriate staffing to the Secretary and Deputy Secretary; staff travel for video production and presentations at conferences to communicate the DOE mission; enhanced video projects across complex; and other media projects.	Continuation of FY 2023 activities.	Increase to support travel inflation costs.
Support Services $955,000	**$939,000**	**-$16,000**
Support services include continued contractor support to upgrade and maintain the Department's digital communications and website efforts.	Continuation of FY 2023 activities.	Funding realigned to support increased personnel costs.
Other Related Expenses $1,303,000	**$3,125,000**	**$1,822,000**
Funding of Working Capital Fund and Energy IT services for 22 FTEs.	($1,351,000) Continuation of EITS/WCF services for 23 FTEs ($1,065,000) New application server will enhance functionality of Energy.gov and facilitate the success of the website redesign project to meet the dynamic needs of DOE programs transitioning to Energy.gov and eliminate 1,100 separate micro websites. ($709,000) Supports 3 additional contractors for O&M support: Content Management System specialist, Tester and Developer.	(+$48,000) Net increase in EITS inflation costs offset by reduction in WCF due to office space reduction. (+$1,065,000) New request for FY25. Additional application server will optimize Energy.Gov performance, ensure scalability, enhance security, streamline development, and integrate with other systems — ultimately improving the overall user experience (+$709,000) New request for FY25. Increase supports additional O&M staff needed to effectively operate the application server.

DEPARTMENT OF ENERGY

Funding by Site

TAS_0228 - Departmental Administration - FY 2025

(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Consolidated Service Center - Illinois			
Strategic Partnership Projects	21,745	21,700	21,700
Subtotal, Departmental Administration (Gross)	21,745	21,700	21,700
Total Consolidated Service Center - Illinois	**21,745**	**21,700**	**21,700**
Idaho Operations Office			
Strategic Partnership Projects	2,000	2,000	2,000
Subtotal, Departmental Administration (Gross)	2,000	2,000	2,000
Total Idaho Operations Office	**2,000**	**2,000**	**2,000**
National Energy Technology Lab			
Strategic Partnership Projects	150	100	150
Subtotal, Departmental Administration (Gross)	150	100	150
Total National Energy Technology Lab	**150**	**100**	**150**
National Renewable Energy Laboratory			
Strategic Partnership Projects	500	500	500
Subtotal, Departmental Administration (Gross)	500	500	500
Total National Renewable Energy Laboratory	**500**	**500**	**500**
NNSA Albuquerque Complex			
Strategic Partnership Projects	4,305	4,487	3,800
Subtotal, Departmental Administration (Gross)	4,305	4,487	3,800
Total NNSA Albuquerque Complex	**4,305**	**4,487**	**3,800**
Richland Operations Office			
Strategic Partnership Projects	100	100	100
Subtotal, Departmental Administration (Gross)	100	100	100
Total Richland Operations Office	**100**	**100**	**100**
Savannah River Operations Office			
Strategic Partnership Projects	11,200	11,200	5,200
Subtotal, Departmental Administration (Gross)	11,200	11,200	5,200
Total Savannah River Operations Office	**11,200**	**11,200**	**5,200**
Washington Headquarters			
Office of the Secretary	6,642	6,737	7,215
Congressional & Intergovernmental Affairs	5,000	7,198	7,112
Office of the Chief Financial Officer	62,283	67,345	67,345
Economic Impact & Diversity	34,140	53,665	36,530
Office of International Affairs	32,000	50,142	37,874
Chief Information Officer	215,000	245,169	229,434
Industrial Emissions and Technology Coordination (DA)	0	0	2,000
Other Departmental Administration	191,161	267,446	221,388
Subtotal, Departmental Administration (Gross)	546,226	697,702	608,898
Total Washington Headquarters	**546,226**	**697,702**	**608,898**
Undesignated LPI			
Artificial Intelligence and Technology Office	1,000	0	0
Subtotal, Departmental Administration (Gross)	1,000	0	0
Total Undesignated LPI	**1,000**	**0**	**0**
Total Funding by Site for TAS_0228 - Departmental Administration	**587,226**	**737,789**	**642,348**

Office of the Inspector General

Office of the Inspector General
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Request	FY 2025 President's Request vs FY 2024 Annualized CR
$86,000	**$86,000**	**$149,000**	**+$63,000**

Proposed Appropriation Language

Base Funding as Proposed by the President's Budget

For expenses necessary for the Office of the Inspector General in carrying out the provisions of the Inspector General Act of 1978, [$86,000,000] $149,000,000, to remain available until [September 30, 2024] expended.

Oversight Funding for the Puerto Rico Energy Resilience Fund as Proposed by the President's Budget

General Provision:
SEC. 308.

From the unobligated balances of amounts made available to the Department of Energy to carry out activities to improve the resilience of the Puerto Rican electric grid under Public Law 117–328, thirty-five hundredths of one percent of the amounts made available under that section shall be transferred no later than September 30, 2025, to the Office of Inspector General of the Department of Energy to carry out the provisions of the Inspector General Act of 1978, to remain available until expended: Provided, That any amounts so transferred that were previously designated by the Congress as an emergency requirement pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985 or a concurrent resolution on the budget are designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A)(i) of the Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That such amounts shall be available only if the President designates such amount as an emergency requirement pursuant to section251(b)(2)(A).

Overview
The Office of the Inspector General (OIG) is dedicated to its mission to strengthen the integrity, economy, and efficiency of the Department of Energy's (Department) programs and operations.

FY 2025 President's Funding Request for the DOE OIG
The FY 2025 budget request would increase the OIG's base budget to $149 million and provide $3.5 million for oversight of the Puerto Rico Energy Resilience Fund. This increase begins to correct the underfunding of the OIG.

The Department manages many high-risk areas that necessitate appropriate oversight:

- The Loan Program Office (LPO) is high risk -- The Department has recently issued approximately $44 billion in loans and loan guarantees and made an additional $15 billion in conditional commitments. As of December 2023, the Department reported that it had received almost $215 billion in additional loan requests.
- Theft of intellectual property and research impacting national security are high risk areas.
- New and expanding artificial intelligence program is high risk.
- Contract administration and subcontract management is high risk– especially important given approximately 90% of the Department's budget is distributed to contractors, 30-50% of which is further disbursed to subcontractors.
- The National Nuclear Security Administration (NNSA) stockpile stewardship is high risk.
- The $534 billion environmental liability is high risk.
- Major planned construction and infrastructure upgrade projects are high risk.

At the end of FY 2023, the Office of Investigations had the highest caseload (260) in recent history.

From FY 2020 to 2023, the OIG also experienced:

- 300% increase in the number of suspension and debarment referrals.
- 40% increase in the number of audits, inspections and investigations requiring data analytics support.
- 19% increase in hotline complaints.

Furthermore, numerous OIG recommendations regarding cybersecurity remain open. Much work needs to be done to address concerning trends in the Department's ability to address cyber weaknesses.

In recent years, due to a lack of resources, the OIG was not able to work on the following critical areas:

- 263 hotline complaints
- 28 audits of high-risk areas
- 17 inspections of high- risk areas
- 18 assessments of high-risk areas involving cybersecurity

Highlights of the FY 2025 Budget Request

The OIG will utilize these resources to prevent fraud, waste, and abuse and to enhance the efficiency and effectiveness of the Department's programs and operations. The OIG's focus includes:

- **Data Analytics.** The OIG will continue to expand its utilization of data analytics. The OIG will strengthen investments in human capital, technical infrastructure, policy and stakeholder engagement, data acquisition, and data management and integration, to support scaling data analytics capabilities, including integration of artificial intelligence (AI). In FY 2025, the OIG plans to build a high-side data analytics capability for more efficient oversight of the Department's classified programs and operations.
- **Cybersecurity Oversight Efforts.** The OIG is responsible for the audit and evaluation of the Department's unclassified systems. The Department has experienced substantial problems with cybersecurity. As the Department's expenditures increase under IIJA, IRA and the Puerto Rico Energy Resilience Fund, it will become increasingly important to secure its systems from vulnerabilities that could result in the loss of billions of dollars' worth of innovative or sensitive technologies developed using taxpayer dollars. Additional funding will allow the OIG to focus on a true and timely view of the Department's cybersecurity posture; increase oversight in the operational technology and the Energy Security space; enhance oversight of, and collaboration with, the Department's Office of Enterprise Assessments; and deconflict and conduct risk-based discretionary jobs in this area.
- **Inspections, Intelligence/Counterintelligence Oversight, and Special Projects.** This division conducts intelligence and counterintelligence oversight and will continue conducting timely and objective inspections of the programs and performance of the Department. The OIG's inspections teams will also continue to address allegations received through the OIG's Hotline, and whistleblower complaints, which have increased significantly in the last four years.
- **Investigations.** The OIG experienced an overall increase in casework in FY 2023, with a substantial increase in a variety of criminal investigations, particularly related to cybercrimes, child exploitation, and Pandemic Relief fraud. In addition, the OIG saw an increase in the already significant amount of contract and grant fraud investigations. The Office of Investigations' work and partnerships with other law enforcement entities resulted in significant cost savings to the Department and funds put to better use, as well as recoveries from contract fraud investigations and civil settlements, returning well over $224 million to the Treasury. We expect these trends to continue into FY 2025 as the OIG continues its proactive case work in fraud detection and information sharing with Data Analytics.
- **Facilities/Technology.** The OIG will continue its efforts to open offices in strategic locations and acquire a sensitive compartmented information facility. Additionally, the OIG will be addressing information technology (IT) solutions to the problem of the OIG operating on a multitude of networks, which results in delays, missed communications, and a loss of productivity in the performance of daily OIG operations. The OIG's intent to move its entire workforce on to one Departmental platform will undoubtedly improve mission capabilities.
- **NNSA Modernization Efforts.** NNSA has undertaken a modernization effort that involves major projects such as the weapons complex transformation. The OIG will conduct audits, inspections, reviews, and assessments to identify opportunities to improve the efficiency and effectiveness of these modernization efforts.
- **Environmental Management**. The Department's environmental cleanup and disposal liabilities of $534,314,000,000 remains on the Government Accountability Office's Biennial High Risk List. The OIG will continue its efforts to review the efficacy of the Department's environmental programs to prevent fraud, waste, and abuse.

- **Incurred Cost Audits of Management and Operating (M&O) Contracts.** The OIG will continue conducting, independent incurred cost audits of the Department's M&O Contracts, valued at $28.4 billion as of FY 2024. Additionally, the OIG will continue to conduct Disclosure Statement compliance audits and will begin conducting real time testing for labor and materials in support of this effort.
- **Audits.** The OIG performs audits on Departmental programs and operations, focused on providing reliable and credible financial and performance information. The scope of this work is determined through a risk-based approach focused on areas of greatest risk to the Department. Significant increases in the Department's funding correlate to a direct increase in the risk of fraud, waste, and abuse. Audits provide substantial deterrence and detection capabilities over taxpayer funds and give Departmental management and Congress a well-informed perspective.

Office of the Inspector General
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Request	FY 2025 President's Request vs FY 2024 Annualized CR ($)	FY 2025 President's Request vs FY 2024 Annualized CR (%)
Office of the Inspector General/Program Direction					
Salaries and Benefits	62,801	62,801	116,307	+53,506	85%
Travel	2,619	2,619	3,359	+740	28%
Support Services	9,439	9,439	13,104	+3,665	39%
Other Related Expenses	11,141	11,141	16,230	+5,089	46%
Total, Office of the Inspector General/Program Direction	**86,000**	**86,000**	**149,000**	**+63,000**	**73%**
Federal FTEs	**355**	**355**	**543**	**+188**	**53%**
Support Services					
Management Support	8,634	8,634	12,290	+3,656	42%
Federal Information Security Modernization Act (FISMA)	805	805	814	+9	1%
Total, Support Services	**9,439**	**9,439**	**13,104**	**+3,665**	**39%**
Other Related Expenses					
Council of the Inspectors General on Integrity and Efficiency (CIGIE)	283	283	596	+313	111%
Information Technology	2,672	2,672	6,394	+3,722	139%
Infrastructure	2,000	2,000	2,357	+357	18%
Training	1,656	1,656	2,124	+468	28%
Working Capital Fund	3,173	3,173	3,372	+199	6%
Other Related Expenses	1,357	1,357	1,388	+31	2%
Total, Other Related Expenses	**11,141**	**11,141**	**16,230**	**+5,089**	**46%**

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 President's Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $86,000,000	**$149,000,000**	**+$63,000,000**
Salaries and Benefits $62,801,000	**$116,307,000**	**+$53,506,000**
Funding supports 355 Federal staff with specialized skill sets (e.g., Certified Public Accountants, Cyber, Data Analytics, Technology Crime Investigators, and Certified Fraud Examiners) who identify significant Departmental program and operational challenges.	Increased staffing levels are needed to oversee the increasing risks at the Department, and the increased base funding. Additionally, continuing the internal independent incurred cost audit program and the identification of significant Departmental challenges with the FTE level of 543.	The funding increase reflects an increase in FTE usage by 188 FTEs. Additional FTEs will enable OIG to provide additional oversight of the Department's increasing risks, and the independent incurred cost audit program. Assumes 2 percent pay increase in civilian salaries, FERS increase, and supplemental funds for performance award pool increase in FY 2025.
Travel $2,619,000	**$3,359,000**	**+$740,000**
Funding supports travel to provide oversight at DOE's 25 geographically dispersed facilities.	Continue to perform audits, inspections, and investigations across the DOE complex.	Funding directly reflects support for increased personnel and workload, the expansion of audits, analytics, cyber, and forensic efforts in direct support of the OIG's mission.
Support Services $9,439,000	**$13,104,000**	**+$3,665,000**
Funding directly reflects interagency support services and contracts necessary to support the independent incurred cost audit program. Provides support for the Federal Information Security Modernization Act of 2014 (FISMA). Annual independent evaluations to determine whether the Department of Energy's unclassified cybersecurity program adequately protected its data and information systems.	Increased management support to the independent incurred cost audit program. Continued support for independent annual evaluations in accordance with FISMA.	Funding increase directly reflects an increase in interagency support services and contracts necessary to support the increased staffing for the independent incurred cost audit program within the OIG. The funding also includes increased FISMA support.
Other Related Expenses $11,141,000	**$16,230,000**	**+$5,089,000**
Funding includes critical training for the OIG staff to maintain required levels of proficiency and comply with the Inspector General Act. Funding also supports forensic hardware and software requirements needed to accomplish investigative responsibilities. Funds are included for mandatory support for Council of the Inspectors General on Integrity and Efficiency (CIGIE) and to fund OIG's share of the DOE Working Capital Fund and Energy IT Services.	Increased support to training, information technology needs, secure infrastructure, and other requirements in the performance of the OIG duties. In accordance with the Inspector General Act, 5 U.S.C. CH. 4 § 406(g)(1), the Inspector General has certified that the amount requested for required training of its staff, including amounts designated for the statutorily required training would satisfy all the OIG's fiscal year 2025 training requirements.	The funding increase reflects increased forensic efforts, training support, personnel security investigations, and building a secure infrastructure. The OIG will also need to increase its investments in cloud technology, forensic hardware, and software to sustain the data analytics program, cyber, and technical crimes capabilities.

Office of the Inspector General

Infrastructure Investment and Jobs Act
($K)

The Office of the Inspector General was appropriated funds through the Infrastructure Investment and Jobs Act (IIJA) at a rate of one-tenth of one percent of the total annual amounts made available to the Department.

Appropriated Funding Organization	FY 2022 IIJA Funding	FY 2023 IIJA Funding	FY 2024 IIJA Funding	FY 2025 IIJA Funding	Managing Organization
Office of the Inspector General					
Departmental Oversight	18,686	13,100	10,788	10,831	OIG

- **Departmental Oversight:** The OIG will perform risk assessments, evaluations, data analytics, audits, inspections, and investigations in order to conduct appropriate oversight of IIJA expenditures.

Inflation Reduction Act (IRA)
($K)

The Office of the Inspector General was appropriated funds through the Inflation Reduction Act of 2022 (IRA).

Appropriated Funding Organization	FY 2022 IRA Funding	Managing Organization
Office of the Inspector General		
Departmental Oversight	20,000	OIG

- **Departmental Oversight:** The OIG will perform risk assessments, evaluations, data analytics, audits, inspections, and investigations in order to conduct appropriate oversight of IRA expenditures.

Statement of the Department of Energy Inspector General
March 6, 2024

I am writing this statement under the Inspector General Act 5 U.S.C. § 406(g)(3)(E) asking that if our budget request is not going to be recognized, that this statement be transmitted with the Agency's congressional justification materials for fiscal year 2025.

The Department of Energy (Department) Office of Inspector General (OIG) has a long history of being underfunded for enduring mission oversight. The passage of recent legislation greatly exacerbated this problem. Specifically, under the Infrastructure Investment and Jobs Act (IIJA), the Inflation Reduction Act (IRA), and the Puerto Rico Energy Resilience Fund legislation, the Department received nearly $100 billion in appropriations. Even more remarkable, the Department's loan authority increased by an estimated $385 billion, $290 billion of which must be used quickly, as it is set to expire on September 30, 2026. This is unprecedented.

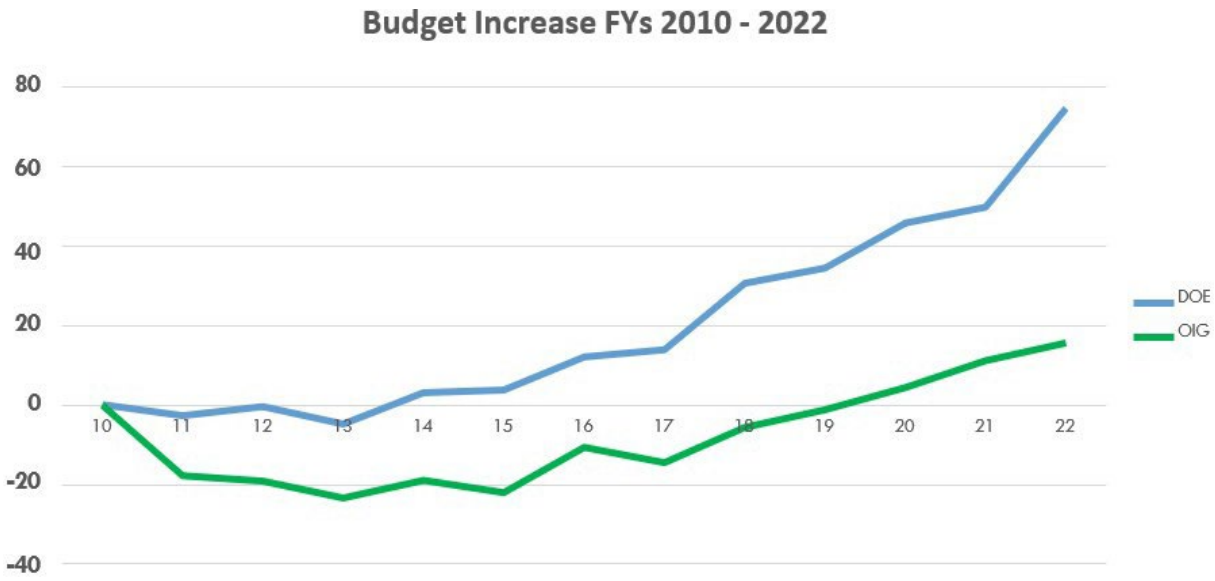
$83.6 billion of the $100 billion in new appropriations will be dispersed through 71 new programs within the Department. These funds are already moving quickly, and the internal controls are untested. Creating additional risks, much of the funding will be disbursed via grants to third party recipients through the states, local governments, and tribes. It remains unclear if these recipients are equipped with sufficient staffing, are adequately trained, or have adequate internal controls to safeguard these federal expenditures. These programs are vulnerable to large scale fraud.

By way of context, the Department was already charged with a high-risk portfolio prior to the passage of these pieces of legislation. Approximately 90 percent of the Department's budget goes to contractors, and on average 30 percent of that is further disseminated to subcontractors. Furthermore, the Government Accountability Office's "High Risk List" includes the Department's "Contract and Project Management for the National Nuclear Security Administration and Office of Environmental Management," the U.S. government's largest environmental liability.

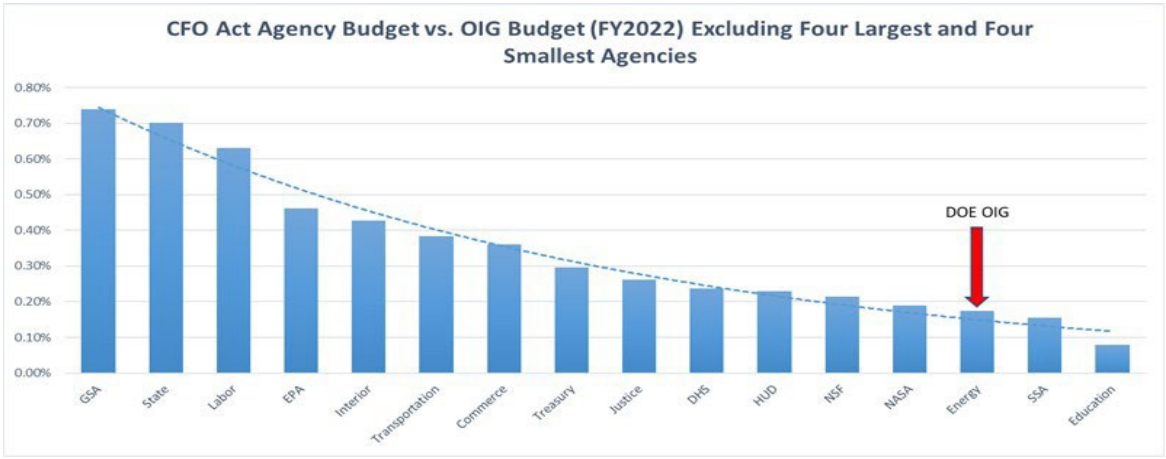
Given the high-risk nature of the Department's portfolio, and the enormous new and enlarged mission elements established under recent legislation, sufficient oversight funding for the OIG is critical.

DOE OIG's Base Budget Substantially Inhibits the Performance of the Inspector General's Duties

As shown in the chart below, between 2010 and 2022, the Department experienced a 70 percent increase in its budget while, over that same time, the OIG experienced only a 16 percent increase in its base budget.



Additionally, DOE OIG was significantly underfunded as compared to similarly situated OIG's. The next chart provides a glance of Inspector General discretionary funding for many Chief Financial Officers Act agencies, as of FY 2022:



The substantial underfunding for the OIG occurs in the context of one of the most complex and risky agencies in the federal government, with important national security programs, critical scientific research, and the largest environmental cleanup program in the nation.

DOE OIG's Base Budget Posture Was Substantially Worsened by Recent Legislation Vastly Enlarging the Loan Program Office and Creating 71 New Programs Under IIJA and IRA

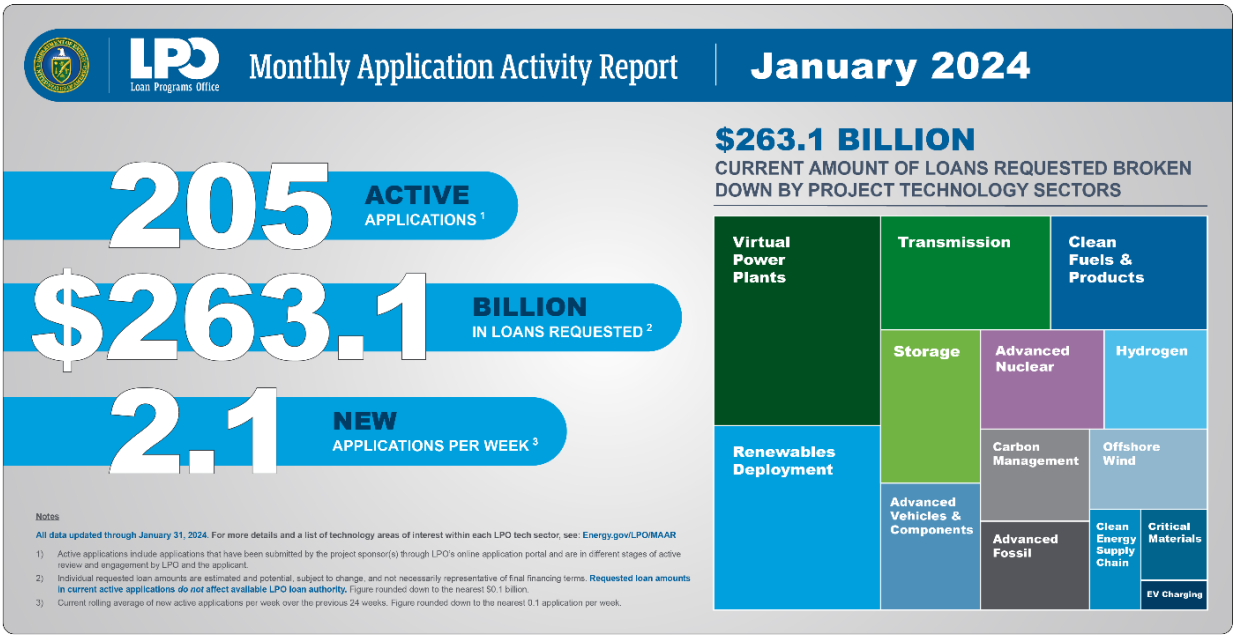
The current situation brings tremendous risk to the taxpayers, brought on by a combination of a historic expansion of the Department's loan program, and the establishment of 71 new Department programs. Let's take a closer look at the Loan Program Office.

Fast Moving Loans. Much of the historic expansion of the Department's loan authority must be awarded on an accelerated schedule. Two categories of loan authorities, worth a combined $290 billion, will expire in 2026.

Fast money - $290 billion in loan authority expiring by 2026 – incentivizes the priority of getting money out the door over protecting taxpayer dollars

There is no precedent in the Department for this level and pace of financing. To put that amount into perspective, Wells Fargo, one of the Nation's largest banks, had an outstanding domestic commercial and industrial loan balance of $292 billion as of the end of 2022.[1]

As shown in the chart below, the Loan Program Office currently has 205 active applications under review, requesting $263.1 billion in loans. Many of these projects are designed to promote innovation by financing projects not otherwise acceptable to private equity investors – projects the market does not view as acceptable because of the risk.



[1] https://www08.wellsfargomedia.com/assets/pdf/about/investor-relations/annual-reports/2022-annual-report.pdf (p.18)

High Risk Grants and New Programs. Of the $100 billion in new supplemental appropriations to the Department, we estimate that $65 billion will be distributed in grants and other financial assistance awards, most of it under 71 new programs. New programs raise immediate concerns, because the internal controls they propose to use have never been tested. Additionally, many of these grants will be awarded to states, local governments, and tribes, which have expressed concerns about having sufficient staffing, training, and dedicated resources to provide the necessary internal controls.

Under IIJA and IRA, the OIG Received Inadequate Funding for Oversight

Under IIJA, the OIG received only $62 million, or 0.10 percent of the funding provided to the Department over a 5- year period, to provide oversight of these new projects. When compared with other OIGs that received money under IIJA, the DOE OIG was substantially underfunded as shown in the table to the right.

	IIJA Agency Funding	IIJA OIG Funding	OIG Percent of Agency Funding
EPA	$61 billion	$269 million	0.44%
HHS	$4 billion	$17 million	0.44%
DOI	$28 billion	$99 million	0.35%
USDA	$8 billion	$27 million	0.34%
DHS	$8 billion	$20 million	0.25%
DOE	$62 billion	$62 million	0.10%

Also, IRA appropriated only $20 million to the OIG, or 0.05 percent of the funding provided to the Department, to oversee those programs. Notably, there was no provision for additional OIG funding in the expanded programs in the FY 2023 appropriations, which included an expansion of $15 billion in loan program authority and a new $1 billion in appropriations for the Puerto Rico Energy Resilience Fund. The result - OIG's substantially diluted resources are inadequate to enable the Inspector General to perform the duties of the office.

Impact if Additional Funding is Not Received

The OIG has developed a three-pronged strategy to oversee the Department's high risk IIJA and IRA programs, and the historic expansion of the loan authorities. It includes **preventing** fraud, waste, and abuse; **assessing** Department programs and operations to identify the highest-risk areas and to make suggestions for improvements; and **detecting** fraud, waste, and abuse when it does occur, to ensure accountability and corrective action. Given the fast-moving funds contemplated by IIJA and IRA, the OIG's plans must also be expedited. To expedite these plans, the OIG intends to partner with expert contractors, which will allow the OIG to expand its workforce and later contract its workforce to meet these extraordinary challenges.

We took this approach, which begins with prevention activities, to meet the President's direction to minimize large-scale frauds that plague high-dollar Federal programs executed on an expedited timeline. However, without assurance that the OIG will have additional resources to audit recipient awards as money hits the ground, for example, the OIG is in an untenable position to conduct adequate upfront prevention and assessment, without running out of dedicated funds later in the program lifecycle to identify criminals and hold them accountable. Put another way, due to lack of resources, to ensure the OIG has funding throughout the lifecycle of these programs, the OIG must limit efforts in all three areas: prevention, assessment, and detection. Compromising any of the three prongs has a deleterious effect on the others.

Regarding audits and inspections, without proper funding, the OIG can only perform about 20 percent of agency program audits that are necessary and can only perform about 12 percent of the recipient oversight projects that are necessary to oversee the $65 billion of grant and financial assistance awards.

Along the same line, without additional funding, the OIG will not be able to perform the volume of necessary detection activities, including the greater implementation of data analytics, to pursue criminal prosecutions.

Therefore, it is critical for the OIG to receive the necessary funding as soon as possible so that the OIG will be able to place sufficient emphasis on prevention, assessment, and detection; plan for long-term oversight; and adjust the OIG's annual oversight activities in line with the Department's rapid execution of its multi-year funding.

The President's FY 25 Budget

For fiscal year 2025, I requested $179.5 million to correct the significant shortfall that exists in my office's base budget, and I requested $319.7 million to correct the significant shortfall resulting from inadequate funding under IIJA, IRA, and the Puerto Rico Energy Resilience Fund. The President's budget includes a total of $152.5 million, which leaves a total shortfall of $346.7 million.

The $346.7 million funding gap is comprised of: 1) $261.2 million for the oversight of the IIJA and IRA; 2) $55 million to begin oversight of the Department's expanded loan programs under IIJA, IRA, and the 2023 Omnibus Appropriations Act; and 3) $30.5 million for the OIG's oversight of the Department's enduring and complex mission. These items are broken out in the table below:

DOE OIG Shortfall (in millions)			
Funding Category	**Requested**	**President's Budget**	**Gap**
Oversight of expanded mission area			
IIJA/IRA	$ 261.2	$ -	$ 261.2
Loan Programs Office	$ 55.0	$ -	$ 55.0
Puerto Rico ERF	$ 3.5	$ 3.5	$ -
Oversight of base appropriations			
2025 Base	$ 179.5	$ 149.0	$ 30.5
Total Funding Gap			**$ 346.7**

I appreciate the efforts of the Office of Management and Budget and others involved in working towards proper funding of the OIG. I appreciate that the President's Budget includes an increase of $63 million in the OIG's 2023 base budget and includes $3.5 million to oversee the Puerto Rico Energy Resilience Fund.

With the current level of proposed funding, however, the OIG's oversight would be a fraction of what it should be and would not include any oversight of many key areas. Time is not on our side. For these reasons, I must conclude that I am substantially inhibited from performing the duties of my office. [2]

Teri L. Donaldson
Inspector General

[2] At the time this statement was prepared, the Energy and Water Development Fiscal Year 2024 Appropriations Bill had not passed Congress. Therefore, the funding gap in this statement does not take into consideration any funding that may be received in that Bill.

Office of the Inspector General
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Request	FY 2025 President's Request vs FY 2024 Annualized CR
$86,000	$86,000	$149,000	+$63,000

Proposed Appropriation Language

Base Funding as Proposed by the President's Budget

For expenses necessary for the Office of the Inspector General in carrying out the provisions of the Inspector General Act of 1978, [$86,000,000] $149,000,000, to remain available until [September 30, 2024] expended.

Oversight Funding for the Puerto Rico Energy Resilience Fund as Proposed by the President's Budget

General Provision:
SEC. 308.

From the unobligated balances of amounts made available to the Department of Energy to carry out activities to improve the resilience of the Puerto Rican electric grid under Public Law 117–328, thirty-five hundredths of one percent of the amounts made available under that section shall be transferred no later than September 30, 2025, to the Office of Inspector General of the Department of Energy to carry out the provisions of the Inspector General Act of 1978, to remain available until expended: Provided, That any amounts so transferred that were previously designated by the Congress as an emergency requirement pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985 or a concurrent resolution on the budget are designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A)(i) of the Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That such amounts shall be available only if the President designates such amount as an emergency requirement pursuant to section251(b)(2)(A).

Overview
The Office of the Inspector General (OIG) is dedicated to its mission to strengthen the integrity, economy, and efficiency of the Department of Energy's (Department) programs and operations.

FY 2025 President's Funding Request for the DOE OIG
The FY 2025 budget request would increase the OIG's base budget to $149 million and provide $3.5 million for oversight of the Puerto Rico Energy Resilience Fund. This increase begins to correct the underfunding of the OIG.

The Department manages many high-risk areas that necessitate appropriate oversight:

- The Loan Program Office (LPO) is high risk -- The Department has recently issued approximately $44 billion in loans and loan guarantees and made an additional $15 billion in conditional commitments. As of December 2023, the Department reported that it had received almost $215 billion in additional loan requests.
- Theft of intellectual property and research impacting national security are high risk areas.
- New and expanding artificial intelligence program is high risk.
- Contract administration and subcontract management is high risk– especially important given approximately 90% of the Department's budget is distributed to contractors, 30-50% of which is further disbursed to subcontractors.
- The National Nuclear Security Administration (NNSA) stockpile stewardship is high risk.
- The $534 billion environmental liability is high risk.
- Major planned construction and infrastructure upgrade projects are high risk.

At the end of FY 2023, the Office of Investigations had the highest caseload (260) in recent history.

From FY 2020 to 2023, the OIG also experienced:

- 300% increase in the number of suspension and debarment referrals.
- 40% increase in the number of audits, inspections and investigations requiring data analytics support.
- 19% increase in hotline complaints.

Furthermore, numerous OIG recommendations regarding cybersecurity remain open. Much work needs to be done to address concerning trends in the Department's ability to address cyber weaknesses.

In recent years, due to a lack of resources, the OIG was not able to work on the following critical areas:

- 263 hotline complaints
- 28 audits of high-risk areas
- 17 inspections of high- risk areas
- 18 assessments of high-risk areas involving cybersecurity

Highlights of the FY 2025 Budget Request

The OIG will utilize these resources to prevent fraud, waste, and abuse and to enhance the efficiency and effectiveness of the Department's programs and operations. The OIG's focus includes:

- **Data Analytics.** The OIG will continue to expand its utilization of data analytics. The OIG will strengthen investments in human capital, technical infrastructure, policy and stakeholder engagement, data acquisition, and data management and integration, to support scaling data analytics capabilities, including integration of artificial intelligence (AI). In FY 2025, the OIG plans to build a high-side data analytics capability for more efficient oversight of the Department's classified programs and operations.
- **Cybersecurity Oversight Efforts.** The OIG is responsible for the audit and evaluation of the Department's unclassified systems. The Department has experienced substantial problems with cybersecurity. As the Department's expenditures increase under IIJA, IRA and the Puerto Rico Energy Resilience Fund, it will become increasingly important to secure its systems from vulnerabilities that could result in the loss of billions of dollars' worth of innovative or sensitive technologies developed using taxpayer dollars. Additional funding will allow the OIG to focus on a true and timely view of the Department's cybersecurity posture; increase oversight in the operational technology and the Energy Security space; enhance oversight of, and collaboration with, the Department's Office of Enterprise Assessments; and deconflict and conduct risk-based discretionary jobs in this area.
- **Inspections, Intelligence/Counterintelligence Oversight, and Special Projects.** This division conducts intelligence and counterintelligence oversight and will continue conducting timely and objective inspections of the programs and performance of the Department. The OIG's inspections teams will also continue to address allegations received through the OIG's Hotline, and whistleblower complaints, which have increased significantly in the last four years.
- **Investigations.** The OIG experienced an overall increase in casework in FY 2023, with a substantial increase in a variety of criminal investigations, particularly related to cybercrimes, child exploitation, and Pandemic Relief fraud. In addition, the OIG saw an increase in the already significant amount of contract and grant fraud investigations. The Office of Investigations' work and partnerships with other law enforcement entities resulted in significant cost savings to the Department and funds put to better use, as well as recoveries from contract fraud investigations and civil settlements, returning well over $224 million to the Treasury. We expect these trends to continue into FY 2025 as the OIG continues its proactive case work in fraud detection and information sharing with Data Analytics.
- **Facilities/Technology.** The OIG will continue its efforts to open offices in strategic locations and acquire a sensitive compartmented information facility. Additionally, the OIG will be addressing information technology (IT) solutions to the problem of the OIG operating on a multitude of networks, which results in delays, missed communications, and a loss of productivity in the performance of daily OIG operations. The OIG's intent to move its entire workforce on to one Departmental platform will undoubtedly improve mission capabilities.
- **NNSA Modernization Efforts.** NNSA has undertaken a modernization effort that involves major projects such as the weapons complex transformation. The OIG will conduct audits, inspections, reviews, and assessments to identify opportunities to improve the efficiency and effectiveness of these modernization efforts.
- **Environmental Management**. The Department's environmental cleanup and disposal liabilities of $534,314,000,000 remains on the Government Accountability Office's Biennial High Risk List. The OIG will continue its efforts to review the efficacy of the Department's environmental programs to prevent fraud, waste, and abuse.

- **Incurred Cost Audits of Management and Operating (M&O) Contracts.** The OIG will continue conducting, independent incurred cost audits of the Department's M&O Contracts, valued at $28.4 billion as of FY 2024. Additionally, the OIG will continue to conduct Disclosure Statement compliance audits and will begin conducting real time testing for labor and materials in support of this effort.
- **Audits.** The OIG performs audits on Departmental programs and operations, focused on providing reliable and credible financial and performance information. The scope of this work is determined through a risk-based approach focused on areas of greatest risk to the Department. Significant increases in the Department's funding correlate to a direct increase in the risk of fraud, waste, and abuse. Audits provide substantial deterrence and detection capabilities over taxpayer funds and give Departmental management and Congress a well-informed perspective.

Office of the Inspector General Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Request	FY 2025 President's Request vs FY 2024 Annualized CR ($)	FY 2025 President's Request vs FY 2024 Annualized CR (%)
Office of the Inspector General/Program Direction					
Salaries and Benefits	62,801	62,801	116,307	+53,506	85%
Travel	2,619	2,619	3,359	+740	28%
Support Services	9,439	9,439	13,104	+3,665	39%
Other Related Expenses	11,141	11,141	16,230	+5,089	46%
Total, Office of the Inspector General/Program Direction	**86,000**	**86,000**	**149,000**	**+63,000**	**73%**
Federal FTEs	**355**	**355**	**543**	**+188**	**53%**
Support Services					
Management Support	8,634	8,634	12,290	+3,656	42%
Federal Information Security Modernization Act (FISMA)	805	805	814	+9	1%
Total, Support Services	**9,439**	**9,439**	**13,104**	**+3,665**	**39%**
Other Related Expenses					
Council of the Inspectors General on Integrity and Efficiency (CIGIE)	283	283	596	+313	111%
Information Technology	2,672	2,672	6,394	+3,722	139%
Infrastructure	2,000	2,000	2,357	+357	18%
Training	1,656	1,656	2,124	+468	28%
Working Capital Fund	3,173	3,173	3,372	+199	6%
Other Related Expenses	1,357	1,357	1,388	+31	2%
Total, Other Related Expenses	**11,141**	**11,141**	**16,230**	**+5,089**	**46%**

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 President's Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $86,000,000	**$149,000,000**	**+$63,000,000**
Salaries and Benefits $62,801,000	**$116,307,000**	**+$53,506,000**
Funding supports 355 Federal staff with specialized skill sets (e.g., Certified Public Accountants, Cyber, Data Analytics, Technology Crime Investigators, and Certified Fraud Examiners) who identify significant Departmental program and operational challenges.	Increased staffing levels are needed to oversee the increasing risks at the Department, and the increased base funding. Additionally, continuing the internal independent incurred cost audit program and the identification of significant Departmental challenges with the FTE level of 543.	The funding increase reflects an increase in FTE usage by 188 FTEs. Additional FTEs will enable OIG to provide additional oversight of the Department's increasing risks, and the independent incurred cost audit program. Assumes 2 percent pay increase in civilian salaries, FERS increase, and supplemental funds for performance award pool increase in FY 2025.
Travel $2,619,000	**$3,359,000**	**+$740,000**
Funding supports travel to provide oversight at DOE's 25 geographically dispersed facilities.	Continue to perform audits, inspections, and investigations across the DOE complex.	Funding directly reflects support for increased personnel and workload, the expansion of audits, analytics, cyber, and forensic efforts in direct support of the OIG's mission.
Support Services $9,439,000	**$13,104,000**	**+$3,665,000**
Funding directly reflects interagency support services and contracts necessary to support the independent incurred cost audit program. Provides support for the Federal Information Security Modernization Act of 2014 (FISMA). Annual independent evaluations to determine whether the Department of Energy's unclassified cybersecurity program adequately protected its data and information systems.	Increased management support to the independent incurred cost audit program. Continued support for independent annual evaluations in accordance with FISMA.	Funding increase directly reflects an increase in interagency support services and contracts necessary to support the increased staffing for the independent incurred cost audit program within the OIG. The funding also includes increased FISMA support.

FY 2023 Enacted	FY 2025 President's Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Other Related Expenses $11,141,000	**$16,230,000**	**+$5,089,000**
Funding includes critical training for the OIG staff to maintain required levels of proficiency and comply with the Inspector General Act. Funding also supports forensic hardware and software requirements needed to accomplish investigative responsibilities. Funds are included for mandatory support for Council of the Inspectors General on Integrity and Efficiency (CIGIE) and to fund OIG's share of the DOE Working Capital Fund and Energy IT Services.	Increased support to training, information technology needs, secure infrastructure, and other requirements in the performance of the OIG duties. In accordance with the Inspector General Act, 5 U.S.C. CH. 4 § 406(g)(1), the Inspector General has certified that the amount requested for required training of its staff, including amounts designated for the statutorily required training would satisfy all the OIG's fiscal year 2025 training requirements.	The funding increase reflects increased forensic efforts, training support, personnel security investigations, and building a secure infrastructure. The OIG will also need to increase its investments in cloud technology, forensic hardware, and software to sustain the data analytics program, cyber, and technical crimes capabilities.

Office of Inspector General

Infrastructure Investment and Jobs Act ($K)

The Office of the Inspector General was appropriated funds through the Infrastructure Investment and Jobs Act (IIJA) at a rate of one-tenth of one percent of the total annual amounts made available to the Department.

Appropriated Funding Organization	FY 2022 IIJA Funding	FY 2023 IIJA Funding	FY 2024 IIJA Funding	FY 2025 IIJA Funding	Managing Organization
Office of the Inspector General					
Departmental Oversight	18,686	13,100	10,788	10,831	OIG

- **Departmental Oversight:** The OIG will perform risk assessments, evaluations, data analytics, audits, inspections, and investigations in order to conduct appropriate oversight of IIJA expenditures.

Inflation Reduction Act (IRA) ($K)

The Office of the Inspector General was appropriated funds through the Inflation Reduction Act of 2022 (IRA).

Appropriated Funding Organization	FY 2022 IRA Funding	Managing Organization
Office of the Inspector General		
Departmental Oversight	20,000	OIG

- **Departmental Oversight:** The OIG will perform risk assessments, evaluations, data analytics, audits, inspections, and investigations in order to conduct appropriate oversight of IRA expenditures.

Technology Transitions

Office of Technology Transitions
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
22,098	22,098	27,098	+5,000

Proposed Appropriation Language

For Department of Energy expenses necessary for carrying out the activities of technology transitions and an external foundation, $27,098,000, to remain available until expended: Provided, That of the amounts appropriated under this heading, $3,000,000 shall be for operation of the Foundation for Energy Security and Innovation authorized by section 10691 of Public Law 117–167: Provided further, That of the amounts provided under this heading, $13,183,000 shall be available until September 30, 2026, for Office of Technology Transitions program direction.

Mission

The mission of the Office of Technology Transitions (OTT) is to expand the commercial and public impact of the Department of Energy's research investments and enable technology commercialization that supports the missions of the Department. OTT serves a multi-faceted role across the Research, Development, Demonstration, and Deployment (RDD&D) continuum to support the transition of our technologies to the market. OTT does so by providing public-private partnering support, technology transfer policy leadership, market-informed analytics, commercial adoption risk assessments, and Departmental expertise in the use of prizes and partnership intermediary agreements. OTT collaborates across DOE Program Offices to manage lab-to-market and other technology commercialization activities, including the statutory Technology Commercialization Fund, the Energy I-Corps, the Energy Program for Innovation Clusters (EPIC), Energy Technology University Prize, and the Lab Partnering Service. OTT, in coordination with Program Offices, stewards DOE technology transition activities, including policy reform, data collection and analysis, industry stakeholder convenings, and strategic communication and amplification of DOE technology transfer success stories across the DOE--including programs, field offices, and the National Laboratories and Production Facilities. OTT's Request includes a separate funding line to support expenses associated with managing the independent Foundation for Energy Security and Innovation (FESI).

Overview

OTT's FY 2025 budget targets impact in the following areas:

- Place-based approaches to commercializing innovation, which enables catalytic ecosystems that align federal funding with incubators, private companies, National Laboratories, universities, state and local officials, investors, and non-profits.
- Entrepreneurial training and workforce development programs for Lab researchers and students, which enable the current and future workforce to convert innovation into real-world outcomes.
- Access to and searchability of DOE's intellectual property, laboratory experts, and facilities, which enables direct public-private engagement leading to partnerships.
- Policy coordination and convening to enable secure, beneficial National Laboratory technology transfer.
- Seeding innovative approaches, partnerships models, and program designs, including use of prizes, partnership intermediary agreements (PIAs), and other transactions authority to maximize impact from the Department's RDD&D portfolio while providing strong oversight of taxpayer dollars.
- Elevating success stories in DOE tech transfer and commercialization work, as well as tracking and assembling tech transfer metrics across the entire DOE enterprise.
- Stewarding development of commercialization pathways with private sector input and use of commercial-adoption risk frameworks to catalyze market-informed program design and industry engagement across the Department.
- Support of the non-governmental Foundation for Energy Security and Innovation (FESI), which has a statutory aim to support the mission of DOE and accelerate the commercialization of new and existing energy technologies by raising and investing funds through engagements with the private sector and philanthropic communities.

The Department requests $27,098,000 for OTT in FY 2025, of which $3 million is for a separate funding line to support the Congressionally-authorized Foundation for Energy Security and Innovation, a 501c3 non-governmental organization tasked with raising philanthropic funds to make targeted investments that enhance the DOE mission. OTT's $24,098,000 funding level will allow the office to implement statutory authorities under the Energy Act of 2020 and CHIPS and Science Act of 2022, make targeted investments to enhance Departmental commercialization outcomes, and fully fund an ongoing regional clusters program focused on incubators and accelerators.

FY 2023 Key Accomplishments

- **Market and Commercialization Analysis –** OTT coordinated the development of 8 Pathways to Commercial Liftoff reports – meeting a DOE Strategic Plan Goal – and worked to implement the Adoption Readiness Level (ARL) framework across the Department, including the National Labs, to inform technology commercialization strategy and funding program design.
- **Innovative Partnering Mechanisms –** OTT helped establish the Department's first Partnership Intermediary Agreement (PIA) pilot, a new funding mechanism that provides greater flexibility for execution of funding programs across the DOE. In FY 2023, in just half a year of operations, the PIA pilot received 16 orders with more expected in FY 2024. OTT also selectively supports Prize design and network development efforts across the Department.
- **Technology Commercialization Fund (TCF) –** OTT is statutorily responsible for the management of the TCF. Over the course of FY 2022-2023, OTT restructured the TCF Base program to more comprehensively help Labs break down barriers to commercializing technology. In FY 2023, OTT awarded 88% of TCF Base contributions ($39.9M out of $45.1M). Also over the course of FY 2022-2023, OTT built a team to manage the TCF BIL, and launched 7 new, innovative programs and projects, including the MAKE IT Prize Program, which awards nearly $30M in prizes, the most ever by a single OTT program, and the Vouchers program, one of the first DOE programs to make use of the PIA pilot.
- **Energy Program for Innovation Clusters (EPIC) –** EPIC is recognized as one of DOE's premier place-based initiatives in which incubators compete in a multi-stage prize program to develop innovative programs and local ecosystems for energy tech startups. Further demonstrating the success of this program structure and OTT's role within the Department as a positive enabler, the Office of Fossil Energy and Carbon Management leveraged the EPIC model for the Direct Air Capture EPIC Prize aimed at the commercialization of carbon dioxide (CO_2) removal technologies.
- **Energy I-Corps (EIC) –** EIC Cohort 15 graduated in November 2022, Cohort 16 graduated in May 2023, and Cohort 17 launched in September 2023. Since the inception of EIC, participating companies have raised over $177M in post-program funding, launched over 20 new businesses, and executed more than 75 licenses. OTT enhanced the program in FY 2023, making awards to increase the pipeline of EIC participants and to provide additional commercialization funds for graduates of the program.
- **Technology Commercialization Internship Program (TCIP) –** In FY 2023, OTT received a record number of applicants (305) to fill 15 available positions (<5% acceptance rate), highlighting the demand for and value of a program that places student interns with National Lab Tech Transfer Offices. Of the 15 student interns 11 attended MSIs and/or had home addresses in disadvantaged communities per J40. Jefferson Lab hosted a successful graduation week in August.
- **EnergyTech University Prize (EnergyTech UP) –** In this innovative collegiate competition, student teams devise business plans for promising energy technologies, including, for the first time in FY 2023, curated technology developed by DOE National Labs. In FY 2023, 184 teams from 124 schools competed for $370K in prizes, representing 44 states, the District of Columbia, and two U.S. territories. The national competition was in-person for the first time, taking place in Austin, TX.

Office of Technology Transitions
Funding Summary
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Program Direction	13,183	13,183	13,183	-	-
Technology Transitions Programs	8,915	8,915	10,915	+2,000	+22%
Foundation for Energy Security and Innovation	-	-	3,000	+3,000	N/A
Appropriation	**22,098**	**22,098**	**27,098**	**+5,000**	**23%**

SBIR/STTR:

- N/A to Office of Technology Transitions

Future Years Energy Program (FYEP)

($K)

	FY 2025 Request	FY 2026	FY 2027	FY 2028	FY 2029
Office of Technology Transitions	27,098	27,652	28,219	28,799	29,393

Outyear Priorities and Assumptions

In the FY 2012 Consolidated Appropriations Act (P.L. 112-74), Congress directed the Department to include a future-years energy program (FYEP) in subsequent requests that reflects the proposed appropriations for five years. This FYEP shows outyear funding for each account for FY 2026 - FY 2029. The outyear funding levels use the growth rates in outyear account totals published in the FY 2025 President's Budget for both the 050 and non-050 accounts. Actual future budget request levels will be determined as part of the annual budget process.

Office of Technology Transitions priorities in the outyears include the following:

- Targeted investments to improve the commercial impact of DOE RDD&D investments and enhance Departmental commercialization outcomes.
- Execution of commercialization programs and policy coordination to enhance technology transfer outcomes.
- Focused market and commercialization analysis and implementation of commercial risk framework to inform program design and industry engagement.
- Partnership development to improve awareness of partnership opportunities and to leverage the capabilities of DOE and its National Laboratories.

Technology Transitions
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Washington Headquarters					
Salaries and Benefits	5,424	6,595	7,217	+1,793	+33%
Travel	500	500	450	-50	-10%
Support Services	6,304	4,723	4,225	-2,079	-33%
Other Related Expenses	955	1,291	1,291	+336	+35%
Total, Program Direction	**13,183**	**13,183**	**13,183**	**+0**	**+0%**
Total FTEs	**38**	**38**	**38**	**+0**	**+0%**
Other Related Expenses					
Working Capital Fund (WCF)	570	800*	800*	+230	+40%
Other	385	491	491	+81	+21%
Total, Other Related Expenses	**955**	**1,291**	**1,291**	**+336**	**+35%**
Technology Transitions Programs					
Commercialization Activities	3,915	3,915	5,915	+2,000	+51%
Energy Program for Innovation Clusters (EPIC)	5,000	5,000	5,000	0	0%
Total, Technology Transitions Programs	**8,915**	**8,915**	**10,915**	**+2,000**	**+22%**
Total, Office of Technology Transitions	**22,098**	**22,098**	**24,098**	**+2,000**	**+%**
Foundation for Energy Security and Innovation					
Foundation for Energy Security and Innovation	0	0	3,000	+3,000	N/A
Total, Foundation for Energy Security and Innovation	**0**	**0**	**3,000**	**+3,000**	**N/A**
Total, Office of Technology Transitions + FESI	**22,098**	**22,098**	**27,098**	**+5,000**	**+23%**

Authorizations:
Public Law 109–58, "Energy Policy Act of 2005," Title V
15 U.S. Code § 3708(b and c) - Administrative arrangements – Corporation & Administrative authorization
15 U.S. Code § 3710(a) - Utilization of Federal Technology
42 U.S. Code § 2121(a) - Authority of Commission
42 U.S. Code § 16391(e) - Establishes the Energy Technology Commercialization Fund
Public Law 116-68 Consolidated Appropriations Act 2021 – reference "Energy Act 2020" Title IX
https://www.congress.gov/bill/117th-congress/house-bill/4346/textPublic Law No: 117-167 - reference CHIPS and Science Act, Subtitles I and J
*Estimate based on current WCF burn rate and anticipated new hires in approved staffing plan, exceeds projection given by WCF of $690K for FY 2024 and 2025.

Office of Technology Transitions
Program Direction

Program Direction fully funds federal salaries and benefits, official travel, training, DOE Working Capital Fund, Energy Information Technology (IT) Services, associated support services contracts, fellows and interns, and all program implementation expenses to execute the OTT mission, comply with authorizing statutes, and coordinate commercialization activities across the Department, including the National Laboratories. This funding supports a communications team, market analysis function, policy analysis and coordination, annual tech transfer data collection and reporting, targeted stakeholder outreach and partnering efforts, support for Departmental use of prize authority and partnership intermediary agreements, and oversight and management of all OTT programmatic activities, including the Technology Commercialization Fund (TCF), Energy Program for Innovation Clusters (EPIC), Lab Partnering Service (LPS), Energy I-Corps (EIC), the Energy Technology University Prize (ETUP), the OTT Technology Commercialization Internship Program (TCIP), and other commercialization programs and activities.

Communicating Successes - Stakeholder engagement is assisted by communications content that delivers a clear understanding of the capabilities, possibilities, and impact of the National Laboratories and the broader DOE RDD&D investment portfolio. OTT regularly identifies and amplifies success stories from across the DOE complex and develops communications content to showcase the DOE innovation story. Disseminating program achievements also promotes and fosters wider participation from a diverse array of the Nation's greatest minds. A subset of success stories is reported to Congress annually to meet statutory requirements. OTT's communications bring to life the impacts that the DOE and the National Laboratories have had on companies, industries, the Nation, and the world, underscoring the potential for further external partnerships. FY 2025 funding supports continued communications support at a sustained level.

Data Collection and Reporting – In accordance with DOE Policy 482.2, *Laboratory Technology Transfer Data Collection and Management*, OTT gathers, verifies, and validates unclassified technology transfer partnership and metrics data for all 17 DOE National Laboratories and four production facilities on an annual basis. This effort supports annual statutory reporting on National Laboratory utilization and provides unique visibility into the commercial impact of DOE's investments in the National Laboratories and Facilities and the breadth of beneficiaries and partners across the Nation. FY 2025 funding supports data collection, management, analysis, and reporting at a sustained level.

Market and Commercialization Analysis - In FY 2025, OTT will continue its market and commercialization analysis activities to illuminate technology market trends and drivers to accelerate the commercialization and scale-up of DOE-developed technologies. OTT has quarterbacked the Pathways to Commercial Liftoff report series which informs DOE decision-making related to the market structures and commercial-adoption risk of new technologies.

OTT also facilitates the development and use of market analysis content, methodologies, and data services across DOE offices in both the Under Secretary for Science and Innovation (S4) and Under Secretary for Infrastructure (S3), as well as convening the National Laboratory community to promote market awareness and information sharing around resources and methodologies to enhance commercialization opportunities for DOE technologies. OTT's market and commercialization analysis complements other Departmental analytical activities to maximize the impact of DOE programs and funding.

Partnership Development - OTT pursues purposeful stakeholder engagement to increase awareness of the opportunities for partnership with the DOE and the National Laboratories. By working with a diverse group of capital providers and market actors with various investment time horizons, risk appetites, organizational structures, and constituencies, OTT is well-positioned to identify effective ways to help maximize the impact of the Department's RDD&D investments. FY 2025 funding will maintain funding for both broad and targeted partnership development efforts.

Policy Coordination and Evidence-Building - OTT will continue its coordination of technology transfer and commercialization policies to address commercialization barriers. This effort includes continuously reviewing, revising, and developing policies to facilitate partnerships that boost America's competitiveness and enable the secure movement of technologies from the laboratory to the private sector. OTT's policy coordination will support alignment of the DOE innovation ecosystem, including DOE laboratories, on ways to make commercialization processes more effective.

Effective policymaking is achieved through an inclusive, collaborative, and participatory approach with DOE ecosystem stakeholders that implement and are impacted by policies. In support of this approach, OTT convenes the Technology Transfer Policy Board comprising more than 20 DOE program office representatives, including from ARPA-E and NNSA, focused on creating dialogue, sharing, and coordination of solutions for improving DOE's technology transfer and commercialization outcomes. OTT also oversees the activities of and coordinates with the Technology Transfer Working Group comprising technology transfer and commercialization professionals across National Laboratories, plants, and sites and DOE site office representatives. OTT actively engages the TTWG executive board, subcommittees, communities of practice (COPs), and other working groups, to better enable feedback to DOE to inform process and outcome improvements.

Innovative Partnering Mechanisms – OTT will also continue to elevate and enable use of innovative funding and partnership mechanisms, such as Prizes and Partnership Intermediary Agreements (PIAs), to make it easier for external entities to engage with DOE programs and DOE Laboratories. In FY 2025, OTT will continue to manage the execution of a first-of-its-kind DOE-wide PIA pilot aimed at increasing DOE outreach and engagement with small businesses, universities, and other non-traditional partners, and will launch several activities in collaboration with DOE program offices. OTT will also explore methods to leverage the network of entities engaging with the PIA pilot and DOE's prize programming to help accomplish DOE's mission.

Program Management – Funding supports HQ oversight and management of all programmatic activities, including the Technology Commercialization Fund (TCF), EnergyTech University Prize (ETUP), Energy Program for Innovation Clusters (EPIC), Lab Partnering Service (LPS), Energy I-Corps (EIC), Technology Commercialization Internship Program (TCIP), and other commercialization activities that support OTT's mission. Flat FY 2025 funding will support ongoing program management needs.

Office of Technology Transitions
Program Direction
Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $13,183,000	**$13,183,000**	**+$0**
Salaries and Benefits $5,424,000	**$7,217,000**	**+$1,793,000**
Funding supported scale-up to about 32 onboard FTEs by end of FY 2023, within FY 2023 approved staffing plan level of 38 FTEs responsible for managing OTT's commercialization portfolio and providing essential operations support. This included management of all OTT programs, office operational support, tech transfer policy and lab-convening, communications, and staff focused on creating public-private partnership opportunities, enabling access to innovative partnering mechanisms, and managing market and commercialization analyses.	Funding supports scale up to full FY 2023 approved staffing level of 38 FTEs responsible for managing OTT's ongoing commercialization portfolio and providing essential operations support. Also accommodates anticipated Within-Grade Increases (WGI) increases, and cost-of-living increases and associated FERS increase in both Calendar Year 2024 and 2025.	Supports FY 2023 Enacted approved staffing plan level of 38 FTEs, anticipated WGI increases, and 5.2% cost-of-living increase in civilian salaries in Calendar Year 2024 and 2.1% cost-of-living increase in Calendar Year 2025, and associated FERS increase.
Travel $500,000	**$450,000**	**-$50,000**
Funding supported travel requirements associated with DOE's commercialization portfolio, such as OTT engagement with the National Laboratories at the bi-annual Technology Transfer Working Group meetings, outreach at industry events and conferences, and OTT participation in National Laboratory events.	Continuation of activities in FY 2025.	Minor reduction to more precisely reflect anticipated travel needs in FY 2025, based on prior year actuals.
Support Services $6,304,000	**$4,225,000**	**-$2,079,000**
Funding supported contractor support associated with management of OTT's programs portfolio, all communications support, access to tools and information for more informed industry engagement, market and commercialization pathways analysis, enabling use of innovative partnering mechanisms, developing guidance and policies, implementing the Administration's technology transfer and commercialization priorities and best practices, and	Continuation of activities in FY 2025 with reduction to reflect efficiencies gained with new OTT support service contract and right-sizing of contractor staff to align with updated assessment of contractor support needs.	Reflects improved contract efficiency, federalization of critical, ongoing roles supporting management of statutory programs and recurring activities, and right-sizing of contractor staff.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
conducting other required data collection, verification, validation and reporting.		
Other Related Expenses $955,000	**$1,291,000**	**+$336,000**
Funding supported the business costs associated with the DOE's Working Capital Fund (office space, phones, utilities, etc.); Energy IT Services (IT equipment and support); specialized software licensing; security investigations; and staff development and training to maintain and enhance work related skills and capabilities.	Continuation of activities in FY 2025.	Increase as the result of using prior year actuals for Working Capital Fund (WCF) costs to better estimate WCF costs in FY 2025 necessary for approved staffing plan level of 38 FTEs.

Office of Technology Transitions
Technology Transitions Programs

Description:

In addition to the work of federal and HQ contractor employees funded through Program Direction, OTT requests $10.915 million in Technology Transitions Programs funding to support commercialization activities and continue the successful regional incubator and accelerator program.

Commercialization Activities:

Energy I-Corps - Energy I-Corps (EIC) is an eight-week training program pairing National Laboratory scientists and engineers with industry mentors to define technology value propositions, conduct stakeholder discovery interviews, and develop viable market pathways to accelerate the commercialization of DOE National Laboratory-based technology. The program directly addresses the Congressional authorization language from 42 U.S. Code § 16391 (i) to "encourage students, energy researchers, and national laboratory employees to develop entrepreneurial skillsets and engage in entrepreneurial opportunities." Central to the program is a requirement for each team to conduct at least 75 customer discovery interviews to deepen understanding of the market, of partnering with the private sector, and of other use cases for their DOE-sponsored technology. This program fosters an entrepreneurial workforce and creates a cohort of market-oriented DOE National Laboratory researchers. Since the program's inception in 2015, 215 teams from 12 National Laboratories have conducted over 15,500 interviews and worked with many industry sectors to discover the commercial impact of technologies they have developed at the National Laboratories. Because of the teams' participation in the program, these technologies have reached a point of commercial viability that has attracted over $177 million in follow-on funding from both federal and private sources and more than 20 new companies have been launched. Additionally, over 75 licenses of DOE-funded technologies have been executed as a result of the Energy I-Corps program.

OTT funding primarily supports curriculum development and management of the Energy I-Corps program, while participating DOE programs opt in by funding the cost of the participating researchers' time to complete the program. Since program inception, 20 non-OTT DOE Offices (including EERE & Office of Science sub offices) and partner agencies have contributed approximately $16.4M to EIC, highlighting the program's Department-wide value. OTT will occasionally directly fund promising project teams that may not align well with any one office's priorities, such as crosscutting topic teams. Finally, OTT supports efforts to help labs develop a pipeline for teams to participate in EIC as well as follow-on opportunities to support the most promising EIC program graduates continue their next step in technology commercialization. Examples of selected projects pursuing next commercialization steps include running a pilot technology deployment with a potential customer and improving a technology prototype and demonstrating it to an industry partner.

Lab Partnering Service (LPS) - OTT's LPS meets the Energy Act 2020 mandate to: "Establish a Lab Partnering Service Pilot Program to provide services that encourage and support partnerships between the National Laboratories and public and private sector entities..." The Lab Partnering Service (LPS) provides information to small businesses; corporate entities; State, local and Tribal officials; investors and other external stakeholders interested in advancing energy innovation and connecting with leading DOE National Laboratory assets. Specifically, LPS facilitates access to National Laboratory expertise, technologies, facilities, and success stories. LPS streamlines access to unique capabilities that were previously difficult for investors, innovators, and others to find because the capabilities are distributed across the National Laboratory enterprise and presented primarily for the scientific community. In FY 2025, OTT will continue its focus on tracking impact and driving traffic to LPS, as well as continuing to maintain LPS content, especially in fields of high commercial relevance. OTT will maintain the cybersecurity posture of LPS by performing continuous monitoring and authorizations to operate for LPS, as well as implement credentialing and access management in accordance with OCIO requirements.

Technology Commercialization Fund (TCF) - In FY 2025, OTT will continue to implement the TCF, first authorized in Section 1001 of the Energy Policy Act of 2005 and amended by the Energy Act of 2020 Section 9001(a) to enable more flexible commercialization and technology transfer programming. OTT has taken a more strategic view on implementation of the TCF by shaping an innovative program design structure that creates efficiencies and increases impact by forming crosscutting collaborations among RD&D organizations and DOE National Laboratories. DOE's new, collaboratively developed approach offers program offices options for deciding how to deploy their TCF funding, including investing in the enabling infrastructure (e.g. processes, tools, practices) that supports commercialization of National Lab technologies.

Moving forward, OTT and all DOE program offices expect to learn from each subsequent cycle of TCF implementation and further refine and target its programming for maximum commercialization impact. The goal for all TCF lab calls and resulting projects or programs, as set forth in TCF's authorizing statute, will continue to be "promoting promising energy technologies for commercial purposes."

The FY25 President's Budget Request includes General Provision language to allow for the TCF to be controlled at the appropriation account level, rather than by lower-level control points. Controlling TCF funding at the appropriation account level will allow DOE to more efficiently and flexibly deploy TCF funding in a less atomized manner, thus supporting more meritorious applications from the National Labs while still remaining in full alignment with Congressional intent. The Office of Nuclear Energy already requests and deploys its TCF funding in this manner, and the Office of Electricity proposed doing the same in the FY 2024 Budget Request. The General Provision language builds on NE's success and would extend it to the rest of the Department with both programmatic and operational efficiency benefits.

EnergyTech University Prize – The EnergyTech University Prize (EnergyTech UP) is a university student competition to successfully identify a promising energy technology, assess its market potential, and create a business plan for commercialization. EnergyTech UP aims to cultivate the next generation of energy innovators while accelerating the transfer of energy technologies to the market. The prize seeks to attract the talented students of today and help them develop into the engineers, policymakers, entrepreneurs, market analysts, and project developers of tomorrow. In addition, in FY 2024 EnergyTech UP added a faculty-track for faculty to develop innovative educational activities to engage more students in energy technology commercialization and entrepreneurship at their institution. Since the program's inception in FY 2022, 1,157 students have participated in the ETUP competition. Multidisciplinary student teams develop and present a business plan that leverages National Laboratory-developed or other high-potential energy technologies. The prize is a high-leverage program sponsored by OTT, and multiple DOE RDD&D offices provide additional bonus funding. The FY 2025 budget will support continuation of the student and faculty-track prize winners.

Technology Commercialization Internship Program (TCIP) – OTT will continue its TCI Program for undergraduate students. This paid internship program benefits a diverse cohort of participants by enhancing their education and training in technology commercialization-related fields and increasing their future marketability in these disciplines. In addition, participants will gain deep insight into the federal government's role in the creation and implementation of policies that will affect energy technology development and commercialization. Participants will also contribute to OTT mission-related research activities under the guidance of National Laboratories technology transfer and commercialization specialists and OTT staff. The Budget will sustain this program in FY 2025 with a cohort size of 10-15 students.

Other Commercialization Activities – OTT continuously assesses the spectrum of commercialization activities across the Department and seeks to seed gap-filling programs and activities with small, targeted investments.

Regional Incubator and Accelerator Program

Energy Program for Innovation Clusters (EPIC) – EPIC is a competitive funding program for incubators supporting energy innovation clusters. OTT requests that $5M continue to be directed to this important area. The funds have been used to implement a multi-pronged strategy involving grants, prizes, and network development supporting a portfolio of impactful and geographically diverse incubators focusing on developing strong innovation clusters, connections, programming, and support for energy-related technology and entrepreneurship[1]

[1] CHIPS and Science Act of 2022, Sec. 10713. National Clean Energy Incubator Program.

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Technology Transitions Programs $8,915,000	**$10,915,000**	**+$2,000,000**
Commercialization Activities $3,915,000	**$5,915,000**	**+$2,000,000**
Funding supported execution of the Technology Commercialization Fund, Energy I-Corps Program, the Lab Partnering Service, EnergyTech University Prize, Technology Commercialization Internship Program, and targeted seed investments for high-impact, gap-filling commercialization programs and partnering models.	Supports modest scale-up to meet demand, continued improvement of existing programs, and costs associated with return to in-person activities.	This increase largely reflects the convergence of OTT's budget request level with anticipated funding requirements for the current program portfolio. The increase will also support small, targeted scaling of programmatic reach (e.g. more student winners through ETUP) that are achievable with no associated growth in program management costs.
Energy Program for Innovation Clusters $5,000,000	**$5,000,000**	**$0**
Funding supported the Energy Program for Innovation Clusters initiative, including prizes, grants, and other competitive offerings.	Continuation of activities in FY 2025.	No change.

Foundation for Energy Security and Innovation

Description:

Under the CHIPS and Science Act (P.L. 117-167), the Foundation for Energy Security and Innovation (FESI)—a new, independent nonprofit organization—will aim to enhance energy security and clean energy innovation by channeling private resources and philanthropic contributions toward supporting DOE's mission and accelerating commercialization through collaborations with energy researchers, institutions of higher education, non-profits, and philanthropic organizations. The Budget request provides $3 million to the FESI to support core staff and operating expenses, as well as provide seed capital for programming. The bulk of its long-term funding will be raised from philanthropic and private sources.

Commercialization of clean technologies is nonlinear and often fails because of inadequate support infrastructure including capital and tooling, as well as market, manufacturing, and industry expertise. Commercialization support infrastructure on national, regional, and local scales is essential to ensuring critical ecosystem players are onboard. Given the importance and complexity of technology commercialization, the Department supports funding for an independent, nonprofit FESI as authorized by the CHIPS and Science Act (P.L. 117-167).

Agency-related foundations are independent of the federal government and are different from other nonprofit foundations due to their Congressionally-authorized relationship with a federal agency. As such, the FESI can, "solicit and accept gifts, grants, and other donations, establish accounts, invest and expend funds" to support activities and programs of the FESI. Agency-related foundations have demonstrated that they can leverage their non-profit status to raise substantial private sector and philanthropic dollars in the pursuit of government agency objectives.

Activities:

FESI will support the mission of DOE, and more specifically, will increase private and philanthropic sector investments to accelerate the commercialization of energy technologies. The CHIPS and Science Act (P.L. 117-167) provides FESI with broad authority to carry out its mission. To accomplish this mission, Congress authorized the FESI to engage with the private sector to raise and invest funds that support efforts to "create, characterize, develop, test, validate, and deploy or commercialize innovative technologies that address crosscutting national energy challenges".[2] To help enable and jump-start these activities, the CHIPS legislation includes authorizations for administrative and operational costs as well as a seed funds to enable the FESI to partake in programmatic activities. These investments will enable the FESI to attract the talent and donors it needs to fill sizable gaps that remain within the energy innovation ecosystem.

In 2023, DOE established an internal FESI Working Group comprising representatives across more than 18 DOE program offices. The group released a Request for Information (RFI) - Foundation for Energy Security and Innovation,[3] and held a Workshop co-located at the ARPA-E Summit to collect external input on potential engagement with the FESI.

[2] https://www.congress.gov/bill/117th-congress/house-bill/4346

[3] https://www.energy.gov/sites/default/files/2023-02/FESI%20RFI%20-%20FINAL_Signed_0.pdf

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Foundation for Energy Security and Innovation $0	**$3,000,000**	**+$3,000,000**
No funds were appropriated for FESI in FY 2023.	An estimated $1.5 million will support FESI operation and administrative expenses and an additional $1.5 million of seed capital will be provided to the FESI.	Includes funding for seed capital as well as administrative and operational costs.

DEPARTMENT OF ENERGY

Funding by Site

TAS_0346 - Office of Technology Transitions - FY 2025

(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Argonne National Laboratory			
Office of Technology Transitions Program Direction	188	0	0
Total Argonne National Laboratory	**188**	**0**	**0**
Idaho Operations Office			
Technology Transitions Program Office	114	0	0
Office of Technology Transitions Program Direction	1,329	0	0
Total Idaho Operations Office	**1,443**	**0**	**0**
National Renewable Energy Laboratory			
Technology Transitions Program Office	5,105	1,880	5,880
Total National Renewable Energy Laboratory	**5,105**	**1,880**	**5,880**
Oak Ridge Institute for Science & Education			
Technology Transitions Program Office	270	400	400
Office of Technology Transitions Program Direction	500	500	500
Total Oak Ridge Institute for Science & Education	**770**	**900**	**900**
Pacific Northwest National Laboratory			
Technology Transitions Program Office	40	0	0
Total Pacific Northwest National Laboratory	**40**	**0**	**0**
Washington Headquarters			
Technology Transitions Program Office	510	600	0
Office of Technology Transitions Program Direction	11,166	12,683	12,683
Foundation for Energy Security and Innovation	0	0	3,000
Total Washington Headquarters	**11,676**	**13,283**	**15,683**
Undesignated LPI			
Technology Transitions Program Office	2,876	6,035	4,635
Total Undesignated LPI	**2,876**	**6,035**	**4,635**
Total Funding by Site for TAS_0346 - Office of Technology Transitions	**22,098**	**22,098**	**27,098**

Working Capital Fund

Working Capital Fund
Program Mission
($K)

FY 2023 Obligations	FY 2024 Estimate	FY 2025 Estimate
249,920	295,808	295,808

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

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

Funded businesses maintain performance-based plans that inform the budget and alert the Fund Manager of the need to change pricing policies. The Fund Manager reviews financial and business performance with Business Line Managers each quarter. These reviews culminate in quarterly and annual reports that include analyses of financial measures, including each business line's performance against its standards and its accomplishments.

WCF charges for full cost recovery for each business line in its budget and program billings. Full costs in Fund prices improve cost accounting for WCF activities, support improved decision-making for business line operations and program spending, and allow the Fund Manager to benchmark against other federal agency equivalent costs. Good budgeting practice incorporates full costing, as laid out in OMB Circular A-94, to promote efficient resource allocation through well-informed decision-making that incorporates societal costs and benefits by the Federal Government.

This information will allow the Department to improve the efficiency of WCF service offerings. The Fund Manager has created controls to satisfy oversight requirements, including regular budget reports on spending. This is consistent with other agency WCFs and satisfies the need to recover costs in reimbursable activities. WCF operations are valued by customers, serve the Department, and remain within the fiscal and policy guidelines established by the Department and by Congressional Committees.

The Department continues to examine ways to use the Fund to gain greater management efficiencies. The Fund has reported efficiency and effectiveness performance metrics since its inception and documents continuous improvement efforts to provide program customers with the best goods and services possible in accordance with other statutory requirements.

Working Capital Fund: Business Line Budgets

Table 1 summarizes projected customer billings by business line. These billings are the result of established pricing policies, which provide the basis for programs to manage their utilization of the WCF and control their budgets. FY 2025 guidance states that Program Office customers may utilize Program funding (as available and appropriate) for expenses that support program operations or agency mission/support and are independent of the number of staff: A-123/Internal Controls; Copy Services; Corporate Business Systems (all segments except Voluntary Early Retirement Authority (VERA) / Voluntary Separation Incentive Payment (VSIP), Flexible Spending Accounts and Subsidy For Energy Employee Transit (SEET)); Financial Statement Audits; Interagency Transfers; Mail & Transportation; Pension Studies; Printing & Graphics; Project Management Career Development Program (PMCDP); and Procurement Management. WCF expenses that support staff operations or provide staff benefits and fluctuate based on the number of staff, are funded from Program Direction: Building Occupancy; Voluntary Early Retirement Authority (VERA) / Voluntary Separation Incentive Payment (VSIP), Flexible

Spending Accounts and Subsidy for Energy Employee Transit (SEET); Corporate Training Services; Health Services; Overseas Presence; Supply; and Telecommunications.

Table 1
FY 2025 Working Capital Fund Budget Business Lines[a]
($K)

	FY 2023 Obligations	FY 2024 Estimate	FY 2025 Estimate
A-123/Internal Controls	1,504	2,277	2,277
Building Occupancy	100,602	118,672	118,672
Copy Services	2,424	3,575	3,575
Corporate Business Systems	42,823	55,396	55,396
Corporate Training Services	2,714	4,013	4,013
Financial Statement Audits	12,100	12,152	12,152
Health Services	1,562	2,014	2,014
Indirect WCF	1,098	0	0
Interagency Transfers	7,161	8,767	8,767
Mail and Transportation Services	3,765	4,637	4,637
Overseas Presence	9,436	17,924	17,924
Pension Studies	252	785	785
Printing and Graphics	5,439	4,608	4,608
Procurement Management	11,854	14,311	14,311
Project Management Career Development Program (PMCDP)	1,695	1,699	1,699
Supplies	1,168	2,494	2,494
Telecommunications	44,326	42,482	42,482
Total, Working Capital Fund	**249,920**	**295,808**	**295,808**

[a] Numbers may not add due to rounding.

Changes from FY 2024

There are no changes in WCF Budget estimates for FY 2025 from FY 2024 levels.

Table 2 summarizes projected customer billings by business line and by customer Program Office. Billing for customer organizations may change as a result of the final FY 2025 appropriations enacted for each Program Office, usage-based activities driven by consumption and/or any changes approved by the WCF Board.

Table 2
FY 2025 Working Capital Fund Budget Business Lines by Customer Program Office ($K)

ORG CODE (2)	A-123/INT CNTRL	BLDG OCCUP	COPY SVCS	CORPORATE BUSINESS SYSTEMS	CORP TRNG SVCS	FIN STMT AUDITS	HEALTH SVCS	INTER-AGENCY TRANS	MAIL & TRANSP	OVERSEAS PRESENCE	PENSION STUDIES	PMCDP	PRINT & GRAPH	PROC MGMT	SUPPLY	TELECOM	TOTAL ALL ACTIVITIES	ORG
TYPE $ *	P$	PD$	P$	P$/PD$ (1)	PD$	P$	PD$	P$	P$	PD$	P$	P$	P$	P$	PD$	PD$	P$+PD$	
AI	$ 0	$ 165	$ 1	$ 4	$ 0	$ 1	$ 0	$ 0	$ 15	$ -	$ -	$ -	$ 3	$ -	$ -	$ 23	$ 212	AI
AR	$ 26	$ 3,322	$ 28	$ 595	$ 12	$ 140	$ 18	$ 70	$ 32	$ -	$ -	$ -	$ 20	$ 8	$ 0	$ 791	$ 5,061	AR
BPA	$ -	$ 125	$ -	$ 80	$ 527	$ -	$ 82	$ 107	$ 19	$ -	$ -	$ -	$ 13	$ -	$ 3	$ 49	$ 1,004	BPA
CF	$ 3	$ 5,090	$ 161	$ 627	$ 56	$ 15	$ 77	$ 15	$ 132	$ -	$ -	$ -	$ 91	$ -	$ 90	$ 1,576	$ 7,933	CF
CI	$ 0	$ 664	$ 33	$ 37	$ 3	$ 2	$ 8	$ 1	$ 39	$ -	$ -	$ -	$ 31	$ -	$ 21	$ 128	$ 969	CI
CR (CESER)	$ 21	$ 1,050	$ 23	$ 407	$ 11	$ 110	$ 11	$ 53	$ 29	$ 179	$ -	$ -	$ 25	$ -	$ 27	$ 237	$ 2,184	CR
EA	$ 4	$ 1,787	$ 37	$ 167	$ 40	$ 22	$ 30	$ 21	$ 56	$ -	$ -	$ -	$ 47	$ -	$ 42	$ 568	$ 2,820	EA
ED	$ 1	$ 648	$ 15	$ 81	$ 10	$ 6	$ 13	$ 4	$ 46	$ -	$ -	$ -	$ 92	$ -	$ 18	$ 260	$ 1,194	ED
EE	$ 167	$ 11,477	$ 334	$ 4,234	$ 183	$ 892	$ 154	$ 440	$ 217	$ 717	$ 27	$ 15	$ 770	$ 708	$ 207	$ 3,658	$ 24,201	EE
EHSS [AU]	$ 10	$ 8,097	$ 341	$ 511	$ 101	$ 56	$ 98	$ 61	$ 303	$ -	$ -	$ -	$ 331	$ 5	$ 150	$ 2,436	$ 12,500	EHSS
EI (EIA)	$ 7	$ 7,703	$ 131	$ 859	$ 107	$ 35	$ 137	$ 29	$ 160	$ -	$ -	$ -	$ 85	$ 88	$ 82	$ 1,520	$ 10,943	EIA
EM	$ 399	$ 7,825	$ 137	$ 8,161	$ 457	$ 2,134	$ 110	$ 1,504	$ 193	$ 358	$ 273	$ 708	$ 326	$ 7,812	$ 223	$ 1,964	$ 32,586	EM
FE (FECM)	$ 41	$ 3,296	$ 129	$ 2,688	$ 252	$ 218	$ 69	$ 151	$ 142	$ 358	$ -	$ 80	$ 175	$ 585	$ 69	$ 1,110	$ 9,365	FE
FEMP	$ 8	$ -	$ -	$ 111	$ -	$ 45	$ -	$ 21	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 185	FEMP
GC	$ 2	$ 4,451	$ 152	$ 303	$ 49	$ 10	$ 70	$ 9	$ 94	$ -	$ -	$ -	$ 172	$ -	$ 95	$ 804	$ 6,211	GC
GDO	$ 4	$ -	$ -	$ 59	$ -	$ 24	$ -	$ 11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 99	GDO
HC	$ 1	$ 2,009	$ 138	$ 266	$ 63	$ 8	$ 38	$ 10	$ 89	$ -	$ -	$ -	$ 114	$ -	$ 38	$ 1,016	$ 3,790	HC
HG	$ 0	$ 1,211	$ 9	$ 30	$ 12	$ 1	$ 6	$ 1	$ 34	$ -	$ -	$ -	$ 55	$ -	$ 5	$ 102	$ 1,464	HG
IA	$ 2	$ 1,645	$ 59	$ 137	$ 18	$ 10	$ 30	$ 7	$ 69	$ 717	$ -	$ -	$ 35	$ -	$ 7	$ 432	$ 3,168	IA
IE	$ 4	$ 102	$ 11	$ 69	$ 4	$ 20	$ 2	$ 10	$ 19	$ -	$ -	$ -	$ 7	$ -	$ 4	$ 66	$ 318	IE
IG	$ 4	$ 1,876	$ 50	$ 411	$ 139	$ 21	$ 41	$ 18	$ 76	$ -	$ -	$ -	$ 51	$ -	$ 19	$ 667	$ 3,372	IG
IM (CIO)	$ 9	$ 5,918	$ 164	$ 314	$ 48	$ 51	$ 47	$ 42	$ 393	$ -	$ -	$ -	$ 94	$ 461	$ 157	$ 3,568	$ 11,266	IM
LM	$ 9	$ 677	$ 14	$ 262	$ 25	$ 48	$ 9	$ 36	$ 44	$ -	$ -	$ 11	$ 47	$ 190	$ 15	$ 545	$ 1,931	LM
LP	$ 4	$ 2,028	$ 63	$ 423	$ 26	$ 22	$ 38	$ 14	$ 60	$ -	$ -	$ -	$ 46	$ -	$ 27	$ 820	$ 3,572	LP
MA	$ 3	$ 5,916	$ 363	$ 1,192	$ 66	$ 18	$ 84	$ 29	$ 411	$ -	$ -	$ -	$ 30	$ 22	$ 153	$ 2,583	$ 10,871	MA
MESC	$ 1	$ -	$ -	$ 18	$ -	$ 7	$ -	$ 3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 30	MESC
NA (NNSA)	$ 924	$ 22,521	$ 593	$ 17,538	$ 689	$ 4,939	$ 368	$ 3,817	$ 876	$ 12,368	$ 380	$ 443	$ 341	$ 2,429	$ 517	$ 12,128	$ 80,871	NA
NE	$ 80	$ 2,260	$ 54	$ 1,569	$ 103	$ 428	$ 49	$ 351	$ 119	$ 2,689	$ 7	$ 76	$ 957	$ 869	$ 56	$ 749	$ 10,416	NE
NR	$ 94	$ -	$ 0	$ 1,625	$ 46	$ 503	$ 51	$ 500	$ 0	$ -	$ -	$ -	$ -	$ 331	$ -	$ 102	$ 3,253	NR
OCED	$ 6	$ -	$ -	$ 76	$ -	$ 31	$ -	$ 15	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18	$ 145	OCED
OE	$ 13	$ 1,259	$ 44	$ 288	$ 26	$ 70	$ 24	$ 35	$ 123	$ 179	$ -	$ 4	$ 4	$ 1	$ 66	$ 362	$ 2,499	OE
OP	$ 1	$ 307	$ 15	$ 33	$ 2	$ 5	$ 5	$ 3	$ 64	$ -	$ -	$ -	$ 67	$ -	$ 21	$ 142	$ 663	OP
PA	$ 0	$ 376	$ 37	$ 33	$ 4	$ 1	$ 10	$ 1	$ 21	$ -	$ -	$ -	$ 20	$ -	$ 11	$ 121	$ 635	PA
PM	$ 1	$ 550	$ 42	$ 73	$ 8	$ 4	$ 11	$ 3	$ 16	$ -	$ -	$ -	$ 41	$ -	$ 4	$ 185	$ 936	PM
S	$ 0	$ 1,660	$ 92	$ 35	$ 4	$ 2	$ 10	$ 1	$ 265	$ -	$ -	$ -	$ 13	$ -	$ 28	$ 145	$ 2,254	S
SB	$ 0	$ 189	$ 40	$ 81	$ 5	$ 1	$ 4	$ 1	$ 56	$ -	$ -	$ -	$ 83	$ -	$ 10	$ 112	$ 581	SB
SC	$ 369	$ 6,214	$ 140	$ 8,298	$ 311	$ 1,973	$ 170	$ 1,156	$ 187	$ 358	$ 98	$ 357	$ 26	$ 749	$ 177	$ 1,630	$ 22,212	SC
SCEP	$ 36	$ -	$ -	$ 474	$ -	$ 193	$ -	$ 91	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 794	SCEP
SSA	$ 15	$ 5,769	$ 108	$ 596	$ 95	$ 81	$ 83	$ 49	$ 203	$ -	$ -	$ -	$ 291	$ -	$ 135	$ 1,209	$ 8,635	SSA
TT	$ 1	$ 366	$ 18	$ 41	$ 5	$ 5	$ 7	$ 3	$ 18	$ -	$ -	$ -	$ 77	$ -	$ 15	$ 135	$ 690	TT
WAPA	$ 5	$ 119	$ 0	$ 2,594	$ 510	$ -	$ 50	$ 71	$ 19	$ -	$ -	$ 4	$ 27	$ 52	$ 3	$ 521	$ 3,976	WAPA
TOTALS	$ 2,277	$ 118,672	$ 3,575	$ 55,396	$ 4,013	$ 12,152	$ 2,014	$ 8,767	$ 4,637	$ 17,924	$ 785	$ 1,699	$ 4,608	$ 14,311	$ 2,494	$ 42,482	$ 295,808	

*** Type $ -- P$ = Program funding; PD$ = Program Direction funding.**
*** Maximum amount is reflected for P$; Program Office customers can still opt to use PD$ funding at their discretion, within the authorization of their appropriation.**
*** A number of DOE Program Offices have no P$ funding, therefore their WCF share is financed with PD$.**
1) Corporate Business Systems -- FSA & SEET segments = PD$; all other segments = P$.
2) The new S3 organizations (FEMP, GDO, MESC, OCED and SCEP) and the move of OPR from FECM to CESER were partially captured in the applicable execution year. Additional adjustments will be captured in subsequent formulation cycles.

Table 3 summarizes the projected Federal Full Time Equivalents (FTEs) funded via the WCF by business line and the parent Program Office to which the FTEs are assigned in the DOE personnel system. Associated FTE costs are included as part of the indirect component of the amounts reflected in Tables 1 and 2 in line with the overall WCF goal of recovering full costs. Billing for customer organizations may change as a result of FTE vacancy status and/or any changes approved by the WCF Board.

Table 3
FY 2025 Projected FTEs Funded via the Working Capital Fund by Business Line and Parent Program Office

Business Line	Managing Org	FY25 FTEs
A-123/Internal Controls	CF	0.80
Building Occupancy	MA	30.70
Copy Services	MA	1.70
Corporate Business System (CBS)	CF/HC/MA/PA	32.15
Corporate Training Services (CTS)	HC	5.40
CyberOne	IM	0.00
Financial Statement Audits	IG	0.40
Health Services	HC	2.30
Interagency Transfers	IM	0.45
Mail & Transportation	MA	1.70
Overseas Presence	NNSA	27.00
Pension Studies	CF	0.50
Printing & Graphics	MA	5.40
Procurement Management	MA	1.30
Proj Mgmt Career Dev Prog (PMCDP)	MA	1.20
Supplies	MA	0.10
Telecommunications	IM	3.30
Fund Manager/Indirect	WCF (CF)	2.25
Total FTE Estimate		**116.65**

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

A-123/Internal Controls

Description

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

A-123/Internal Controls will ensure the Department meets the intent of the Congress and the Executive Branch for internal control of financial reporting and has appropriate support for the Secretary's annual assurance statement, included as part of the Agency Financial Report. Because the requirements of OMB Circular A-123 apply to the Agency as a whole, each benefiting program must share the cost. In addition, DOE pricing policy incorporates the full costing requirements laid out in OMB Circular A-94 to promote efficient resource allocation through well-informed decision-making by the Federal Government for evaluating societal costs and benefits.

In order to support these goals, the business line will develop, provide, and maintain the capabilities needed to implement a comprehensive Department-wide evaluation of internal controls over financial reporting. The technical support resources to maintain and support the evaluation data collection tools are currently not fully available in-house. Furthermore, the Department's internal controls over financial reporting are examined during our yearly external Financial Statement audit, requiring as-needed technical support to document some Financial Statement related internal control processes with DOE-

wide impact.

Pricing Policy

The A-123/Internal Controls charges customers a pro rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares (excluding supplemental appropriations), using the Congressional request of the most recent year. Departmental programs that use proprietary financial systems are excluded from billing for this business line.

Building Occupancy

Description

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

Pricing Policy

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

- Each year, organizations sign occupancy agreements that define the space to be assigned to them.
- On a building-by-building basis, direct rental value of the space assigned to each organization is calculated, based on rent charged to the Department by the General Services Administration (GSA). Customer rent costs are based on areas assigned to each organization at the start of each fiscal year.
- Common use space costs in each building are divided among the tenants of that building based on their proportional shares of direct rental costs.
- Certain additional costs, such as common area improvements and health and life safety programs, are allocated as a pro rata addition to the building-by-building charges described above.
- Electronic Services charges are allocated according to direct building occupancy costs.
- In addition, tenants may arrange, at their own cost, alterations of office space.
- Charges related to property management are allocated based on program usage during the prior fiscal year.
- FY 2025 estimates reflect historical costs for utilities as well as information provided by GSA as to the anticipated rent for future years (as of FY 2023), and projections of space usage in future years (as of FY 2023) based on input from customer organizations, historical information, space availability, and Departmental objectives.

Copy Services

Description

The Copy Services Business Line provides the following services:

- Staffed photocopy centers at Forrestal and Germantown capable of reproducing 25,000 impressions per document;
- Centralized (walk-up) photocopy rooms;
- Dedicated (customer-assigned) photocopiers, including needs assessment analysis to determine workload and most appropriate equipment; and
- Digital document management, including optical scanning of paper copy documents and storage on electronic files.

Pricing Policy

Each office pays the full cost to maintain and supply its assigned dedicated photocopiers. For walk-up and staffed photocopiers, a cost per photocopy is calculated and programs are charged based on the number of photocopies made by

program staff. The digitization pricing policy is to charge on a per-page basis to cover the costs of this business segment. FY 2025 estimates reflect amounts based on usage from the year prior to formulation (FY 2022).

Corporate Business Systems

Description

Corporate Business Systems (CBS) is the Department's solution for managing enterprise-wide systems and data. CBS is consolidating and streamlining Department-wide systems and business processes to integrate financial, budgetary, procurement, personnel, program, and performance information. CBS is supported at the core by a central data warehouse/portal that links common data elements from each of the Department's business systems and supports both external and internal reporting. The line of business provides efficiencies in its administration that result in a single, senior business manager for DOE's corporate business systems. The business consists of STARS, STRIPES, Budget Formulation and Distribution System (BFADS), iPortal/IDW, Payment Processing, CHRIS and related sub-segments, Digital Media and Payroll.

Standard Accounting and Reporting System (STARS) Segment provides the Department with a modern, comprehensive, and responsive financial management system that records and processes accounting transactions for general accounting, payments, and receivables; purchasing, including obligations and reservations, accruals, plant and capital equipment; nuclear materials accounting, and many other functions. STARS is also used for financial reporting including Governmentwide Treasury Account Symbol (GTAS), Standard Form (SF) 220.9, SF 224, and the Department's financial statements. Costs include all operations and maintenance support, including the Chief Information Officer's Application Hosting and annual Oracle Software licensing.

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

Budget Formulation and Distribution System (BFADS) Segment is a corporate solution that automates, standardizes, and streamlines the funds distribution and formulation processes and procedures across the Department. Costs include all operations and maintenance support, including the Chief Information Officer's Application Hosting and annual Oracle Software licensing.

iPortal/Information Data Warehouse (IDW) Segment is the CBS face to its customers. It provides the gateway into all CBS applications and services. The IDW provides capability to integrate and store data from various corporate and/or program systems for reporting using Business Intelligence reporting tools. Costs include the operations and maintenance of the technical infrastructure, consisting mostly of Application Hosting and annual software licensing fees.

Payment Processing Segment: The Oak Ridge Financial Service Center processes all the Department's payments. It completes over 180,000 payments annually. Costs include operations and maintenance of Financial Accounting Support Tool (FAST), Vendor Inquiry Payment Electronic Reporting System (VIPERS), and the Department of Energy Payment and Collection (DOE-PAC) systems.

Corporate Human Resource Information System (CHRIS) Segment is a nation-wide operational portfolio of systems within the Department that serves as the official system of record for human resource management information for all employees. CHRIS supports the Administration's strategic human capital management initiative and expands e-government within DOE, combining electronic workflow and other best practices in work processes with a web-based IT architecture and suite of software applications based on off-the-shelf products (PeopleSoft and USA Staffing), and the legacy Employee Self-Service system. This budget also funds recruitment using social media and specific recruiting efforts to reach veterans and disabled veterans. In addition, costs for inter-agency contributions for electronic benefits are financed in WCF. Costs include all operations and maintenance support, including the Chief Information Officer's Application Hosting and annual Oracle Software licensing.

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

Payroll Services Segment encompasses three areas: Payroll, Flexible Spending Account (FSA), and Voluntary Early Retirement Authority (VERA) / Voluntary Separation Incentive Payment (VSIP) administrative fees, and Subsidy for Energy Transit (SEET). Civilian payrolls are prepared based on authenticated documentation. Through the Defense Finance and Accounting Service (DFAS) this segment: computes, deposits, and reports Federal, State, and local income taxes; maintains employee records related to Civil Service and Federal Employees Retirement Systems (CSRS and FERS); reports retirement information to the Office of Personnel Management (OPM); and performs reconciliation of account balances with DFAS, OPM and Treasury. Payroll services accounts for and reports on employees' health benefits coverage, thrift savings plans, transit subsidies (SEET), and unemployment compensation, among other non-salary employee payments. It also processes donated leave into the Defense Civilian Pay System. Additionally, it maintains and operates the Department's system of allocating payroll costs to the proper appropriation.

Pricing Policy

CBS activities charge programs a pro-rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares (excluding supplemental appropriations), using the Congressional request of the most recent year. Exceptions to this pricing policy include:

- STRIPES charges based on the number of 1102 series system users allocated to support a program office during the fiscal year prior to formulation (for FY 2025 this is FY 2022).
- ORFSC charges programs based on a pro-rata share of processed transactions during the fiscal year prior to formulation (for FY 2025 this is FY 2022).
- CHRIS and Payroll charges programs based on an allocation of Federal employment on-board by organization at the beginning of the formulation year (for FY 2025 this is FY 2023).
- SEET, VSIP/VERA,FSA are charged to programs based on actual usage during the fiscal year. Estimates are derived from the twelve-month period prior to formulation.

Corporate Training Services

Description

The Corporate Training Services (CTS) Business Line combines Training Delivery and Services (TDS), Learning Nucleus, OPM 360 Assessments and National Defense University (NDU) business segments to deliver courses which support the Department's mission at competitive pricing and fee for service pricing.

Learning Nucleus Segment is a web-based commercial off-the-shelf training system that provides access to online learning and training. The Learning Nucleus program provides access to online learning activities proven to improve learning outcomes and reduce costs independently or in combination with other training methods. The overall vision of the Learning Nucleus program is to provide all DOE employees with access to web-based training. The Learning Nucleus has been structured to meet DOE needs with a customized access process and DOE-specific information (including DOE-mandated training).

Training Delivery and Services (TDS) Segment includes the design, development, and delivery of competency-based courses to meet critical skills development needs in Project Management, Program Management, and Acquisition and Assistance Management. A series of Continuing Education courses present new topics and refresher training. Program offerings include modular course design and customized training for on-site and centralized delivery. The training management services are offered to customers on a negotiated basis only.

Office of Personnel Management (OPM) 360 Degree Assessment Program Segment provides the Department with services through an Interagency agreement with OPM. DOE's program is part of a larger effort to change the leadership culture

throughout the agency. By administering leadership behavior assessments and simple, but targeted, evaluations of leadership training efforts, the Department can track changes in the perception of leadership behaviors over time and assess the effectiveness of leadership training. Participants are rated by people of varying relationships to the participant (e.g., peer, subordinate/direct report, and supervisor). Assessments will focus on leadership competencies most relevant to DOE's current strategic plan, and include items related to personal training experiences and the effectiveness of those experiences.

National Defense University (NDU) Segment provides services through an Interagency Agreement with the National Defense University (NDU/DOD) for DOE participation at the National Defense University (National War College) for Energy Master/Certificate Programs and the Advanced Management Program.

Pricing Policy

Pricing policy for Corporate Training Services Business Line is as follows:

- Learning Nucleus – Participating DOE organizations pay for Learning Nucleus access through a fixed annual fee per student and allocation of administrative costs based on the number, by program, of Federal employees in the personnel system and contract employees that are approved registered users in Learning Nucleus.
- TDS – Participating DOE organizations in the TDS pay $250/day for each employee enrolled in professional skills training courses.
- OPM 360 – Participation in the OPM 360 Assessments is financed by the benefitting program; fees per person are based upon specific assessment options.
- NDU – Participation in the NDU is financed by the benefitting program; fees per person are based upon the specific training program.
- Federal staff support consists of program management, developing curriculum, contractor oversight of distance learning, and managing classroom delivery by contractor staff.
- FY 2025 estimates reflect amounts based on usage from the fiscal year prior to formulation (FY 2022), except Learning Nucleus, which is based on an allocation of the number of Federal employees on-board by organization, and number of registered contract employee users, at the beginning of the formulation year (FY 2023).

Financial Statement Audits

Description

Support services relating to the audit contract are required to attain contractor expertise, needed primarily for financial statement audits required by the Government Management Reform Act (GMRA) [e.g., actuaries, petroleum engineers, information technology support personnel and vulnerability testing, as required by the Federal Information Security Management Act (FISMA)]. Oversight of this process and contract activities is provided by the Office of the Inspector General.

Pricing Policy

The business line charges customers a pro-rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares (excluding supplemental appropriations), using the Congressional request of the most recent year. Departmental programs that use proprietary financial systems (e.g., the FERC and the PMA's) will be excluded from billing for this business.

Health Services

Description

The Health Services Business Line provides common administrative services to the DOE Headquarters community. These services include Headquarters health centers, a drug testing program (DOE-wide), an employee assistance program, disability services, and the Capital Bikeshare wellness incentive program.

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

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

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

Disability Services Segment coordinates contract vendors to provide sign language interpreting services for deaf and hard-of-hearing federal employees at Headquarters in line with Federal mandates (Rehabilitation Act of 1973, as amended). Includes Federal Relay Services, which provides equitable access to communications for federal employees who are deaf, hard-of-hearing, deaf/blind, or have speech disabilities.

Pricing Policy
Charges for Health Service segments are based on an allocation of Headquarters Federal employment on-board by organization at the beginning of the formulation year (for FY 2025, this is FY 2023). Charges for the Drug Testing segment are based on an allocation of DOE-wide Federal employment on-board by organization at the beginning of the formulation year (for FY 2025, this is FY 2023).

Interagency Transfers

Description

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

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

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

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

IAE is operated under an Interagency Agreement with GSA to provide packaged services, reduce costs, and save DOE resources by leveraging economy of services. GSA is charged with the fiduciary responsibility to work across government to

provide acquisition services to support agency missions by delivering timely acquisition tools and services, including but not limited to, the Central Contractor Registration, excluded parties list, electronic subcontracting reporting, federal business opportunities, federal procurement data, wage determinations, and others, as business requirements are identified by the acquisition community.

Per OPM, agencies will need to contribute funding to cover credit monitoring and related services/benefits for the OPM cybersecurity incidents affecting Federal and contract employees. Coverage will include a suite of services (e.g., credit monitoring, call center/support services, and identity theft protection).

Pricing Policy

E-Gov, IAE, and NARA – these activities will be charged to programs on a pro rata allocation of costs based on percentage share of three prior fiscal years' combined budget shares (excluding supplemental appropriations), using the Congressional request of the most recent year.
OPM Credit Monitoring – Program office cost shares are based on an allocation of HQ and Field credential numbers by organization from the beginning of the formulation year (for FY 2025, this is FY 2023).

Mail and Transportation Services

Description

The Mail Center provides a variety of mail services for all official and other authorized mail for DOE and its employees. Services include the processing of all incoming postal mail, outgoing official mail, internal mail processing, accountable mail processing, pouch mail, a variety of overnight express mail services, messenger services, directory services, and pick-up and delivery services. In response to the threat of dangerous or hazardous items being mailed to the Department and its employees, the business line has implemented various processes for sanitizing and testing mail for dangerous or hazardous materials.

The Transportation Service includes the employee rideshare program, Headquarters executive transportation, motor vehicle fleet administration, and courier service. The rideshare program provides transportation between approved DOE Headquarters facilities as well as other local business travel within the Washington Metropolitan Area. Executive transportation is provided to Headquarters executive staff for official business required to further the mission of the Department of Energy. Motor vehicle fleet administration includes fleet maintenance, monitoring and tracking fleet activity, conducting fleet management activities, and the vehicle maintenance program. Courier service is for the delivery and pick-up of sensitive and non-sensitive material within the Washington Metropolitan area.

Pricing Policy

Mail and transportation pricing has multiple components:

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

Overseas Presence

Description

The Department has a long-standing presence in several diplomatic missions around the world, enabling the Department to promote American trade and support critical treaties with our allies.

DOE funds 27 federal positions and 28 locally employed staff in 22 countries that support the Secretary and, by extension, the entire Department. The business line provides administrative and operational support service to Departmental personnel traveling overseas for mission programs.

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

Pricing Policy

The annual bill for these charges will cover the fixed cost of the program and be allocated to programs by the Overseas Presence Advisory Board (OPAB) based on negotiations with applicable program offices.

Pension Studies

Description

Pension Studies provide program offices with an independent measure of contractor benefits and compare each contractor to both internal and external benchmarks. Program offices use the results of these studies in discussions with contractors regarding the need for reducing costs associated with contractor employee benefits.

Pension Studies' website, iBenefits, is only accessible to approved federal and contractor users with login credentials. This system facilitates the data collection necessary to develop the Department's budget projections, prepare financial statements, assist the Office of General Counsel and Office of Management in fulfilling FAR and DOL requirements, and to receive pension and post-retirement benefit management plans detailing contractors' strategy for managing their employee/retiree benefits and reimbursable costs. Additionally, the business line regularly provides analysis and assistance to DOE program offices and contractors facing difficult pensions and benefits issues that require objective actuarial expertise.

The Pension Studies line of business also supports DOE's compliance with mandated financial and labor relations reporting requirements. Data collected are used to develop the Pensions crosscut of DOE's Congressional Justification and to fulfill the Congressional mandate to provide semiannual reports to Congress each April and September with updated information on Department of Energy contractor defined benefit pension plans.

Pricing Policy

Programs will be charged based on each program's sites' ratio of the total pension and post-retirement reimbursements reported in the most recent Report to Congress at the time of formulation. Studies are conducted on a biannual cycle (currently the even fiscal years), with reduced billings required for off-cycle years (currently odd fiscal years).

Printing and Graphics

Description

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

Pricing Policy

Organizations pay direct costs for printing, printed products, Federal Register publications, and graphics services. Additionally, programs pay maintenance costs on graphics equipment and graphics supplies as a percentage allocation of costs incurred in the previous fiscal year. FY 2025 estimates reflect amounts based on usage from the fiscal year prior to formulation (FY 2022).

Procurement Management

Description

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

Contract Audit Services Segment of the business represents funding to various audit entities; however, the majority of the funding is provided to the Defense Contract Audit Agency (DCAA). DCAA provides audit services to the Department's program offices in support of their acquisition activities, at the request of their contracting officers. These services benefit DOE by supporting contracting officers in making determinations for reasonableness and realism, and also by validating contractor costs, indirect rates, disclosure statements, and accounting systems.

Contract Closeout Segment of the business is the final stage in contract administration support for DOE Headquarters elements. Services include ensuring that all contracted products and services have been delivered, final releases are obtained, final invoices and vouchers are processed for payment, and any remaining unexpended funds under the contract are released. During FY 2023, the return-on-investment calculation shows that for every one dollar invested in the contract closeout activity, $7 of uncosted funding was de-obligated from expired instruments.

Purchase Card Data Mining Segment monitors purchase card usage within the Department. DOE purchase cards are issued under a task order through the SmartPay3 program administered by GSA. Funding for this effort is derived from rebates DOE elements receive, based upon the dollar volume of purchases. The vendor provides a data mining system to DOE at no cost for the basic version. This segment provides surveillance over the use of purchase cards and oversees the data mining to track and resolve suspicious purchase card transactions through risk-based analytics. DOE has incorporated customizations to the data mining system in an effort to enhance security.

Pricing Policy

Procurement Management pricing has multiple components:

- Closeout – each Headquarters element pays the actual contract closeout cost, determined by the unit price of

each contract type, and negotiated level of service.

- Purchase Card Data Mining costs are allocated based on the distribution of refunds resulting from the DOE purchase card program.
- Contract audits are charged to programs based on actual usage from the previous fiscal quarter.
- FY 2025 estimates reflect amounts based on usage from the fiscal year prior to formulation (FY 2022).

Project Management Career Development Program

Description

The Project Management Career Development Program (PMCDP) establishes requirements and responsibilities for all federal project directors (FPDs) with line management responsibility for capital asset projects. The PMCDP defines the necessary project management knowledge, skills, and abilities; project management training requirements; a career development tracking system; and a project management certification program to successfully manage DOE/NNSA projects. Certification requirements and responsibilities are applied in accordance with the Certification and Education Guidelines (CEG) developed and maintained by the Office of Project Management Oversight and Assessments and approved by the PMCDP Certification Review Board. All candidates for PMCDP certification must have individual development plans (IDPs) that address planned training and course work, details, rotational assignments, mentoring agreements, and other developmental activities defined in DOE O 361.1C, Acquisition Career Management Program, Chapter V.

Pricing Policy

In FY 2025, the business line will continue to assess programs based on the number and value of their projects in the Department's portfolio, and the number of incumbent FPDs or potential FPDs identified by the programs. Fixed costs related to the PMCDP will be charged to programs based on their pro-rata share of the number of projects and the value of those projects in the Project Assessment and Reporting System (PARS). The variable costs of delivering courses will be charged to programs based on their pro-rata share of targeted participants. FY 2025 estimates reflect amounts based on programmatic statistics reported in PARS and PMCDP Program participant profile data at the time of formulation (FY 2023). This data includes estimates of present and forecasted needs that include number of projects, portfolio value of projects, and the number of incumbent and candidate FPDs.

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

Supplies

Description

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

Pricing Policy

Each organization pays for supplies purchased by its employees. FY 2025 estimates reflect amounts based on usage from the fiscal year prior to formulation (FY 2022); extraordinary or unusual changes in usage patterns are not anticipated in the Fund's estimates.

Telecommunications

Description

The Telecommunications Business Line consists of comprehensive enterprise activities to include: Network and Voice Infrastructure Services, DOEnet Services, Video Teleconferencing and Cellular Services.

Network and Voice Infrastructure Services Segment provides connectivity for DOE Headquarters (HQ) and Field operations through Local, Metropolitan and Wide Area Networks. This connectivity provides interoperability for organizational Local Area Network (LAN) and Metropolitan Area Network (MAN) segments in two main Headquarters (DC Metro area) and associated satellite buildings; and connectivity to the Headquarters-located corporate applications. Wide Area Network (WAN) infrastructure provides access to/from and cybersecurity for Internet access, e-mail and other applications for information processing and sharing through non-HQ infrastructure.

Voice infrastructure connects two main Headquarters and satellite buildings for internal and external phone service. The infrastructure includes communication networks, installed telephones and processing switching equipment. Telephone services includes local, long distance and international dialing; and specialized services such as operator-assisted conference calls, voice mail, call forwarding and automatic ring-back.

DOEnet Services Segment provides connectivity to the entire national complex. DOEnet is a centrally managed DOE-Wide Area Network that provides a common standard service to carry business related data, access to the Trusted Internet Connection (TIC) compliant service, and access to Headquarters Corporate applications, systems and services DOE-wide.

Cellular Services Segment encompasses procurement of cell phones, smart phones, pagers and other cellular equipment. The cellular device costs are monitored regularly, and carrier plans are centrally adjusted to attain maximum savings.

Direct Customer Charges Segment supports above-standard services including: local, long distance and international person-to-person and operator-assisted calling; specialized services such as multiple-party conferencing and electronic voice mail; Wireless Access Point (WAP) hardware; cabling projects requiring use of external vendor support; toll-free services; circuit costs that support specific customer locations; and procurement of other telecommunications related equipment.

Pricing Policy
Charges for Telecommunications are based on usage of these services by program offices, including the following components:

- Network and Voice Infrastructure Services Segment – Infrastructure charges represent infrastructure costs which are composed of: (1) the cost of leased telecommunications circuits; (2) the cost of maintaining common infrastructure components and upgrades where needed; and (3) the cost of providing technical staff to install, repair and monitor/operate the various common infrastructure components. These services, charged monthly, are allocated among program organizations based on an inventory of network equipment (endpoints) for EITS-managed customers. The costs of dedicated communication circuits are allocated to organizations requesting installation of such lines. All long distance, local and international calls at Headquarters are allocated to the originating telephones and thus to programs based on the actual billing information.

- DOEnet Services Segment – DOEnet costs are predominately comprised of: (1) the cost of leased telecommunications circuits; (2) site hardware components and maintenance; and (3) the cost of technical support staff. DOEnet costs are allocated to participating sites based on the costs associated with providing the service – circuit costs, hardware and maintenance costs, and the costs of technical support staff.

- Cellular Services Segment – Cellular charges represent costs which are composed of: (1) administrative support involved with ordering, activation, rate analysis, rate selection, deactivation, accumulating, translating and validating commercial vendor billing data systematically for the record keeping, accounting and financial reporting and customer reporting; (2) cellular device costs; and (3) cellular plan costs. Administrative charges are allocated among program organizations based on the number of active cellular devices, as a monthly charge. All cellular device and plan costs are allocated to the program office owner.

- Direct Customer Charges Segment – Programs are billed in proportion to consumption of goods and services. FY 2025 estimates reflect amounts based on usage from the fiscal year prior to formulation (FY 2022). Extraordinary or unusual changes in usage patterns are not anticipated in the Fund's estimates.

Crosscutting Activities

Crosscuts

Table of Contents

Department of Energy
Crosscuts Overview

In FY 2025, the Department of Energy (DOE) will continue its emphasis on crosscutting efforts to accelerate progress on climate and energy goals through fully integrated science and applied energy research, development, demonstration, and deployment (RDD&D) activities. These crosscutting initiatives organize and integrate work across the Department to prioritize the RDD&D advancements necessary to meet key DOE and Administration goals, including delivering on DOE's Energy Earthshots™ Initiative[1] and supporting priority areas in the Administration's Net-Zero Game Changers Initiative.[2]

DOE's crosscuts enhance collaboration, coordination, and integration across its science and applied energy programs (and, where applicable, national security and environmental cleanup programs) and facilitate appropriate alignment and connection with its infrastructure programs, ensuring that Departmental capabilities and resources are collectively focused on achieving the Nation's most critical energy and climate challenges. This helps ensure that research and development (R&D) breakthroughs lead to transformational technologies deployed at scale, so that the Nation realizes the full benefits that innovation can deliver for the energy economy, climate, communities, and individual livelihoods. Crosscut coordination enhances implementation of related key legislation in the Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 (CHIPS and Science Act), Bipartisan Infrastructure Law (BIL), and Inflation Reduction Act (IRA), and enables the innovation breakthroughs that will build the energy infrastructure of tomorrow.

Internal DOE coordination structures engage appropriate program and staff offices to execute these crosscutting activities. In addition to DOE's science, applied energy, and infrastructure offices, other offices that contribute to crosscut activities include the National Nuclear Security Administration, Office of Technology Transitions, Office of General Counsel, Office of the Chief Financial Officer, Office of Energy Justice & Equity, and the Office of Policy. These offices may contribute staff time or funding as noted in specific crosscut narratives to enhance impact of the Department's efforts.

Oversight is provided by the Office of the Under Secretary for Science and Innovation and the Office of the Under Secretary for Infrastructure to ensure alignment within the Department and clear Department-wide communication and information on these topics to external stakeholders. This helps align the considerable capabilities of DOE's stakeholders including National Laboratories, universities, industry, and other partners.

DOE's Energy Earthshots™ Initiative is a major focus of several DOE crosscuts. The Energy Earthshots™ Initiative sets ambitious and aggressive technical and cost targets for next-generation clean energy technologies that are key to solving the climate crisis and reaching net-zero emissions economy-wide by 2050. They focus Departmental and Crosscut activities toward achieving the major research, development, and demonstration (RD&D) innovation breakthroughs necessary to meet these targets and deploy new technologies at scale within the next decade. The set of eight Energy Earthshots—Hydrogen Shot™, Long Duration Storage Shot™, Carbon Negative Shot™, Enhanced Geothermal Shot™, Floating Offshore Wind Shot™, Industrial Heat Shot™, Clean Fuels and Products Shot™, and Affordable Home Energy Shot™—together take an economy-wide approach toward addressing emissions from major sectors and transforming our energy system—lowering costs, raising performance, creating new jobs, and clearing the way to our clean energy goals.

The crosscut narratives below note alignment to key BIL and IRA provisions, support of the Net Zero Game Changers Initiative, and activities associated with Energy Earthshots™. Because crosscuts are integrated and prioritized activities, offices have also highlighted the crosscut work in their program office narratives.

[1] https://www.energy.gov/energy-earthshots-initiative

[2] U.S.-Innovation-to-Meet-2050-Climate-Goals.pdf (whitehouse.gov)

The FY 2025 Secretarial Crosscut topic areas and corresponding Energy Earthshots are described below:

Crosscut Narrative Topic Area	Energy Earthshots™ in Scope
Carbon Dioxide Removal	Carbon Negative Shot™
Clean Energy Technology Manufacturing	Floating Offshore Wind Shot™
Clean Fuels and Products *	Clean Fuels and Products Shot™
Critical and Emerging Technologies *^	
Critical Minerals and Materials	
Energy Storage	Long Duration Storage Shot™
Energy-Water	
Fusion	
Grid Modernization	
Hydrogen	Hydrogen Shot™
Industrial Decarbonization	Industrial Heat Shot™
Subsurface Energy Innovations	Enhanced Geothermal Shot™

* New Crosscut for FY 2025

^ This Secretarial Crosscut contains separate sections on Artificial Intelligence and Machine Learning; Biotechnology and Biomanufacturing; Microelectronics; and Quantum Information Systems

Additional DOE crosscuts include and will be described in further detail later in the Volume.

- Sector Crosscuts (Transportation, Electricity, Agriculture and Buildings)
- Energy Sector Cybersecurity
- Research and Development (Basic, Applied, Experimental Development, R&D Facilities, Construction, & Equipment)
- Safeguards & Security
- Infrastructure
- Pensions

Carbon Dioxide Removal
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Energy Efficiency and Renewable Energy	**23,300**	**20,850**	**13,300**	**-10,000**
Advanced Manufacturing Office	9,300	9,300	0	-9,300
Bioenergy Technologies	11,000	11,000	3,000	-8,000
Industrial Efficiency and Decarbonization	0	0	9,300	+9,300
Water Power Technologies	3,000	550	1,000	-2,000
Fossil Energy and Carbon Management	**74,500**	**74,500**	**130,200**	**+55,700**
Carbon Dioxide Removal	70,000	70,000	90,200	+20,200
Carbon Transport and Storage	4,500	4,500	40,000	+35,500
Science	**70,628**	**87,512**	**94,035**	**+23,407**
Advanced Scientific Computing Research	0	20,000	30,000	+30,000
Basic Energy Sciences	28,878	25,762	20,235	-8,643
Biological and Environmental Research	41,750	41,750	43,800	+2,050
Grand Total	**168,428**	**182,862**	**237,535**	**+69,107**

Overview:
Negative emission technologies at scale are necessary for achieving national and global net-zero greenhouse gas (GHG) emission goals in the coming decades, removing accumulated pools of carbon from the atmosphere, and avoiding the most critical climate consequences. Nearly all climate models that simulate scenarios for reaching net-zero indicate the need for a near-term focus on carbon dioxide removal (CDR) development and deployment, including mitigative point source carbon capture and sequestration, in addition to carbon reduction efforts. The Intergovernmental Panel on Climate Change (IPCC) shows that only emissions scenarios that include CDR achieve neutrality in 2050. CDR encompasses multiple approaches to capture carbon dioxide (CO_2) directly from the atmosphere and durably store it in geological, biobased and ocean reservoirs or in value- added products to create negative emissions.

The diverse suite of technologies and approaches in CDR requires integrated investment across the full research, development, demonstration, and deployment (RDD&D) spectrum such that breakthroughs are rapidly transferred and scaled, and so deployment of first-of-its-kind technologies quickly informs the next generation of innovation. CDR approaches include, but are not limited to, biomass with carbon removal and sequestration (BiCRS), direct air capture (DAC) with durable storage (DACS), biological methods to stored products, enhanced mineralization, soil carbon sequestration, and marine carbon dioxide removal (mCDR) such as direct ocean capture (DOC) with durable storage (DOCS). Within these approaches, the mechanisms for CO_2 removal are variable, leading to challenges in how to quantify reductions via lifecycle analyses (LCA) and how to accurately define the economics and costs.

For years, the Department has already been supporting carbon capture, utilization, and storage (CCUS) research, development, and demonstration (RD&D) projects and programs, such as the Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative. This, in conjunction with the Department of Energy's (DOE) suite of world-class scientists, engineers, subject-matter-experts, state-of-the-art technologies and resources in the National Laboratories, puts DOE in a unique position to guide the United States (U.S.) and the world to fight against climate change.

In an effort to achieve a net-zero carbon economy, DOE launched its third Energy Earthshot™, Carbon Negative Shot™ at COP26 in November 2021. Carbon Negative Shot™ is a decadal goal to reduce the cost of atmospheric carbon removal with durable storage to less than $100/net metric ton of CO_2-equivalent (CO_2e). The CDR crosscut supports the work that advances the Carbon Negative Shot™.

Carbon Negative Shot™ defines four criteria that describe goals for CDR pathways: 1) less than $100/net metric ton CO_2e for both capture and storage; 2) robust accounting of full lifecycle emissions (i.e., ensures emissions created when running and building the removal technology are accounted for); 3) high-quality, durable storage with costs demonstrated for monitoring, reporting, and verification (MRV) for at least 100 years; and 4) enable necessary gigaton scale removal.

Coordination Efforts:
DOE's crosscut efforts in CDR include developing and implementing a cross-agency CDR strategy, managing the Carbon Negative Shot ™, and sharing information and engaging with external entities, technology experts, and other government agencies. There is close coordination between the Department's efforts in the CDR crosscut, the interagency CDR Task Force led by DOE, and Mission Innovation's CDR Mission, which is a global initiative.

In addition to the funding offices identified below, various crosscutting offices (including the Office of Energy Justice & Equity, Office of Policy, Office of International Affairs, and Office of Technology Transitions (OTT)) contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments. The Office of Clean Energy Demonstration (OCED) also contributes staff time and coordinates with other funding offices to ensure alignment of related Bipartisan Infrastructure Law (BIL) funded projects.

Objectives and Action Areas:
The CDR crosscut objectives and action areas are built to enable progress towards the Carbon Negative Shot™ goal and advance the state-of-the-art for CDR technologies.

- Objective 1: Discover, innovate, and enable the deployment of low-cost and scalable CDR pathways to accelerate removal of CO_2 directly from the atmosphere and environment. Foster crosscutting, fundamental science and applied research and development (R&D) to enable breakthroughs along the carbon removal value chain. Identify and address critical barriers to reducing the costs and energy requirements for CDR systems and materials through targeted research investments. Promote and demonstrate the strategic deployment of diverse CDR systems and strategies.
  - Action Area: Advance the technical and commercial readiness for atmospheric carbon capture technologies.
    - Emphasize RD&D to support enhanced biological and natural solutions biomass, soil, ocean capture, mineralization, etc.
    - Execute R&D for carbon capture materials for engineered systems to increase the effectiveness and reduce the cost.
  - Action Area: Support the development of markets for CDR and enabling financing for new CDR projects.
    - Comprehensive technology innovation roadmaps, including commercialization opportunity and needs assessments in collaboration with OTT/Loan Programs Office (LPO) to engage industry in development of CDR solutions.
- Objective 2: Ensure adequate analysis and MRV. Advance the state-of-the- art standards, and practices for ensuring that carbon is removed from the atmosphere and stored geologically or equivalent for nature-based pathways.
  - Action Area: Emphasize development of tools for assessing soil carbon content and LCA for novel soil capture approaches, as well as Artificial Intelligence (AI) tools for soil carbon sequestration and for characterization of the CO_2 mineralization feedstocks.
  - Action Area: Establish of studies for modeling and evaluation of climate change pathways to demonstrate additional carbon capture benefit in land sinks.
  - Action Area: Establish MRV protocols associated with CDR purchases.
- Objective 3: Engage external entities and communicate strategy. Host workshops and public meetings to share information. Engage with communities that could participate in or be affected by CDR, including sovereign Tribal nations, labor groups, environmental justice communities, and climate justice organizations. Build awareness, interactions, and community involvement in the siting, build out and management of this new industry.
  - Action Area: Build out Regional Sequestration Partnerships to develop core competencies and engagement tools and resources to promote CDR hub development across the U.S.

Highlights of Program Efforts to Support the Crosscut in FY 2025:

1. **Energy Efficiency and Renewable Energy (EERE):**
   a. **Bioenergy Energy Technologies Office (BETO):** BETO is making significant investments in field trials for purpose-grown energy crops and the Budget supports data collection and analysis on soil organic carbon. BETO

will continue investments in data, modeling, and analysis on the environmental impacts of bioenergy development and deployment, including lifecycle GHG emissions.

b. **Industrial Efficiency & Decarbonization Office (IEDO)**: IEDO will continue to focus on utilization of CO_2 as a feedstock for commodity chemicals such as ethylene.

c. **Water Power Technologies Office (WPTO):** National Lab R&D to understand the role of marine energy in powering mCDR will continue at a reduced level versus FY 2023 Enacted, including the elucidation of power needs that could be met by marine energy, resulting in a demonstration of marine energy-powered electrochemically enhanced biological mCDR. Efforts to understand the environmental impacts and integrate marine energy-powered monitoring equipment will also continue.

2. **Fossil Energy and Carbon Management (FECM):** FECM focuses primarily on technological CDR approaches that include chemical, mineral, and biological pathways. FECM has been working on CCUS projects for almost 20 years and has invested heavily in the development of technologies to capture CO_2 from power plants and industrial sources. Funding is focusing on DAC, BiCRS, and mineralization concepts. The CDR subprogram builds upon past CCUS efforts which have been funded through FECM's CCUS activities, such as past work on DAC, mineralization, co-firing of biomass, and capture technology development. RDD&D activities include:

   a. **Direct Air Capture with Storage (DACS):** FECM funds significant DAC RDD&D alongside all carbon storage research at DOE. This includes transformational DAC materials and components development and testing, pilot-scale testing, and front-end engineering and design (FEED) studies for large-scale demonstrations.

   b. **Direct Ocean Capture with Storage (DOCS):** This activity leverages FECM RDD&D activities on separations that focus on removal of CO_2 from ocean water and ocean alkalinity enhancement. These RDD&D efforts include conceptual design studies, field testing and validation, and pilot testing. Additional R&D activities will support technologies, modeling approaches, and ecosystem studies to advance measurement, reporting and, verification approaches for DOCS approaches.

   c. **Biomass waste R&D for biomass carbon removal with sequestration (BiCRS):** R&D on residual biomass feedstocks coupled with CCUS, or other conversion and storage techniques, offer an opportunity for near-term deployment of CDR technologies. This includes gasification of waste feedstocks, such as plastics and sustainably-available biomass waste with CCUS. FECM leverages coordination with the Hydrogen and Fuel Cell Technologies Office (HFTO) and BETO to identify, validate, and demonstrate biomass conversion pathways with long term carbon storage.

   d. **Enhanced mineralization:** FECM has, and is continuing to, invest in RDD&D for in-situ, ex-situ, and surficial mineralization opportunities. These activities include support for field-scale pilots, R&D for improved LCA and technoeconomic assessment (TEA) tools and guidance, and bench-scale material research.

   e. **Crosscutting RDD&D:** RDD&D on MRV technologies to validate carbon removal and support LCA. FECM, OCED, Office of Science (SC), and EERE support crosscutting R&D activities to advance CDR pathway-specific approaches to MRV. FECM also supports the commercialization of equipment and infrastructure needed for long term carbon storage monitoring and modeling.

   f. **Significant RDD&D investments and work for geological CO_2 storage and CO_2 transport:** Coupled to CO_2 capture processes, such as BiCRS and DAC, reliable storage on timescales that will positively impact climate are of central focus for this line of work. For example, reliable storage on the scale of 1,000s years is desired, which may include geologic storage deep underground, or the conversion of CO_2 to synthetic aggregates (replaces sand and gravel for construction) or plastics.

   g. **Program support** for Carbon Negative Shot™, Mission Innovation (MI) CDR Mission and/or CDR Task Force.

3. **Science (SC):** SC provides foundational knowledge and state-of-the-art capabilities in support of crosscut objectives and has supported theoretical and experimental science related to understanding chemical and biological processes, separations, materials, and geochemistry related to carbon capture for many years. Further, SC operates major x-ray, neutron, nanoscience, genome sequencing, and high-performance computing user facilities that provide advanced synthesis, fabrication, characterization, and computational capabilities that supports CDR efforts across the spectrum of basic and applied research. Key activities in FY 2025 for CDR include:

   a. **Basic Energy Sciences (BES)** continues support for scientific discoveries and major scientific tools to transform our understanding of CO_2 chemistry, separation systems, and materials, including conversion to durable products (e.g., mineralization), important to CDR technologies. BES will continue to support CDR research, including DAC, that spans from single principal investigators to large teams including Energy Frontier Research Centers and Energy Earthshot Research Centers (EERCs).

   b. **Biological and Environmental Research (BER)** supports fundamental systems biology research on: (1) plants and plant microbiomes to capture atmospheric CO_2 and sequester stabilized forms of carbon in biomass and

soil; and (2) algal systems to convert gaseous CO_2 waste streams into a broad range of bioproducts in support of other CDR technologies. The EERCs will seek to remove barriers to clean energy production and implementing CDR innovations from basic research into applied solutions. Expanded university research involving Earthshot topics will focus on science at the nexus of carbon management and clean energy production.

c. **Advanced Scientific Computing Research (ASCR)** supports foundational investments in the applied mathematics and computer science tools, methods, and algorithms needed to computationally define realistic physical systems used in CDR and storage models and simulations. In addition, ASCR funds fundamental AI research to ensure that the next generation AI tools are domain-aware, robust, and understandable. Simulations of carbon removal and storage technologies are running on ASCR production and leadership systems.

Highlights and Major Changes from FY 2023 Enacted

1. **Energy Efficiency and Renewable Energy**
   a. Bioenergy Energy Technologies Office**:** BETO issued a Funding Opportunity Announcement (FOA) on the application of biochar as a soil amendment in FY 2023. These projects will continue in FY 2024 and FY 2025 with no additional funds.
   b. Industrial Efficiency & Decarbonization Office: IEDO will continue to focus on utilization of CO_2 as a feedstock for commodity chemicals such as ethylene.
   c. Water Power Technologies Office: National Lab R&D will continue at a reduced level versus FY 2023 Enacted, including the elucidation of power needs that could be met by marine energy, resulting in a demonstration of marine energy-powered electrochemically enhanced biological mCDR.
2. **Fossil Energy and Carbon Management:** FECM continues to make investments in DAC, biomass with carbon removal and storage, mineralization, DOC, in conjunction with advancing crosscutting analysis methods (LCA, TEA, & MRV) to reduce costs and continue to improve methodologies to confirm effective and durable removal.
3. **Science:** The increased investment in SC focuses on enabling new insights and breakthroughs by leveraging foundational research and the unique capabilities of the scientific user facilities.
   a. The increased investment in ASCR facilities focuses on foundational research, enabling new capabilities accessible only through large-scale computing resources.
   b. The growth within BER portfolio in biological systems science supports activities to improve the understanding of the capture, cycling and conversion of carbon in the environment and within industrial processes. For example, advanced analysis techniques at SLAC National Accelerator Laboratory enabled mechanistic understanding of a reductive carboxylase enzyme that facilitates new engineered techniques for this enzyme to capture CO_2 more efficiently and effectively from the air for conversion to products such as fuels and chemicals currently produced from petroleum.

Related Bipartisan Infrastructure Law (BIL) or Inflation Reduction Act (IRA) Programs:

In addition to the annual appropriations request, funding from BIL will support the planning and execution of technology development, demonstration, scale-up, and deployment of CO_2 DAC, storage, conversion, and transportation. These investments are essential in building out key components of a nascent industry, key funding opportunities related to DAC Hubs, CCUS Demonstrations, CO_2 Storage (CarbonSAFE), Carbon Dioxide Transport FEED studies and the Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) guidance have been released or are anticipated for release in the coming year. Expansion of tax credits resulting from IRA will offer additional incentives for CDR. Through the BIL Technology Commercialization Fund (TCF), OTT is partnering with FECM and OCED to support methods for the MRV of CDR technologies to enable their wider adoption and commercial readiness.

Clean Energy Technology Manufacturing
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**1,809**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	1,809	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**321,143**	**313,258**	**370,250**	**49,107**
Advanced Manufacturing Office	183,500	183,500	0	-183,500
Advanced Materials and Manufacturing Technologies	0	0	220,000	+220,000
Bioenergy Technologies	7,185	8,800	9,000	+1,815
Hydrogen and Fuel Cell Technologies	30,000	20,000	20,000	-10,000
Solar Energy Technologies	63,500	63,500	75,000	+11,500
Vehicle Technologies	25,000	25,000	26,250	+1,250
Water Power Technologies	1,500	2,000	3,000	+1,500
Wind Energy Technologies	10,458	10,458	17,000	+6,542
Fossil Energy and Carbon Management	**8,000**	**8,000**	**6,000**	**-2,000**
Hydrogen with Carbon Management	8,000	8,000	6,000	-2,000
Nuclear Energy	**8,800**	**8,800**	**17,000**	**+8,200**
Advanced Materials and Manufacturing Technologies	8,800	8,800	17,000	+8,200
Science	**27,000**	**0**	**0**	**-27,000**
Basic Energy Sciences	20,000	0	0	-20,000
Biological and Environmental Research	3,000	0	0	-3,000
Fusion Energy Sciences	3,000	0	0	-3,000
Isotope R&D and Production	1,000	0	0	-1,000
Manufacturing and Energy Supply Chains	**18,000**	**18,000**	**93,350**	**+75,350**
Energy Sector Industrial Base	2,000	2,000	0	-2,000
Facility and Workforce Assistance	16,000	16,000	0	-16,000
Manufacturing Capacity and Competitiveness	0	0	53,350	+53,350
Supply Chain Mapping, Modeling & Analysis	0	0	20,000	+20,000
Workforce Capacity and Competitiveness	0	0	20,000	+20,000
Grand Total	**384,752**	**348,058**	**486,600**	**+103,657**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

Manufacturing is required to transform the national and global energy system to meet our climate goals. Manufacturing innovation is highlighted across a number of the "net-zero game changer" technologies highlighted in the recent White House report, *U.S. Innovation to Meet 2050 Climate Goals*[1]. To drive down costs, build resilient energy supply chains, and create high-quality manufacturing jobs, DOE invests from research through to demonstration and commercialization in advanced materials, improved manufacturing processes and operations, and predictive performance techniques. DOE also invests in workforce development and manufacturing scale-up efforts. Guided by America's Strategy to Secure the Supply

[1] https://www.whitehouse.gov/wp-content/uploads/2022/11/U.S.-Innovation-to-Meet-2050-Climate-Goals.pdf

Chain for a Robust Clean Energy Transition, DOE also invests in RDD&D to address national security concerns and build reliable supply chains.

Cross-DOE activities in this space will enable new and improved materials, processes, components, and systems across supply chains and product lifecycles for priority clean energy technologies and systems. Working together on common manufacturing challenges, rather than in energy technology-specific siloes, DOE can identify opportunities to drive down production costs, improve technology performance, strengthen domestic competitiveness, reduce environmental impacts, and accelerate technology commercialization.

Through the Energy Earthshots Initiative, DOE has identified critical technology innovation targets, each of which has significant reliance on manufacturing improvements and scale-up. The Clean Energy Technology Manufacturing (CETM) crosscut is important to deliver the technologies for all Energy Earthshots. In particular, the Floating Offshore Wind Shot™ targets a reduction in the levelized cost of floating offshore wind energy to less than $45 per megawatt hour (MWh) by 2035. Key to achieving this goal is low-cost serial manufacturing of large complex structures like floating platforms, towers, and turbine blades, as well as the development of a robust domestic floating offshore wind supply chain.

Coordination Efforts

Offices participating in the crosscut are increasing intra-departmental collaboration in their CETM activities, pursuing coordinated roadmapping exercises, leveraging best practices and advances that are relevant across technologies, and identifying joint funding opportunities where appropriate. Participating DOE offices include Advanced Research Projects Agency-Energy (ARPA-E), Energy Efficiency and Renewable Energy (EERE), Fossil Energy and Carbon Management (FECM), Nuclear Energy (NE), the National Nuclear Security Administration (NNSA), Science (SC), and the Office of Manufacturing and Energy Supply Chains (MESC). Crosscut activities will focus on accelerating the path from scientific advances to pilot scale demonstration, as well as the hand off to large scale demonstration. The team will identify and develop crosscutting platform manufacturing technologies that can be applied across multiple energy technologies. Work will enable new and improved materials, processes, and systems across clean energy supply chains and product lifecycles.

In addition to the funding offices identified, various crosscutting offices (including the Office of Energy Justice & Equity, Office of Policy, and Office of Technology Transitions) may contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments.

Objectives and Action Areas

- **Objective:** Address common technical and non-technical barriers in the manufacturing of critical clean energy technologies to achieve climate targets, strengthen the U.S. economy, and create jobs for skilled American workers.
    - **Action Area 1 - Rapid Development and Commercialization of Advanced Materials.** Improve the development and use of advanced materials needed for innovative clean energy technologies. This includes research and development (R&D) in new, advanced functional materials that support one or more clean energy technologies, as well as activities to accelerate development, qualification, and transition to materials acceptance and first use.
    - **Action Area 2 - Advanced Manufacturing Process Development.** Cross-cutting efforts will support the development and accelerated adoption of new manufacturing processes for clean energy systems and components that significantly reduce the cost (including environmental cost), improve performance, and improve manufacturing quality. This includes research, development, and demonstration (RD&D) for efficient manufacturing processes such as additive 3D manufacturing, composite fabrications, smart manufacturing processes, advanced automation and robotics, and use of alternate feedstocks including waste/recycled products to make clean energy products (e.g., batteries) that enable the circular economy.
    - **Action Area 3 - Predictive Performance and Advanced Qualification and Certification**. Develop and commercialize new approaches to provide system qualification of manufactured products for clean energy technologies. This will include model-based assessments of as-manufactured products without traditional destructive testing, qualification of processes in lieu of product testing, and new approaches to lifetime assessments and re-certification of existing or refurbished systems and components. This area will also identify and seek to address unique qualification challenges relevant to many emerging clean energy technologies – e.g., wind blade qualification, qualification of additively manufactured materials for nuclear reactors, etc.
    - **Action Area 4 - Scale up for Large-size Product Manufacturing**. Support the transition of proof-of-principle or demonstration projects to drive manufacturing cost and performance improvements for large-size products,

such as for nuclear reactors or large power transformers. Specifically, this Action Area will provide support for manufacturing scale-up facilities and incubators working on large-size product manufacturing.

- **Action Area 5 - Resilient and Circular Supply Chain**. Conduct RD&D to promote domestic sources for raw materials, refined materials, components, and manufactured systems for the clean energy economy. This includes activities to develop and commercialize pathways for cost-effectively recovering and recycling waste materials using advanced separation technologies. The Action Area will also support Educational and Workforce Development programming and career pathways for the workforce at all levels, to provide the domestic workforce needed; analysis to understand interconnected supply chains and pathways to meet 2050 climate goals; and demand-pull activities to catalyze investments in domestic supply chains.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in CETM will be determined in FY 2024.
2. **Office of Energy Efficiency & Renewable Energy (EERE)**
    a. Advanced Materials and Manufacturing Technologies Office (AMMTO): AMMTO supports innovative solutions for smart manufacturing, battery manufacturing, and critical materials for clean energy technologies.
    a. Bioenergy Technologies Office (BETO): Increases funding for the development of valuable chemicals and materials that can replace petrochemicals with renewable alternatives and also help enable the production of biofuels. This work includes R&D on bioderived polymers and plastics that provide performance advantages to traditional materials.
    b. Hydrogen and Fuel Cell Technologies Office (HFTO): HFTO supports activities in systems integration to enable economies of scale as well as high capacity fueling components, materials compatibility and low-cost carbon fiber for tank manufacturing that contribute to this crosscut. Advanced manufacturing RD&D for fuels and stacks are supported through IIJA.
    c. Solar Energy Technologies Office (SETO): SETO will continue to support RD&D and commercialization of advanced manufacturing relevant technologies to help develop new products for domestic manufacture, support new technologies to drive down domestic manufacturing costs, develop robust domestic supply chains, and mitigate issues related to material availability.
    d. Vehicle Technologies Office (VTO): In FY 2025, VTO proposes an increase in advanced Battery Materials Research (BMR), including solid-state battery manufacturing technologies.
    e. Water Power Technologies Office (WPTO): In FY 2025, WPTO will explore a funding solicitation to target the highest rated opportunities from the AMM Strategic plan (e.g., in-situ coating applications, sustainable bearings, and/or embedded sensors), as well as continued collaboration with the Manufacturing Demonstration Facility.
    f. Wind Energy Technologies Office (WETO): FY 2025 request will increase support R&D to develop and optimize domestic wind manufacturing capabilities, reduce costs, and address turbine installation challenges through lightweighting and improved installation techniques.
3. **Office of Fossil Energy and Carbon Management (FECM):** Carbon management technologies have an important role in the decarbonization of the manufacturing sector for industries such as steel, cement, and chemicals. Additionally, advanced manufacturing capabilities such as roll-to-roll manufacturing and 3-D printing, can help enable many of the advanced carbon management and hydrogen technologies that are under development today and on the verge of commercial deployment. As the Department moves to establish a clean hydrogen economy, additional hydrogen-resistant materials will need to be developed to allow for increased quantities of hydrogen production, use, transport, and storage.
4. **Office of Nuclear Energy (NE):** NE's Advanced Materials and Manufacturing Technologies crosscutting program enables the development of materials and manufacturing technologies to produce fuels and components that improve safety, reliability, and are more cost effective to produce. NE advances the qualification of additively manufactured materials by employing high-throughput characterization and advanced testing techniques, specifically targeting the accurate prediction of creep performance.
5. **Office of Science (SC):** While SC has no funding for the Clean Energy Technology Manufacturing initiative in FY 2025, SC will continue to support efforts for fundamental science leading to transformational manufacturing aligned with the

Crosscut Action Areas through core research funding. The opportunities for underpinning science for manufacturing cross many SC activities, including biomanufacturing, innovations for accelerator technology, biotechnology, and isotope production and enrichment. Central to the discovery and application of transformative science are computational tools and a system-based co-design approach to integration of experiments, predictive theory, and artificial intelligence and machine learning that cross the interfaces among components in manufacturing systems. SC also provides critical isotopes necessary for clean energy technology manufacturing through the Isotope R&D and Production Program. SC will interact with technology offices to ensure close coordination and continued impact of SC-funded research on technology challenges. The funding decrease is the result of reallocation to higher priority Administration research topics.

6. **Office of Manufacturing and Energy Supply Chains (MESC):** DOE's Office of Manufacturing and Energy Supply Chains (MESC) plays a critical and unique role in catalyzing investments in America's energy future to support the re-shoring, skilling, and scaling of U.S. manufacturing across energy supply chains. MESC addresses vulnerabilities in U.S. energy supply chains, serves as the frontline of energy manufacturing deployment, and accelerates America's transition to a resilient, equitable energy future through direct investments in manufacturing capacity, and workforce development. MESC also develops and manages the energy supply chain-focused analytical tools needed to inform energy programs and investments across DOE, the U.S. Government, and the private sector by identifying gaps, vulnerabilities, and other needs across U.S. clean energy supply chains.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy (ARPA-E):** In FY 2023, ARPA-E selected and/or obligated $1,809K in funding to projects aligned with the Clean Energy Technology Manufacturing crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic program.
2. **Office of Energy Efficiency & Renewable Energy (EERE):**
    a. Advanced Materials and Manufacturing Technologies Office (AMMTO): Increase in funding will support innovative solutions for smart manufacturing, battery manufacturing, and critical materials for clean energy technologies.
    b. Bioenergy Technologies Office (BETO): Increase in funding for the development of valuable chemicals and materials that can replace petrochemicals with renewable alternatives and also help enable the production of biofuels. This work includes R&D on bioderived polymers and plastics that provide performance advantages to traditional materials.
    c. Hydrogen and Fuel Cell Technologies Office (HFTO): Decrease in funding due to Advanced manufacturing RD&D for fuels and stacks that are supported through IIJA.
    d. Solar Energy Technologies Office (SETO): Increase in funding reflects the change in the Manufacturing and Competitiveness subprogram to address critical national objectives for domestic solar supply chain manufacturing.
    e. Vehicle Technologies Office (VTO): Increase in funding for advanced Battery Materials Research (BMR), including solid-state battery manufacturing technologies.
    f. Water Power Technologies Office (WPTO): In FY 2025, WPTO will explore a funding solicitation to target the highest rated opportunities from the AMM Strategic plan (e.g., in-situ coating applications, sustainable bearings, and/or embedded sensors), as well as continued collaboration with the Manufacturing Demonstration Facility.
    g. Wind Energy Technologies Office (WETO): Increase in support of R&D to develop and optimize domestic wind manufacturing capabilities, reduce costs, and address turbine installation challenges through lightweighting and improved installation techniques.
3. **Office of Fossil Energy and Carbon Management (FECM):** Carbon Management Technologies - Hydrogen with Carbon Management - Decrease in funding reflects current priorities resulting in a lower level of effort in developing alloy compositions and manufacturing techniques to improve resistance to hydrogen embrittlement.
4. **Office of Nuclear Energy (NE):** Increase in funding supports availability of advanced materials such as for high temperature use, whether fabricated with conventional or advanced methods, and the associated supply chain. Funding also expands qualification efforts for the use of additively manufactured materials in nuclear applications. Additionally, funding supports a competitive solicitation to address high priority supply chain needs for the near-term deployment of advanced reactors.
5. **Office of Science (SC):** SC has no funding for the Clean Energy Technology Manufacturing initiative in FY 2025, but it will continue to support efforts for fundamental science leading to transformational manufacturing aligned with the Crosscut Action Areas through core research funding. The funding decrease is the result of reallocation to higher

priority Administration research topics.

6. **Office of Manufacturing and Energy Supply Chains (MESC):** FY 2025 funding supports addressing vulnerabilities in U.S. energy supply chains, serving as the frontline of energy manufacturing deployment, and accelerating America's transition to a resilient, equitable energy future through direct investments in manufacturing capacity, and workforce development.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs

In FY 2025, in addition to the annual appropriations request, IIJA funding will support the planning and execution of technology development, demonstration, scale-up, and deployment of: battery material processing, manufacturing, and recycling; clean hydrogen production; wind energy technology manufacturing; solar energy manufacturing; and advanced manufacturing techniques. These investments are essential in addressing the development of new technologies and advancing supply chain needs to support growth in clean energy. Expansion of tax credits in IRA offer additional incentives for manufacturing across a range of clean energy technologies.

Clean Fuels and Products
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**1,000**	**TBD**	**TBD**	**TBD**
ARPA-E Projects*	1,000	TBD	TBD	TBD
Energy Efficiency and Renewable Energy	**339,500**	**359,500**	**353,890**	**+14,390**
Advanced Manufacturing Office	27,000	47,000	0	-27,000
Advanced Materials and Manufacturing Technologies	0	0	27,500	+27,500
Bioenergy Technologies	280,000	280,000	276,790	-3,210
Hydrogen and Fuel Cell Technologies	15,000	15,000	15,000	0
Industrial Efficiency and Decarbonization	0	0	30,000	+30,000
Solar Energy Technologies	16,500	16,500	3,500	-13,000
Wind Energy Technologies	1,000	1,000	1,100	+100
Fossil Energy and Carbon Management	**138,675**	**138,675**	**128,500**	**-10,175**
Hydrogen with Carbon Management	28,000	28,000	20,000	-8,000
Natural Gas Decarbonization and Hydrogen Technologies	26,000	26,000	24,400	-1,600
Point-Source Carbon Capture	50,000	50,000	48,100	-1,900
Carbon Dioxide Conversion	34,675	34,675	36,000	+1,325
Science	**440,349**	**401,477**	**417,731**	**-22,618**
Advanced Scientific Computing Research	8,900	1,800	1,500	-7,400
Basic Energy Sciences	77,668	77,627	81,746	+4,078
Biological and Environmental Research	353,781	322,050	334,485	-19,296
Grand Total	**918,524**	**899,652**	**900,121**	**-18,403**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

Carbon-based fuels and chemical intermediates play pivotal roles in daily modern society, helping to meet the transportation and product needs of the country. Given these sectors are traditionally tied to fossil feedstocks that result in significant Greenhouse Gas (GHG) emissions during processing and consumption, alternative feedstocks and routes to produce these compounds and materials are necessary to achieve U.S. net zero goals. These decarbonization efforts require exploring a multi-faceted approach that targets diverse sets of resources that funnel into processed feedstocks that necessitate a range of conversion strategies to produce the target fuel molecules and products needed by society. The goal of this crosscut is to align and coordinate activities across DOE that can increase the impact of clean fuels and products innovation on decarbonization through efforts that will ultimately translate basic science discoveries into deployable technologies. These efforts provide a core foundation for a more decarbonized U.S. economy while creating additional opportunities and economic benefits to rural agricultural and disadvantaged communities.

Key U.S. transportation modes, including medium and heavy-duty trucks, aviation, off-road, maritime, and rail, are hard to fully electrify due to energy density and portability requirements. In 2021, these transportation modes accounted for more than a quarter of transportation GHG emissions. The U.S. chemicals sector is also difficult to decarbonize because the feedstocks and products are largely made from fossil-based carbon. In 2021, the U.S. bulk petrochemicals industry accounted for over a third of CO_2 emissions across the entire chemicals sector.

DOE has supported major advancements in a range of technologies in the clean fuels and products areas, including conversion of biomass to sustainable aviation fuel (SAF) and development of CO_2 utilization to produce liquid fuels and chemicals. To fully realize the impact of these and related activities, acceleration of clean fuels and products innovation is necessary to address the outstanding challenges in the decarbonization space. Buildout of domestic capacity for fuel, chemical and material production from renewable resources at scale not only strengthens a more decarbonized economy but provides broader supply chain security, ensuring the U.S. can meet the Nation's product needs across economic sectors.

Coordination Efforts

DOE's Clean Fuels & Products Crosscut involves significant contributions from the Office of Energy Efficiency and Renewable Energy's (EERE) Bioenergy Technologies Office (BETO), Industrial Efficiency & Decarbonization Office (IEDO), Advanced Materials & Manufacturing Office (AMMTO), and Hydrogen Fuel Cell Technologies Office (HFTO). Additional offices contributing to the crosscut include Fossil Energy and Carbon Management (FECM)'s Carbon Management Office, Office of Science's (SC) Office of Biological and Environmental Research (BER) and Basic Energy Sciences (BES), Office of Clean Energy Demonstrations (OCED), and the Advanced Research Projects Agency- Energy (ARPA-E). In addition to the funding offices identified here, various crosscutting offices (including Energy Justice & Equity, Policy, and Technology Transitions) contribute staff time and coordinate with the research, development, demonstration, and deployment (RDD&D) funding offices to enhance the impact of the Department's investments in clean fuels and products.

In September 2022, Executive Order (EO) 14081, *Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy*, was issued and called for a coordinated approach to using biotechnology and biomanufacturing to advance societal goals, such as Climate and Energy. In March 2023, the *Bold Goals for U.S. Biotechnology and Biomanufacturing* was released. In particular, two themes (Transportation and Fuels and Chemicals and Materials) are focus areas intimately associated with the Clean Fuels & Products Crosscut, with emphasis on: (1) development of sustainable aviation fuel (SAF) and other strategic fuels for difficult to decarbonize sectors; and (2) access to low carbon intensity chemicals and materials while exploring materials that can integrate into a circular economy. As a result, these documents have spurred enhanced coordination on these topics under the Clean Fuels & Products crosscut and ongoing integration of this work with other relevant DOE crosscuts (e.g., Industrial Decarbonization and Biotechnology).

In May 2023, DOE announced the Clean Fuels and Products Shot™ as its seventh Energy Earthshot. The Clean Fuels and Products Shot™ focuses on decarbonizing the fuel and chemical industry through alternative sources of carbon to advance cost-effective technologies with a minimum of 85% lower GHG emissions by 2035. The Energy Earthshot aims to decarbonize these industries through a staged research, development, and demonstration strategy that will establish the United States as a world leader in clean fuel and clean carbon-based chemical production.

DOE is also leading and participating in several interagency working groups, initiatives, and reports. These involve calls to action for executive branch agencies, including DOE, to align resources and expand efforts on aggressive climate and energy goals in the clean fuels and products space. In November 2022, the White House's Office of Science Technology and Policy (OSTP) launched the Net Zero Game Changers Initiative to support Administration targets of 50-52% GHG reduction by 2030 on a pathway to net zero-emissions by 2050. The Initiative is intended to identify, prioritize, and accelerate innovation in game-changing net-zero technologies. Two of five areas prioritized by the Net Zero Game Changers Initiative ("Net Zero-Aviation" and "Industrial Products and Fuels for a Net-Zero, Circular Economy") are topics directly related to the Clean Fuels & Products Crosscut. Additionally, DOE participated in an OSTP Sustainable Chemistry Report, highlighting several strategic areas where coordinated efforts would help accelerate a transition to a more decarbonized and sustainable economy, while also addressing emerging challenges and opportunities for climate action and environmental justice.

Internal and external reports from other activities further inform coordination and efforts in the clean fuels and products space. Recent representative examples include: (1) Technology briefs from DOE National Laboratory Consortia, such as the BETO sponsored ChemCatBio, that provide technoeconomic analysis (TEA) of bio- and chemical routes to net zero carbon fuels; (2) technology assessments from specific Energy Earthshots (Hydrogen Shot™, Carbon Negative Shot™, and Industrial Heat Shot™) that synergize with the clean fuels and products space; and (3) Pathways to Commercial Liftoff Reports from DOE's Loan Program Office (LPO), which focus on broad cross-cutting topics (e.g., Carbon Management) of direct relevance to clean fuels and products.

Objectives and Action Areas

- Objective 1 – **Resource and feedstock mobilization** is critical to foster low cost and resilient resource production and supply systems that are sustainable, increase system circularity, and consider resource impacts. Concurrently, addressing challenges between the resource-feedstock-conversion interfaces will ensure a robust clean fuels and products ecosystem.
    - Action Area 1: Develop techniques to measure carbon flux and practices to mitigate carbon emissions related to feedstock production.
    - Action Area 2: Measure potential quantities of clean carbon resources and ensure sufficient supply by understanding and managing variability in quality and availability.
    - Action Area 3: Advance practices to sort and preprocess resources to ensure reliable supply of quality conversion-ready feedstocks.
- Objective 2- Carbon-efficient transformations require **advances in catalytic and biocatalytic pathways** for further development and improvement of process design for feedstock conversion. These processes must also be inclusive of separations and other challenges associated with these pathways.
    - Action Area 1: Execute R&D for next-generation process technologies capable of transforming alternative feedstocks into clean fuels and products with reduced life-cycle GHG emissions via targeted research investments that advance technical readiness.
    - Action Area 2: Redesign products and optimize conversion processes for improved performance, circular systems, and reduced carbon emissions.
    - Action Area 3: Identify and emphasize alternative feedstock research areas through analysis and stakeholder engagement, maximizing potential for energy efficiency, reduced emissions, environmental co-benefits, and positive societal impacts.
- Objective 3 – **Technology scaling & demonstration**, allowing integration of diverse sources of clean energy (electricity, wind, solar, modular nuclear, etc.) and clean hydrogen, while considering energy implications to de-risk technologies for rapid adoption and providing end-use market solutions.
    - Action Area 1: Advance promising technologies involving alternative feedstocks and reduced carbon emissions to higher technical readiness through demonstration and pilot scale investments.
    - Action Area 2: Develop key collaborations across supply-chains to align stakeholders in addressing critical barriers for technology adoption, scaling, and deployment.
- Objective 4 – **Consideration of broader societal impacts beyond technology**, which include creation of cradle to grave lifecycle assessment (LCA) and sustainability modelling to prioritize R&D efforts, monitoring of economy wide resource impacts, and purposeful integration of tailored, regionalized strategies.
    - Action Area 1: Understand the feedstock landscape and model resource competition across sectors and the impact on available resources for fuels and products.
    - Action Area 2: Target specific feedstocks and conversion processes based on regionally available resources, energy inputs, and infrastructure.
    - Action Area 3: Understand non-GHG emissions of processes and their implications for water management, biodiversity, public health, and economic opportunity.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Clean Fuels and Products will be determined in FY 2024.
2. **Energy Efficiency and Renewable Energy (EERE):**
    a. Advanced Materials and Manufacturing Technologies Office (AMMTO): FY 2025 Request will support RD&D for the circular economy across more material classes, including recycling and design for recycling of composites, plastics, fibers, e-waste, and metals, aligned with EPA's National Recycling Strategy.
    b. Bioenergy Energy Technologies Office (BETO): The Bioenergy Technologies Office (BETO) develops and demonstrates technologies to accelerate greenhouse gas emission (GHG) reductions through the cost-effective, sustainable use of biomass and waste feedstocks across the U.S. economy. BETO's RD&D activities

focus on developing safe and secure domestic supply chains for renewable waste streams and biomass, and to develop cost-effective conversion technologies to produce clean fuels and products. The entirety of BETO's efforts supports the Clean Fuels and Products Energy Earthshot.

c. Hydrogen and Fuel Cell Technologies (HFTO): HFTO funds advanced H_2 production processes that support this crosscut and the Clean Fuels and Products Earthshot on clean power and clean hydrogen to maximize the conversion of carbon in renewable resources into fuels and chemicals at scale.

d. Industrial Efficiency & Decarbonization Office (IEDO): IEDO supports R&D to enable the use of clean heat, power, and feedstocks sourced from low- or no-carbon fuels and renewable energy sources.

e. Solar Energy Technologies Office (SETO): FY 2025 request will support lab projects on clean fuels and hydrogen.

f. Wind Energy Technologies Office (WETO): FY 2025 request will support R&D on wind co-generation opportunities to enable wind hydrogen production demonstration for land-based and/or offshore wind applications.

3. **Fossil Energy and Carbon Management (FECM):**

a. **Office of Carbon Management Technologies (via Hydrogen with Carbon Management, Carbon Dioxide Conversion, and Point-Source Carbon Capture) -**

i. FECM focuses on key areas of carbon management through investments in research, development, demonstration, and deployment (RDD&D) of technologies and solutions to ensure clean and affordable energy, a healthy climate, policy development and stakeholder engagement. In support of this crosscut, FECM envisions large-scale conversion of CO_2 into environmentally responsible and economically valuable products. Conversion technologies can play a catalyzing role in the carbon capture and storage (CCS) supply chain during the implementation of future decarbonization scenarios.

ii. Fossil fuel use in operations, as well as some processes inherent to manufacturing (e.g., cement production, fermentation of biofuels), generate CO_2. In addition to utilizing zero carbon generation electricity, CCS can reduce emissions at the source. RDD&D focuses on technologies that can improve capture performance; generate lower carbon intensive products (i.e., ethanol, hydrogen (H_2), cement); convert CO_2 into valuable products – in some cases augmenting products produced in the industrial sector such as cement and curing to concrete; and safely store CO_2 in geologic formations.

b. Office of Resource Sustainability (via Natural Gas Decarbonization and Hydrogen Technologies): Support includes extramural RD&D related to clean hydrogen production and infrastructure for natural gas decarbonization; technologies for enabling the safe and efficient transportation of clean hydrogen within the U.S. natural gas pipeline system; and research to enable high-volume subsurface hydrogen storage.

4. **Office of Science (SC):** Three program offices (BES, BER, and ASCR) will continue to partner to support multi-disciplinary research through the SC Energy Earthshots initiative. The Clean Fuels and Products Earthshot was announced after the launch of the SC initiative in FY 2023. While the SC initiative program did not specifically include the Clean Fuels and Products Earthshot, research supported through the SC initiative for other Shots, such as Industrial Heat and Carbon Negative, can provide fundamental knowledge and capabilities to advance clean fuels and products.

a. **Advanced Scientific Computing Research** (ASCR): The Exascale Computing Project (ECP) modernized chemistry and combustion codes for exascale systems that underpin development and testing of alternative fuels for aviation and transportation. ASCR computational facilities are used across the basic and applied research efforts of the Department and by partnering with industries to accelerate the transition to clean fuels and products. ASCR partners with BER and BES in the SC Energy Earthshots initiative and is supporting foundational research in applied mathematics and computer science to address common and longer-term challenges for Energy Earthshot Research efforts.

b. **Basic Energy Sciences** (BES): BES will continue to support fundamental research to discover, design, and understand materials and chemical and biochemical processes that can benefit the production of clean fuels and products. Efforts include advancing the mechanistic understanding of energy capture and conversion in natural and synthetic systems to reveal principles and pathways for selective production of target molecules. In addition, research includes understanding and designing of new catalysts, materials, and separations processes for efficient and sustainable production.

c. **Biological and Environmental Research** (BER): BER integrates advanced genomics, computational research, and user facility capabilities relevant to the development of renewable biofuels, bioproducts, and low carbon biomanufacturing. BER programs have a track record of accomplishments to understand and design new

biological systems for bioenergy and bioproducts produced from sustainable plant biomass to replace those currently obtained from petroleum. BER supports four Bioenergy Research Centers (BRCs) engaged in multidisciplinary genome-enabled research to sustainably produce a range of bioenergy and bioproducts from renewable plant biomass. Secure biosystems design and microbial research on biofuels and bioproducts prioritizes early-stage science to support the clean energy initiative. The BRCs jointly provide new research underpinning bioenergy and bioproducts production from sustainable biomass through individual and multi-BRC collaborative efforts. BER also supports the Joint Genome Institute (JGI) which provides users with high quality genome sequence production and analysis capabilities for organisms and groups of organisms to identify key components that may link to biological function as a foundational basis for basic bioenergy research efforts. Computational biosciences research and capabilities support collaborative data science investigations of biological systems to reveal processes that will accelerate the development of renewable fuels and bioproducts. A significant portion of the biological systems science program in BER supports the foundational science needed to understand biobased approaches to address the goals of the Clean Fuels and Products Shot.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy (ARPA-E)**: In FY 2023, ARPA-E selected and/or obligated $1,000K in funding to projects aligned with the Clean Fuels and Products crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic program.
2. **Energy Efficiency and Renewable Energy (EERE):**
    a. Advanced Materials and Manufacturing Technologies Office (AMMTO): Increased funding will support circular economy advancements for plastics.
    b. Bioenergy Energy Technologies Office (BETO): No significant change.
    c. Hydrogen and Fuel Cell Technologies (HFTO): No significant change.
    d. Industrial Efficiency & Decarbonization Office (IEDO): No significant change
    e. Solar Energy Technologies Office (SETO): In FY 2025, the Concentrated Solar Program does not plan a new FOA topic on clean fuels nor on hydrogen. The indicated funding will come from lab projects, as the program is rotating annual FOA topics to address competing objectives in a multi-year cycle.
    f. Wind Energy Technologies Office (WETO): Increased funding for additional support of R&D on wind co-generation opportunities to enable wind hydrogen production demonstration for land-based and/or offshore wind applications.
3. **Fossil Energy and Carbon Management (FECM):**
    a. Office of Carbon Management Technologies (via Hydrogen with Carbon Management, Carbon Dioxide Conversion, and Point-Source Carbon Capture): Increase for Carbon Dioxide Conversion reflects a focus on multiple pathways and technologies for large-scale carbon conversion and aims to accelerate key technology pathways, including addressing challenges faced as technologies scale beyond early R&D. This funding includes carbon conversion into valuable products across a wide range of industries and applications such as cement, chemicals, and products.
    b. Office of Resource Sustainability (via Natural Gas Decarbonization and Hydrogen Technologies): Maintain progress at a reduced level of funding. Decrease reflects shift in priorities, resulting in a lower level of effort in research on utilizing natural gas storage fields for hydrogen.
4. **Office of Science (SC):** In ASCR, changes reflect the completion of Exascale Computing Project in FY 2023. In BES, activities continue with a modest increase in funding through the SC Energy Earthshots initiative in the FY 2025 Request. The five-year awards for the Solar Fuels Hub program will be considered for renewal in FY 2025. In BER, changes from FY 2023 to FY 2025 reflect shifts in funding within the BER portfolio and completed activities.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs

The Clean Fuels and Products Crosscut does not have directly aligned IIJA and IRA Programs. While there are several IIJA and IRA programs that could support the planning and execution of technology development, demonstration, and deployment of new technologies related to Clean Fuels and Products, that is dependent on what projects apply for and receive funding.

Critical and Emerging Technologies
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Artificial Intelligence and Machine Learning	296,839	287,000	455,100	+172,288
Biotechnology and Biomanufacturing	872,233	859,728	908,688	+36,955
Microelectronics	220,669	252,669	276,151	+55,482
Quantum Information Systems	300,749	289,429	289,429	-11,320

Critical and Emerging Technologies Overview

Leadership in critical and emerging technologies – including biotechnology and biomanufacturing, as well as computing-related technologies, including quantum information systems, microelectronics, and artificial intelligence and machine learning - will be central to America's sustained prosperity and our national security. Department of Energy (DOE) advances in these areas not only strengthen its scientific, energy, and security missions, but also significantly contribute to continued United States (U.S.) leadership in science, technology, and innovation.

At DOE, crosscutting policy approaches to critical and emerging technologies will be coordinated by a newly launched Office of Critical and Emerging Technology (CET). CET will work across DOE entities responsible for the identification and development of critical and emerging technologies to develop a coordinated strategic outlook for these technologies, enabling DOE leadership, as well as interagency, congressional, and external stakeholders to maximize the impact of DOE capabilities and investments in these key areas to strengthen the U.S. technology advantage in the national interest.

By working across DOE offices and the National Laboratories, the CET Office will help identify where program advancements can benefit from a DOE-wide perspective and enhanced coordination, collaboration and elevation, supporting the alignment of DOE's R&D and innovation efforts for both near and long-term national priorities. Moreover, CET will bring the expertise and capabilities of DOE programs and labs to bear on national science and technology requirements and policy development in the interagency, White House, and Congress. CET will serve as DOE's node in the interagency network of other recently established offices at federal agencies to accelerate technology innovation in key sectors including the Office of the Special Envoy for Critical and Emerging Technologies at the Department of State; Technology Innovation and Partnerships Directorate at the National Science Foundation; and Emerging Capabilities Policy Office at the Department of Defense. Within NNSA, continued coordination between program offices will ensure efficient leveraging of capabilities for national security applications.

The associated crosscutting budget for the prioritized critical and emerging technologies are as follows: Artificial Intelligence and Machine Learning, Biotechnology and Biomanufacturing, Microelectronics, and Quantum Information Systems. These crosscutting budgets are targeted investments that would develop and use these critical and emerging technologies within RD&D programs.

Artificial Intelligence and Machine Learning
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**14,027**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	14,027	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**52,056**	**61,000**	**76,000**	**+23,944**
Advanced Manufacturing Office	5,000	28,000	0	-5,000
Advanced Materials & Manufacturing Technologies	0	0	28,000	+28,000
Bioenergy Technologies	9,000	9,000	9,000	0
Building Technologies	2,000	2,000	2,000	0
Geothermal Technologies	500	500	2,000	+1,500
Hydrogen and Fuel Cell Technologies	1,000	1,000	1,000	0
Industrial Efficiency and Decarbonization	0	0	4,000	+4,000
Solar Energy Technologies	19,056	5,000	5,000	-14,056
Vehicle Technologies	9,000	9,000	9,000	0
Water Power Technologies	0	0	3,000	+3,000
Wind Energy Technologies	6,500	6,500	13,000	+6,500
Science	**165,873**	**167,000**	**259,000**	**+93,127**
Advanced Scientific Computing Research	69,873	71,000	105,516	+35,643
Basic Energy Sciences	29,000	29,000	46,366	+17,366
Biological and Environmental Research	8,000	8,000	12,790	+4,790
Fusion Energy Sciences	11,000	11,000	17,586	+6,586
High Energy Physics	40,000	40,000	63,952	+23,952
Nuclear Physics	8,000	8,000	12,790	+4,790
National Nuclear Security Administration	**63,883**	**58,000**	**114,100**	**+50,217**
Defense Nuclear Nonproliferation	33,883	28,000	58,000	+24,117
Weapons Activities	30,000	30,000	56,100	+26,100
Critical and Emerging Technologies (CET)	**0**	**0**	**5,000**	**+5,000**
Departmental Administration	**1,000**	**1,000**	**1,000**	0
Office of the Chief Information Officer (OCIO)	1,000	1,000	1,000	0
Grand Total	**296,839**	**287,000**	**455,100**	**+172,288**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Artificial Intelligence and Machine Learning Overview

Recent advances in artificial intelligence (AI) are enabling enormous progress and breakthroughs that will help address the key challenges of our time – from more effective cancer screening and targeted treatments to world-changing advanced manufacturing, to reducing red tape and accelerating the transformation of our electricity grid and deployment of clean-energy technologies, to state-of-the-art production capabilities for our nuclear stockpile, to enabling the discovery and exploitation of non-traditional signatures for nuclear proliferation detection. Increasing global competition and high

consequence uses of AI are driving the need for the Federal government to harness innovative AI methods, systems, and breakthroughs for good and mitigate its considerable risks. To help make this possible, DOE's AI-related activities include fundamental research in AI, coordination and planning of AI R&D, and the use of AI tools to explore machine learning (ML), natural language processing, knowledge representation and reasoning, and computer vision, along with the safety, security, robustness, and explain-ability of AI systems. They also include applying promising, emerging AI/ML technologies to the stockpile stewardship mission, and to early detection of foreign nuclear proliferation activities. Advances in AI are not just in the realm of the future; DOE is leveraging in real-time our core strengths in cutting-edge AI development on leading high-performance computing system infrastructure deployed through the exascale computing project to deliver advances across our energy, security, and science mission. To facilitate coordination of AI/ML activities at the Department, the CET Office requests $5 million to support staff and resources to execute crosscutting work in these critical and emerging technologies and the OCIO office requests $1 million in their program budget to support using artificial intelligence within the Department of Energy's information technology systems.

Artificial Intelligence and Machine Learning Highlights of Program Efforts in FY 2025

1. **Advanced Research Projects Agency – Energy (ARPA-E)**: As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in CET AI will be determined in FY 2024/2025.
2. **Energy Efficiency and Renewable Energy (EERE)**
    a. **Advanced Materials and Manufacturing Technologies (AMMTO):** AMMTO supports use of artificial intelligence and machine learning in supporting smart manufacturing of clean energy technologies, including batteries, critical materials, and high-performance materials.
    b. **Bioenergy Energy Technologies Office (BETO):** BETO uses AI/ML to develop new catalysts, develop new organisms using synthetic biology tools, model biomass feedstocks as they undergo pre-processing, and model bioenergy technology systems to support scale-up.
    c. **Building Energy Technologies Office (BTO):** BTO will be applying AI/ML methodologies to optimize operation of buildings through controls and energy management systems that can reduce energy use and reduce grid impacts from decarbonized buildings.
    d. **Geothermal Energy Technologies Office (GTO):** GTO will support work in machine learning for geothermal exploration and development.
    e. **Hydrogen and Fuel Cell Technologies (HFTO):** HFTO is using AI/ML to develop new materials for hydrogen storage and advanced water-splitting, and accelerate the development of platinum group-free catalysts for use in fuel cells and electrolyzers.
    f. **Industrial Efficiency & Decarbonization Office (IEDO):** IEDO will support innovative strategies to apply AI/ML techniques to complex process design challenges in decarbonized industrial systems.
    g. **Solar Energy Technologies Office**: SETO will support work AI/ML software development and application components focused on grid integration planning tools, and photovoltaic research, including perovskites.
    h. **Vehicle Technologies Office (VTO):** VTO proposes to continue developing technology solutions that improve the mobility energy productivity of both passenger and freight movement through the development of connectivity, communication, automation, and other transportation solutions that are enabled by AI and advanced computing technologies.
    i. **Water Power Technologies Office (WPTO):** WPTO proposes to develop O&M data analytics and progress into the application of whole life cost modeling. It will also complete the industry-focused pilot study and finalize the digital twin development process for new users. It will identify target applications and value propositions for advanced sensors in powertrain, dam, and cybersecurity systems. WPTO will continue support for the EERE cross-office program (CyberSHIELD) that is focused on risk detection and valuation of distributed renewables.
    j. **Wind Energy Technologies Office (WETO):** WETO will support wind system O&M optimization tools and methodologies, innovative manufacturing and automation, and tools and models to better understand foundational resource assessment and characterization.
3. **Science (SC):** AI/ML represent a paradigm shift for scientific computing and discovery. SC recognizes the power that AI/ML must accelerate progress in scientific research and missions by developing new data analysis tools and integrating data focused approaches with our more traditional R&D ecosystem. SC is uniquely positioned to not only benefit from,

but also advance, current AI activities to maintain U.S. leadership in science and drive U.S economic competitiveness. Several AI/ML topics are of interest and coordinated across SC programs, particularly those in accelerator and detector controls systems and other real-time applications, and the development of AI/ML for extreme environments and extreme scale.

a. **Advanced Scientific Computing Research (ASCR)**: To significantly improve the energy-efficiency, precision, and robustness of AI systems, the ASCR program will continue collaborations and co-design activities with the other SC and DOE programs to develop and tailor frontier AI and big data solutions across a range of applications and scientific user facilities, including accelerating the holistic automation of scientific workflows. In FY 2025, ASCR increases its support for the AI Initiative through investments in research that leverages the unique capabilities of the DOE national laboratories, including the world-leading exascale ecosystem, and expands responsible, trustworthy, privacy preserving, and secure application of AI technologies across DOE's broad mission needs in basic science, national security, energy technologies, emergency preparedness, infrastructure and operations, and workforce development.
b. **Basic Energy Sciences (BES)**: Research will advance the use of modern data science approaches to accelerate discovery in chemical and materials sciences and to enhance user facility operations and scientific output. In FY 2025, BES support for the AI Initiative includes research to advance the use of modern data science approaches to accelerate discovery in chemical and materials sciences and research on analysis and control of data generated at the scientific user facilities to optimize the facilities' scientific output.
c. **Biological and Environmental Research (BER)**: In FY 2025, BER enhances its support for the AI Initiative to advance climate change modeling and prediction of extreme events. Robust data analytics will also be developed to quality-controlled data to users, to assist evaluation of subsurface water availability and the development of digital twins for the Urban Integrated Field Laboratories. BER will use AI/ML to bring the E3SM model much more rapidly and accurately to the initial state needed to launch a prediction simulation, leading to savings in computation and more accurate predictions.
d. **Fusion Energy Science (FES):** New systems for managing, formatting, curating, and accessing experimental and simulation data, provided in publicly available databases, have been identified as a high priority growth area. In FY 2025, FES will increase support in utilizing existing databases across all areas of the research program to strengthen our AL/ML tools in preparation for future design activities for a Fusion Pilot Plant.
e. **High Energy Physics (HEP):** HEP will continue to support awards under the FY 2022 AI Research for High Energy Physics FOA through FY 2025, with projects that use AI research to advance HEP priorities, improve understanding of fundamental AI technologies, and develop an HEP AI Ecosystem. Long-term future work through partnerships involving detectors and facilities and enabling the use of HPC centers for AI/ML are natural points of collaboration.
f. **Nuclear Physics (NP)**: In FY 2025, NP continues efforts to pioneer sensor and algorithm developments targeted towards fully integrating AI/ML into the every-day fabric of nuclear physics research and facility operations. Specifically, efforts will be expanded to acquire and analyze data useful for training automated systems capable of independent decision tree navigation for controls, accelerators, and detectors.
g. **DOE Isotope Program**: In FY 2025, the DOE Isotope Program (DOE IP) continues to support research in AI/ML through its core activities and identifies opportunities in this topic area in FOAs.

4. **National Nuclear Security Administration (NNSA)**
   a. **Defense Nuclear Nonproliferation:** FY 2025 Request extends AI development efforts to include blue-teaming and red-teaming capabilities, enabling trustworthy and effective AI for nuclear security applications and identifying potential thresholds of concern.
   b. **Weapons Activities:** FY 2025 Request supports developing AI tools and methodologies to assist in reducing cost and schedule in the discovery, design optimization, manufacturing and certification, and deployment and surveillance phases of a nuclear warhead system. It also will support developing methods, algorithms, and software for enabling AI-assisted code generation, scientific discovery and HPC facility operations. Additionally, it will support developing the mathematical foundation for verification and validation, which will assess methods that ensure results generated from AI can be trusted for the scientific community in general, and nuclear security community specifically. The program will collaborate with industry and other U.S. agencies to influence standards, develop benchmarks, and co-design next-generation hardware. It will also apply AI/ML to additive manufacturing, advanced engineering materials work, and record digitization efforts.

Artificial Intelligence and Machine Learning Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency – Energy (ARPA-E)**: In FY 2023, ARPA-E selected and/or obligated $14,027K in funding to projects aligned with the CET AI crosscut through ARPA-E's Creating Revolutionary Energy and Technology

Endeavors (CREATE) Exploratory Topic and Grid Overhaul with Proactive, High-Speed Undergrounding for Reliability, Resilience, and Security (GOPHURRS) programs.

2. **Energy Efficiency and Renewable Energy (EERE)**
    a. **Advanced Materials and Manufacturing Technologies (AMMTO):** Increase will support the use of AI/ML in supporting smart manufacturing of clean energy technologies, including batteries, critical materials, and high-performance materials.
    b. **Geothermal Energy Technologies Office (GTO):** Increase will provide additional support for ML for geothermal exploration and development; as well as leveraging advances in GTO's Exploration and FORGE R&D portfolio.
    c. **Industrial Efficiency & Decarbonization Office (IEDO):** Increase will support innovative strategies to apply AI/ML techniques to complex process design challenges in decarbonized industrial systems.
    d. **Solar Energy Technologies Office (SETO):** FY 2023 Enacted represented full value of projects whereas FY 2025 methodology change reflects estimates of the AI/ML component of potential project selections.
    e. **Water Power Technologies Office (WPTO):** Increase will support development of O&M data analytics and progress into the application of whole life cost modeling. It will also support completion of industry-focused pilot study and finalization of digital twin development process for new users.
    f. **Wind Energy Technologies Office (WETO):** Increase will provide support for wind system O&M optimization tools and methodologies; innovative manufacturing and automation; and tools and models to better understand foundational resource assessment and characterization.
3. **Science (SC):** SC will significantly increase its support for the AI/ML Initiative through investments in research that leverages the unique capabilities of the DOE national laboratories, including the world-leading exascale ecosystem. SC will increase its investments for early-stage research in key quantum technologies and tools, as well as providing access to quantum computing and network testbeds and systems. SC will increase support in utilizing existing databases across all science areas of the research to strengthen our AL/ML tools.
4. **National Nuclear Security Administration (NNSA):**
    a. **Defense Nuclear Nonproliferation:** NNSA advanced AI as a tool for nuclear nonproliferation by curating large datasets required to train models designed to detect instances of proliferation and developing mathematical methods to train AI models with datasets that are larger than available system memory, demonstrating the capability on ORNL's Summit HPC. The increase will support advancing remote the development of foundational models for nonproliferation, improving capabilities related to the discovery of proliferation-related activities, and developing digital twins relevant to nuclear nonproliferation; and implementing a comprehensive, scalable, and repeatable evaluation and reporting framework for assessing how AI could advance an adversary's nuclear capability. This funding will further enable research and development to ensure AI Red Teaming can keep pace with ongoing innovation across the AI industry.
    b. **Weapons Activities:** The increase will support implementation of AI/ML tools to ingest, index, catalog, and create metadata on weapons-related documents. Funding will support also support the use of commercially available artificial intelligence hardware and further develop machine learning algorithms to add to the ASC physics-informed simulation portfolio. Safe and trusted AI technologies can significantly increase efficiency, improve models to better match experimental data, and tighten the integration of multi-scale and multi-dimensional modeling efforts, while addressing concerns with validation of these techniques when new errors are introduced.

Biotechnology and Biomanufacturing
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**500**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	500	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**96,514**	**96,514**	**103,750**	**+7,236**
Bioenergy Technologies	96,514	96,514	103,750	+7,236
Science	**755,219**	**743,214**	**804,938**	**+49,719**
Advanced Scientific Computing Research	11,183	11,183	11,183	0
Basic Energy Sciences	280,351	301,796	339,860	+59,509
Biological and Environmental Research	463,685	430,235	453,895	-9,790
National Nuclear Security Administration	**20,000**	**20,000**	**0**	**-20,000**
Defense Nuclear Nonproliferation	20,000	20,000	0	-20,000
Grand Total	**872,233**	**859,728**	**908,688**	**+36,955**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Biotechnology and Biomanufacturing Overview

By responsibly harnessing the full potential of biotechnology and biomanufacturing, we will be able to leverage living things to make almost anything that we use in our day-to-day lives, from medicines to fuels to plastics, and continue to drive U.S. innovation into economic and societal benefits. DOE encompasses a broad range of programs spanning basic science through advanced research, development, and deployment programs, to partnerships with commercial entities, and DOE programs that are making substantial investments to translate scientific discoveries to commercial application, underpinning a more globally competitive U.S. bioeconomy while also reducing risk through biosecurity innovations. For example, DOE is sponsoring research into the production of next-generation biofuels, bioproducts, and biomaterials from sustainable resources; novel plant genome-enabled research for identifying gene function relevant to developing dedicated bioenergy crops; understanding the role of microorganisms controlling the cycling of carbon and other nutrients in the environment; and quantum-enabled imaging concepts to expand the ability to visualize complex biological processes within cells. To take full advantage of progress made over the last decade in genome sequencing cost and speed, and to accelerate the Nation's capabilities to apply biotechnology to address deep decarbonization challenges, integrated efforts that bring together biological research, data science, high-performance computing, artificial intelligence and machine learning, automation, and process engineering are needed to realize deep decarbonization benefits for transportation, industry, and agriculture.

Highlights of Program Efforts to Support Biotechnology and Biomanufacturing in FY 2025

1. **Advanced Research Projects Agency – Energy (ARPA-E)**: As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in CET Biotechnology and Biomanufacturing will be determined in FY 2024/2025.
2. **Energy Efficiency and Renewable Energy (EERE)**
    a. Bioenergy: Bioenergy Energy Technologies Office (BETO) Biochemical conversion R&D will continue to investigate carbon negative (or low carbon intensive) products/chemicals through the deconstruction of diverse types of biomass feedstocks into clean sugars and other intermediates and novel approaches such as cell-free processing. This includes organism development, metabolic pathway engineering and optimization, and novel approaches such

as cell-free biocatalysis. One component of this effort, the Agile BioFoundry (ABF) consortium, applies synthetic biology tools and machine learning developed over the past few years to create commercial organisms to produce sustainable aviation fuel (SAF) and bio-product intermediates. These efforts also include improvements to pretreatment, hydrolysis and separations technologies that can enable biomanufacturing of fuels, chemicals and materials. The Advanced Biofuels and Bioproducts Process Development Unit (ABPDU) will continue the successful partnership with industry and other national labs to complete intermediate scale up of organisms and processes.

b. Biomanufacturing: Bioenergy Energy Technologies Office (BETO) FY 2025 Request will support Biomanufacturing funding to support scale-up of integrated biorefineries with a focus on producing SAF, which will directly support the Sustainable Aviation Fuel Grand Challenge. These investments will increase the number of new biomass feedstocks that can be processed to final fuels, and new efforts to address persistent challenges in preprocessing and handling high-impact, biomass feedstocks such as corn stover.

3. **Science (SC):** There are multiple programs within SC that are major contributors to the advancement of the biotechnology crosscut objectives and scientific discovery. In FY 2025, SC programs will focus on new and continued research and user facilities as described below.
   a. **Advanced Scientific Computing Research (ASCR):** ASCR employs high-performance computing (HPC) and AI-enabled exascale science to accelerate progress in biotechnology across mission areas and national priorities. Through partnerships and collaborations within SC, DOE and related mission agencies (e.g., National Institutes of Health and U.S. Department of Agriculture), ASCR is advancing the foundational research, computational readiness, and HPC access for biotechnology applications that underpin predictive capabilities for climate, national preparedness and biosecurity, and other DOE missions. ASCR supports the DOE Energy Earthshots™ Initiative through research and advanced methods in applied mathematics, computer science, and high end scientific and engineering simulations, as well as through the capabilities at ASCR scientific user facilities. The ASCR Energy Earthshot funding will contribute computational tools and research to understand basic principles and potentially advance biotechnology concepts relevant to the current Hydrogen Shot™, Carbon Negative Shot™, and Industrial Heat Shot™, as well as potential research in new focus areas.
   b. **Basic Energy Sciences (BES):** BES supports fundamental chemical and materials research to underpin the development of biotechnology. Research supported by BES may also use biotechnological approaches to understand molecular and atomic mechanisms in biochemical and chemical processes and structures which, in turn, may advance new biotechnologies. These detailed mechanistic studies can enable strategies for biohybrid tool development and biotechnology-based approaches for energy capture, conversion, and/or storage. BES provides tools for characterizing biotechnology-relevant materials and chemical processes through x-ray, neutron, electron beam scattering, and nano-science capabilities.
   c. **Biological and Environmental Research (BER):** BER employs biotechnological approaches such as genome sequencing and analysis, proteomics, metabolomics, structural biology, high-resolution imaging and characterization, and integration of biological data into computational models to advance a predictive understanding of biological systems. BER programs have a track record of accomplishment to understand and design new biological systems for carbon management, bioenergy and bioproducts produced from sustainable plant biomass to replace those currently obtained from petroleum. BER supports four Bioenergy Research Centers (BRCs) engaged in multidisciplinary genome-enabled biotechnology research to sustainably produce a range of bioenergy and bioproducts from renewable plant biomass. Quantum-enabled instrumentation for imaging biological processes will be explored in Biomolecular Characterization and Imaging Science for visualizing cellular metabolism non-destructively. The BRCs will jointly provide new research underpinning bioenergy and bioproducts production from sustainable biomass through individual and multi-BRC collaborative efforts. BER also support the Joint Genome Institute (JGI) which provides users with high quality genome production and new analysis techniques for complex plant and microbiome samples. BER funding for Energy Earthshot Research Centers (EERCs) will contribute the basic research needed to understand carbon sequestration mechanisms within soils for Carbon Negative Shot and to also bio-based approaches to solve the challenges in the Industrial Heat Shot and the Clean Fuels and Products Shot.
4. **National Nuclear Security Administration (NNSA):** NNSA has terminated its Bioassurance program as required in Section 3122 of the National Defense Authorization Act of FY 2024.

Highlights and Major Changes in Biotechnology and Biomanufacturing from FY 2023 Enacted

1. **Advanced Research Projects Agency – Energy (ARPA-E)**: In FY 2023, ARPA-E selected and/or obligated $500K in funding to projects aligned with the CET Biotechnology and Biomanufacturing crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic program.
2. **Energy Efficiency and Renewable Energy (EERE)**
    a. Bioenergy: Decrease in funds reflects a shift from BETO's earlier stage and lower TRL BioProcessing R&D that will be scaled back in favor of supporting pilot and demonstration-scale biorefinery projects and advancing furthering maturing technologies, facilitating their transfer to industry, developing overall process data, and increasing commercial readiness. Agile BioFoundry will prioritize R&D on its high-priority organisms and intermediates for SAFs and chemicals. No funds are requested to support partnerships with the ABF and industry on the use of novel organisms or intermediates that are not included in the strategic plan.
    b. Biomanufacturing: Increase in funds for BETO to support scale-up of integrated biorefineries with a focus on producing sustainable aviation fuel (SAF) which will directly support the Sustainable Aviation Fuel Grand Challenge. These investments will increase the number of new biomass feedstocks that can be processed to final fuels, and new efforts to address persistent challenges in preprocessing and handling high-impact, biomass feedstocks such as corn stover.
3. **Science (SC)**: SC will increase its investments in research utilizing tools for characterizing biotechnology-relevant materials and chemical processes through x-ray, neutron, electron beam scattering, and nano-science capabilities.
4. **National Nuclear Security Administration (NNSA):** Program terminated.

Microelectronics
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Energy Efficiency and Renewable Energy	**15,500**	**15,500**	**24,500**	**+9,000**
Advanced Manufacturing Office	15,500	15,500	0	-15,500
Advanced Materials and Manufacturing Technologies			24,500	+24,500
Science	**47,701**	**79,701**	**94,701**	**+47,000**
Advanced Scientific Computing Research	5,183	15,183	20,183	+15,000
Basic Energy Sciences	30,000	40,000	45,000	+15,000
Fusion Energy Sciences	5,000	15,000	20,000	+15,000
High Energy Physics	7,000	7,000	7,000	0
Isotope R&D and Production	0	2,000	2,000	+2,000
Nuclear Physics	518	518	518	0
National Nuclear Security Administration	**157,468**	**157,468**	**156,950**	**-518**
Weapons Activities	157,468	157,468	156,950	-518
Grand Total	**220,669**	**252,669**	**276,151**	**+55,482**

Microelectronics Overview

DOE is at the leading edge of microelectronics, both as a consumer and as an engine of scientific understanding that has enabled many of the technological breakthroughs adopted by industry. To enable continued advances in computing and power technologies, a fundamental rethink is needed of the science behind the materials and chemistry, physics, synthesis and fabrication technologies, architectures, algorithms, and software for microelectronics. DOE is in a unique position to both play a critical role in microelectronic innovation over the coming decades, and to advance scientific discovery from the resultant capabilities in computing, sensing, power, and communications. DOE national laboratories have both the expertise and R&D infrastructure to play a key role in the advancement of microelectronic fabrication technologies, bringing together academic and national laboratory researchers with industry partners. DOE user facilities, including High Performance Computing Facilities, Nanoscale Science Research Centers, and X-ray and Neutron Scattering Facilities, are uniquely positioned to address these challenges through expanded/enhanced instrumentation and capabilities that are specifically targeted at future microelectronics devices and systems, and through computation and modeling that complement experimental synthesis, processing, fabrication, and characterization.

Highlights of Program Efforts to Support Microelectronics in FY 2025

1. **Energy Efficiency and Renewable Energy (EERE):** Advanced Materials and Manufacturing Technologies Office (AMMTO) provides primary support for Advanced Microelectronics. The FY 2025 Request will support manufacturing RD&D for the high voltage power electronics needed for transportation and other applications, as well as data and analysis for high efficiency microelectronics.
2. **Science (SC)**: Funding will continue support for ASCR, BES, HEP, and FES partnerships initiated in FY 2021 to support multi-disciplinary microelectronics research. Informed by ongoing community strategic planning efforts, key technical areas include: materials, chemistry, and fundamental device physics; component integration, architecture, and algorithms; and next-generation tools for synthesis, fabrication, and characterization of devices and systems.
    a. **Advanced Scientific Computing Research (ASCR)** will continue to support research in neuromorphic and other energy-efficient AI and computing architectures and the tools and techniques enabling hardware/software co-design, including the software frameworks and programming environments necessary to rapidly transition scientific software to new computing architectures.
    b. **Basic Energy Sciences (BES)** will continue to support four Energy Frontier Research Centers (EFRCs) initiated/renewed in FY 2022 and additional EFRCs initiated/renewed in FY 2024.

c. **Fusion Energy Sciences (FES)** will maintain support for high priority research in low-temperature plasma-assisted microelectronics nanofabrication, informed by the recent FES sponsored microelectronics workshop report.
d. **High Energy Physics (HEP)** will continue support for R&D into sensor materials, detector devices, advances in front-end electronics, and integrated sensor/processor architectures, including adaptation to high radiation, cryogenic temperature, or low radioactive background environments.
e. **The DOE Isotope Program** will focus on radiochemistry and development of technology for producing isotopes needed for microelectronics fabrication and development, many of which are currently sole sourced outside the U.S.
f. **Nuclear Physics (NP)** will continue to support research and development of detector materials, devices, advances in front-end electronics, and integrated sensor/processor architectures, including the design and fabrication of cryogenic microelectronics.

3. **National Nuclear Security Administration (NNSA):** NNSA makes investments in manufacturing and technology of microelectronics with the intent to preserve the stockpile capability of the future. The Microsystems Engineering, Science and Applications (MESA) Complex provides essential facilities and equipment to design, develop, manufacture, integrate, and qualify microsystems for national security needs that cannot or should not be made in industry. The FY 2025 Request will continue support of MESA's portfolio.

Highlights and Major Changes in Microelectronics from FY 2023 Enacted

1. **Energy Efficiency and Renewable Energy (EERE)**: EERE will increase to support innovation in manufacturing wide bandgap semiconductors for power electronics.
2. **Science (SC)**: SC will increase its investments in microelectronics advancing tools and techniques related to architectures and the tools and techniques enabling hardware/software co-design, low-temperature plasma-assisted microelectronics nanofabrication, and development of technology for producing isotopes needed for microelectronics fabrication and development.
3. **National Nuclear Security Administration (NNSA)**: No major changes.

Quantum Information Systems
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Science	**288,749**	**280,429**	**280,429**	**-8,320**
Advanced Scientific Computing Research	96,517	98,197	98,197	+1,680
Basic Energy Sciences	102,000	92,000	92,000	-10,000
Biological and Environmental Research	14,500	14,500	14,500	0
Fusion Energy Sciences	10,000	10,000	10,000	0
High Energy Physics	50,566	50,566	50,566	0
Isotope R&D and Production	4,300	4,300	4,300	0
Nuclear Physics	10,866	10,866	10,866	0
National Nuclear Security Administration	**12,000**	**9,000**	**9,000**	**-3,000**
Weapons Activities	12,000	9,000	9,000	-3,000
Grand Total	**300,749**	**289,429**	**289,429**	**-11,320**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Quantum Information Systems (QIS) Overview

DOE is working to create the ecosystem needed to foster and facilitate advancement and commercialization of quantum information systems with public benefits in national security, economic competitiveness, and leadership in scientific discovery. In FY 2025, DOE will continue its leadership role in the National Quantum Initiative. Quantum information science could yield transformative new types of computers, sensors, and networks, with the potential to improve the Nation's prosperity and security. Nearer-term applications are expected to include speeding up drug discovery, and grid security, while longer-term applications could include uses such as precise predictions of rainfall to aid agricultural practices or understanding the nature of dark matter. DOE has launched a range of multidisciplinary research programs in QIS, including five National QIS Research centers with efforts to develop quantum computers as testbeds, to design new algorithms for quantum computing, and to use quantum computing to model fundamental physics, chemistry, and materials phenomena. NNSA is also investigating the application of quantum computing algorithms and hardware to NNSA mission needs to gain a detailed understanding of the best technical approaches and benefits of emerging quantum technologies and develop a roadmap for integration into High-Performance Computing environments.

Within DOE, the Office of Technology Transitions (OTT) will assist with coordination activities, including: (1) facilitate partnerships with industry, state, federal, local governments, and the DOE national labs to support adoption and commercialization of near-term QIS technologies; (2) engage with the Quantum Economic Development Consortium and support market development of QIS technologies; and (3) develop, identify, and disseminate QIS use cases that support DOE's mission areas.

Highlights of Program Efforts to Support Quantum Information Systems in FY 2025

1. **Energy Efficiency and Renewable Energy (EERE)**: Funding will support innovation in manufacturing wide bandgap semiconductors for power electronics.
2. **Science (SC)**: SC's QIS investments are focused on four key areas:
    a. QIS Core Basic Research: In FY 2025, SC will continue to invest in core basic QIS research in key DOE areas including computing, simulation, sensing, networking, and isotope production.
    b. National QIS Research Centers: In FY 2020, DOE established five National QIS Research Centers to accelerate the transformational advances in basic science and quantum-based technology needed to develop world-leading capabilities in QIS, and in support of the NQI. The FY 2025 Request will support renewal of the Centers' portfolio.

c. Infrastructure and Supporting Technologies: The FY 2025 Request will support regional-scale quantum computing as well as networking testbeds able to interface with satellite links and classical networks. The DOE Isotope Program continues to develop related advanced technology and core competencies as it produces isotopes of interest to QIS.
d. A Diverse Quantum Ready Workforce: In FY 2025, SC will continue its multi-pronged investments in workforce development for QIS through multiple programs including Early Career Research program.

3. **National Nuclear Security Administration (NNSA):** Stockpile Research, Technology, and Engineering funding will support exploring potential applications of quantum computing to stockpile stewardship challenges.

Highlights and Major Changes in Quantum Information Systems FY 2023 Enacted

1. **Energy Efficiency and Renewable Energy (EERE)**: No major changes to report.
2. **Science (SC)**:SC will decrease current investments with the complete of some research awards.
3. **National Nuclear Security Administration (NNSA):** Continue to mature quantum computer resistant codes and weapon architecture for future insertion opportunities.

Critical Minerals and Materials
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Energy Efficiency and Renewable Energy	**157,900**	**139,948**	**192,172**	**34,272**
Advanced Manufacturing Office	26,000	26,000	0	-26,000
Advanced Materials and Manufacturing Technologies	0	0	50,000	50,000
Geothermal Technologies	3,000	2,248	2,787	-213
Hydrogen and Fuel Cell Technologies	30,000	22,000	22,000	-8,000
Solar Energy Technologies	16,000	16,000	10,000	-6,000
Vehicle Technologies	73,700	73,700	107,385	33,685
Wind Energy Technologies	9,200	0	0	-9,200
Fossil Energy and Carbon Management	**44,000**	**44,000**	**74,000**	**30,000**
Mineral Sustainability	44,000	44,000	74,000	30,000
Science	**25,000**	**25,000**	**25,000**	**0**
Basic Energy Sciences	25,000	25,000	25,000	0
Manufacturing and Energy Supply Chains	**0**	**0**	**34,350**	**34,350**
Manufacturing Capacity and Competitiveness	0	0	28,350	28,350
Supply Chain Mapping, Modeling & Analysis	0	0	6,000	6,000
Grand Total	**226,900**	**208,948**	**325,522**	**+98,622**

Overview

Critical minerals and materials (CMM) are vital for the United States (U.S.) energy security and the clean energy transition, for defense applications, and for a broad set of industrial and commercial applications which underpin the U.S. economy. In 2022, the U.S. was 100% net-import reliant for 12 of the 50 individually listed critical minerals and more than 50% net important reliant for an additional 31 critical mineral commodities including rare earth elements (REE).[1]

Pursuant to authority under section 7002(a)(2) of the Energy Act of 2020, the Secretary of Energy, acting through the Undersecretary for Science and Innovation, determined the 2023 Department of Energy (DOE) Critical Materials List,[2] which includes: (1) 18 critical materials for energy and (2) critical minerals as determined by the Secretary of Interior. The 2023 DOE Critical Materials List notably includes four materials not on the U.S. critical minerals list[3]: copper, electrical steel, silicon, and silicon carbide.

Developing reliable and secure CMM sources and supply chains; identifying and advancing effective substitutes or alternatives using an assured supply of materials; and developing domestic, responsible, and efficient processing capacity for these minerals and materials can reduce the supply risks faced by the U.S. foundational supply chain components that have the highest indicators of criticality in the 2023 DOE Critical Materials Assessment[4] include, but are not limited to, neodymium, praseodymium, dysprosium, and terbium for permanent magnets in electric vehicle (EV) motors and offshore wind turbines generators; cobalt, lithium, and graphite for EV batteries and grid storage; iridium and platinum in catalysts for fuel cells and clean hydrogen production; gallium and silicon carbide for semiconductors used in efficient lighting and wide bandgap power electronics; magnesium for lightweight alloys for vehicles, and electrical steel inclusive of grain-oriented electrical steel (GOES) and amorphous steel for transformers as well as non-grain-oriented electrical steel (NOES)

[1] USGS Mineral Commodities Summaries 2023, Mineral Commodity Summaries 2023 (usgs.gov)
[2] 88 FR 51792. https://www.federalregister.gov/documents/2022/02/24/2022-04027/2022-final-list-of-critical-minerals
[3] 87 FR 10381. https://www.federalregister.gov/documents/2022/02/24/2022-04027/2022-final-list-of-critical-minerals
[4] DOE Critical Materials Assessment. https://www.energy.gov/sites/default/files/2023-07/doe-critical-material-assessment_07312023.pdf

for motors.

The breadth of activities captured through the CMM crosscut includes technology innovation and deployment related to the Net-Zero Game Changers Initiative including long duration energy storage, advanced batteries, fuel cells, clean hydrogen, advanced wind and solar power, and circular economy innovation and secure supply chains. The development of sustainable, safe, and robust domestic supply chains for CMM can also create high-paying jobs, support both existing and new manufacturing economies, and aid in a just transition for coal and fossil-based communities. CMM supply chains include mining and extraction, processing, manufacturing, and management at end-of-life (including remanufacture, refurbish, repair, reuse, recycle, and repurpose). At the same time, development of more diverse and robust mineral and material supply chains must incorporate engagement and consultation with diverse stakeholder and Tribal communities, coupled with deep consideration of and mitigation of the environmental and life cycle impacts of accelerated growth of CMM supply chains. This means that CMM supply chains of the future will be significantly different from those of the past.

The CMM crosscut underpins the development of several priority technology areas, the most notable and impactful being the Subsurface Energy Innovations and Energy Storage crosscuts and several Energy Earthshots. Coordination is ongoing to ensure that key topics and opportunities are not overlooked.

Coordination Efforts

The Department's primary role as part of a broader Federal Strategy[5] to build resilient CMM supply chains is to advance research, development, demonstration, and deployment (RDD&D), and spanning basic science to technology innovation. Section 7002(g)(1) of the Energy Act of 2020 directs DOE to establish a Critical Materials Program of RDD&D to: develop alternatives to critical materials that do not occur in significant abundance in the U.S.; promote the efficient production, use, and recycling of critical materials, with special consideration for domestic critical materials, throughout the supply chain; ensure the long-term, secure, and sustainable supply of critical materials; and prioritize work in areas that the private sector by itself is not likely to undertake due to financial or technical limitations.[6]

The CMM Crosscut coordinates and integrates the DOE Critical Materials Program.[7] The CMM Crosscut is comprised of representatives from across DOE to address research needs and related activities across all stages of research (RDD&D), the full supply chain and life cycle. In addition to the funding offices identified below, key facilitating offices support vital portions of this work. The Office of Technology Transitions (OTT), in coordination with DOE program offices, analyzes, identifies, and supports technology commercialization pathways and partnership opportunities. The International Affairs Office (IA) identifies and facilitates opportunities with foreign and ally partners and serves as a necessary bridge to other U.S. Government efforts in global supply chains. The Loan Programs Office (LPO), under the Under Secretary for Infrastructure, supports commercialization and deployment activities in the CMM space. The Office of Policy (OP) provides in-depth analysis and identifies policy tools which can accelerate technology use and adoption in support of the clean energy transition. Additionally, the State and Community Energy Program (SCEP) Office, under the Secretary for Infrastructure, in coordination with DOE program offices, manages the Communities Local Energy Action Program (LEAP) to provide technical assistance for clean energy and economic development planning to low-income, energy-burdened communities that are also experiencing either direct environmental justice impacts, or direct economic impacts from a shift away from historical reliance on fossil fuels.

FY 2025 coordination activities include developing and executing Critical Materials Program strategic planning, budget development, and execution for the crosscut through workshops, reports, and strategy updates. Crosscutting priorities will be informed by ongoing and recent analysis, including the 2023 DOE Critical Materials Assessment[4]. Strategic planning efforts will build upon previous coordination activities directed by Congress, as well as coordination mandated through Executive Order (EO) 13953, *Addressing the Threat to the Domestic Supply Chain from Reliance on Critical Minerals from Foreign Adversaries and Supporting the Domestic Mining and Processing Industries*, EO 14017, *America's*

[5] https://www.commerce.gov/data-and-reports/reports/2019/06/federal-strategy-ensure-secure-and-reliable-supplies- critical-minerals

[6] Consolidated Appropriations Act, 2021, Public Law 116-260 (Dec. 27, 2020), Div. Z, Title VII, section 7002(g)(1) [hereinafter Energy Act of 2020].

[7] Energy Act of 2020, section 7002(g)(6).

Supply Chains, and Section 7002(g)(6) of the Energy Act of 2020.[7] This work includes ongoing DOE efforts within DOE's OP to develop and maintain domestic supply chains by increasing raw material availability, expanding domestic manufacturing capabilities, supporting formation of and investment in diverse, secure, and socially responsible foreign supply chains, and enhancing supply chain knowledge and decision making.

CMM development and access within the U.S. requires close coordination between DOE and other agencies which have key leadership, supporting, or facilitating roles. This includes regulatory (Environmental Protection Agency, Department of Interior (DOI)); international (Department of Commerce (DOC), Department of State, Export-Import Bank, Development Finance Corporation (DFC)); technical (DOI-United States Geological Survey (USGS), Department of Defense (DOD)); and commercial facing partners (DOC, DOD, Department of Labor). Interagency collaboration is necessary to advance and secure sustainable mineral extraction, and to address the issues and challenges posed by future possible resources.

Objectives and Action Areas:

- Objective 1: Enable Robust CMM Supply Chains. Create reliable, resilient, affordable, and secure supply chains for CMM imperative to the clean energy and national security mission of the Department as part of a U.S. Government-wide strategy that leverages our allied global partners.
    - Action Area 1: Diversify & Expand Supply: Diversify and expand CMM supply from varying sources while minimizing waste and increasing techno-economic co-production of materials, where many materials are produced together, each bringing in similar revenues rather than one material accounting for an overwhelming majority of revenue.
    - Action Area 2: Develop Alternatives: Innovate alternate materials, manufactured components, and technologies that minimize or eliminate the use of CMMs.
    - Action Area 3: Increase Material & Manufacturing Efficiency: Efficient use and processing of materials across supply chain and life cycle.
    - Action Area 4: Enable a Circular Economy: Remanufacture, de-manufacture, refurbish, repair, reuse, upcycle, recycle, and repurpose.
- Objective 2: Increase U.S. Science & Technological Competitiveness. Ensure that DOE is an essential source of science, technology, and engineering solutions for re-establishing U.S. competitiveness in CMM supply chains and maintaining world class science and capabilities.
- Objective 3: Create a Responsible Energy Future. Create economic opportunities in partnership with communities while working to mitigate against adverse impacts on communities and the environment associated with the entire lifecycle of CMM supply chains.
- Objective 4: Expand the Innovation Ecosystem. Foster an inclusive, equitable, and accessible CMM innovation ecosystem that convenes a diverse set of stakeholders, not limited to DOE National Labs, academic – including community colleges and Minority Serving Institutions (MSIs), industry, and small businesses and broadens participation in science and technology.
    - Action Area: Increase Enabling and Crosscutting Work: Enhance collaboration and coordination for cross-cutting functions, such as criticality assessments, education and workforce development, stockpiling approaches, advanced theoretical, computational, and experimental tools, etc. Applies to multiple objectives.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Energy Efficiency and Renewable Energy (EERE):**
    a. Advanced Materials and Manufacturing Technologies (AMMTO): FY 2025 Request will expand critical materials research investments, with a focus on research, development and pilot scale demonstrations aimed at increasing domestic availability of these materials, developing alternatives, and increasing the resiliency of critical materials supply chains for clean energy applications. Note this activity was formerly funded in the Advanced Manufacturing Office.
    b. Geothermal Energy Technologies Office (GTO): FY 2025 work will focus on scale-up of technologies related to lithium extraction from geothermal brines and identification of additional resources and geographies with high potential for mineral extraction from geothermal brines or waters.
    c. Hydrogen and Fuel Cell Technologies (HFTO): HFTO supports activities in materials discovery in development for solar fuels production technologies, and catalysts for fuel cells that support this crosscut to minimize Platinum-group Metals (PGM) and critical materials.
    d. Solar Energy Technologies Office (SETO): SETO supports the analysis of potential photovoltaics (PV) deployment

limitations related to materials scarcity and the research, development and demonstration (RD&D) of materials alternatives, techniques to use materials more efficiently and recycling methods to further utilize existing materials.

e. Vehicle Technologies Office (VTO): FY 2025 Request will support advanced Battery Materials Research (BMR) in coordination with the Critical Minerals Initiative, which includes early-stage research of new cathode, anode, and electrolyte materials as well as the development of advanced high-capacity battery technologies and alternatives to lithium-based batteries.
f. Wind Energy Technologies Office (WETO): No funding requested in FY 2025. Ongoing critical materials research and development (R&D) is supported through the Bipartisan Infrastructure Law (BIL) appropriations for Wind Energy Recycling (41007b2).

2. **Fossil Energy and Carbon Management (FECM):**
   a. Further advance facilities to produce large quantities of high purity, commercial grade REEs and other CMM, through front-end engineering and design (FEED) studies and large-scale pilots, which is the next stage of development to broadly enable extraction of REE and other CMM from unconventional feedstocks (such as coal refuse and acid mine drainage) towards a commercial industry and taking advantage of existing pilot facilities, where applicable.
   b. Support the maturation of transformational separation and extraction technologies, potentially through laboratory and/or bench-scale innovative process concept development, as well as modeling and validation of models for optimization and efficiency improvements that would improve process economics.
   c. Support Phase II of the regional basin projects (the CORE-CM Initiative), covering larger portions of the country by regions, including the development of assessment methodology and technology for many unconventional and secondary feedstocks, including machine learning, and optimization modeling for characterization of CMM/REE.
   d. Work with the USGS to improve exploration and characterization technologies to reduce time, cost, and environmental impact, thereby enabling more rapid new upstream CMM projects from secondary and unconventional feedstocks to proceed.
   e. Initiate RD&D program centered on developing domestic and more environmentally sustainable next-generation mining and extraction technologies, using surgical precision to target and recover critical minerals from the subsurface. Such technologies would include advanced drilling technologies, novel geophysics, digital subsurface applications (autonomous operations, robotics, real-time extraction), in-situ mineral extraction, tailings management, marine mineral production, and novel processing.
   f. Begin development of a capability for mineral traceability throughout the supply chain, enabling transparency and validation of claims made by sources, processors, and manufacturers.
3. **Science (SC):** SC supports foundational theoretical and experimental science related to understanding unique chemistry and materials properties associated with REEs, substitution for platinum group element (PGE) catalysts, and novel battery materials and chemistries. Research in FY 2025 emphasizes the full breadth of the crosscut.
   a. Basic Energy Sciences (BES):
      i. Research continues to focus on understanding of the role of REEs, PGEs, and other critical elements in determining the properties of materials and molecules at length scales ranging from electronic to atomic and microstructural scales, and on advancing geoscience and separation science to enhance the extraction and chemical processing of critical elements. Also included is understanding of REE and PGE chemistry, including selective separations from solutions, and dynamics and reactivity at mineral-water interfaces during extraction and recovery.
      ii. Emphasis includes integration of the related fields of synthesis, characterization, predictive theory/modeling, and data science to advance understanding of the role of REE, PGE and other critical elements in determining the properties of functional materials (e.g., magnets and catalysts), and on the use of such knowledge to reduce, eliminate, or find substitutes for energy-relevant technologies.
      iii. SC operates major x-ray, neutron, nanoscience, and high-performance computing user facilities that provide advanced synthesis, fabrication, characterization, and computational capabilities to this community for basic, applied, and industrial research.
   b. Isotope R&D Production (DOE IP)
      i. REEs and critical materials are often needed to produce isotopes that are required for batteries, semiconductors, and clean energy applications, leading to synergies with the DOE IP that produces isotopes. The DOE IP develops chemical separations that are of interest to the REE community. The DOE IP also coordinates with the Offices listed above to investigate co-recovery of critical isotope production

feedstocks alongside REEs. For example, industrial waste streams containing significant concentrations of radium-226 are produced through oil and natural gas extraction, geothermal energy production, coal combustion, phosphate fertilizer production, and heavy metal mining. These waste streams also have high concentrations of other valuable materials, such as lithium and REEs, which could be co-recovered alongside radium-226, an important isotope for producing medical radioisotopes for the treatment of cancer and other diseases.

4. **Manufacturing and Energy Supply Chains (MESC):**
    a. Stand up competitive prize for energy manufacturing projects using collaborative permitting and community / tribal engagement practices to design and develop projects to source critical minerals and rare earths relevant to energy supply chains in order to highlight how industry can accelerate U.S. supply chain development through forward-looking collaborative project design.
    b. Foster the ability of at-scale U.S. manufacturers in energy supply chain segments of upmost national security to continue to innovate by providing access to manufacturing-scale pilot lines, thereby avoiding intellectual property (IP) loss to countries, including covered nations, with cheaper and more widely available at-scale pilot line capacity, and thereby securing and maintaining a competitive and leading position in the global energy sector. This activity will remove barriers for domestic innovation and provide opportunities for domestically developed intellectual property in energy supply chain segments essential to national security to reach validation at commercial scale for 2-3 companies per year.
    c. Support analytical tools and activities that will inform energy supply chain investments across and beyond DOE by identifying current and projected supply chain gaps at a granular, actionable level. The budget request develops a world-class supply chain analytics asset capable driving: vulnerability and opportunity assessment of U.S. supply chains, with integration and augmentation of National Laboratory capabilities and proprietary DOE energy supply chain data; dynamic scenario assessment and wargaming capabilities (i.e., supply chain simulations of export controls, bans, and other actions related to national and economic security) to inform international agreements; and industry collaboration and technical information exchange to validate insights.

Highlights and Major Changes from FY 2023 Enacted:

1. **Energy Efficiency and Renewable Energy (EERE):**
    a. Advanced Materials and Manufacturing Technologies: Increased funding will support prototype demonstrations of critical materials processing technologies.
    b. Geothermal Energy Technologies Office: No significant changes.
    c. Hydrogen and Fuel Cell Technologies: Catalyst work for electrolyzers is supported under BIL activities.
    d. Solar Energy Technologies Office: No competitive funding topic for CMM in FY 2025, as prior year analytical work is still underway.
    e. Vehicle Technologies Office: The VTO proposes an increase in advanced BMR in coordination with the Critical Minerals Initiative, which includes early-stage research of new cathode, anode, and electrolyte materials as well as the development of advanced high-capacity battery technologies and alternatives to lithium-based batteries.
    f. Wind Energy Technologies Office: No funding requested in FY 2025. Ongoing critical materials R&D is supported through BIL appropriations for Wind Energy Recycling (41007(b)(2)).
2. **Fossil Energy and Carbon Management:**
    a. Advanced Critical Material Recovery Technologies: Initiate RD&D program centered on developing domestic and more environmentally sustainable next-generation mining and extraction technologies, using surgical precision to target and recover critical minerals from the subsurface.
    b. International Engagements, Standards, Supply Chain Development, and Characterization Technology Development: Prioritized working alongside associated DOE offices and with international allies to address sustainable practices throughout the world.
3. **Science:** No significant changes.
4. **Manufacturing and Energy Supply Chains:** As part of the FY 2025 request, MESC has reorganized its subprograms to more clearly outline and explain MESC's broad/ enduring mission.
    a. Manufacturing Capacity and Competitiveness – new funding line to support innovations in critical minerals source and permitting and foster the ability of at-scale U.S. manufacturers in energy supply chain segments of upmost national security to continue to innovate by providing access to manufacturing-scale pilot lines.
    b. Supply Chain Mapping, Modeling & Analysis – continued funding line to address regional energy sector supply chain and manufacturing gaps, issues, and strategies.

Related Bipartisan Infrastructure Law (BIL) Programs

In addition to the annual appropriations request, BIL funding will support the planning and execution of technology development, demonstration, scale-up, and deployment activities, including battery and CMM recycling, battery material processing, and execution of an REE demonstration facility. BIL provided over $8 billion in CMM-related provisions, to be deployed over 5 years. These investments are essential in addressing CMM supply chains and technology needs to support growth in clean energy and will expand and accelerate DOE's CMM strategy.

Energy Sector Cybersecurity
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs. FY 2023 ($ Change)
Cybersecurity, Energy Security, and Emergency Response	**120,357**	**123,000**	**123,500**	**+3,143**
Risk Management Technology & Tools	95,000	95,000	84,500	-10,500
Preparedness, Policy and Risk Analysis	13,357	16,000	17,000	+3,643
Response and Restoration	12,000	12,000	12,000	0
Electricity	**15,000**	**15,000**	**15,000**	**0**
Cyber Resilient and Secure Utility Communication Networks (SecureNet)	15,000	15,000	15,000	0
Energy Efficiency and Renewable Energy	**9,750**	**9,750**	**12,800**	**+3,050**
Vehicle Technologies (VTO)	2,000	2,000	4,000	+2,000
Hydrogen and Fuel Cell Technologies (HFTO)	200	200	200	0
Renewable Energy Grid Integration (REGI)	0	0	100	+100
Solar Energy Technologies (SETO)	5,000	5,000	5,000	0
Wind Energy Technologies (WETO)	2,250	2,250	2,000	-250
Water Power Technologies (WPTO)	0	0	1,000	+1,000
Building Technologies (BTO)	300	300	500	+200
Nuclear Energy	**4,500**	**4,500**	**5,000**	**+500**
Fossil Energy and Carbon Management	**1,200**	**1,200**	**1,500**	**+300**
Chief Information Officer	**1,303**	**1,553**	**1,553**	**+250**
Total, Energy Sector Cybersecurity	**152,110**	**155,003**	**154,353**	**2,243**

Overview

The Department of Energy's (DOE's) FY 2025 budget request is aligned with the National Cyber Strategy and demonstrates the Administration's commitment to strengthening the Nation's cybersecurity capabilities and addressing the most pressing cyber threats. The FY 2025 budget supports DOE's responsibilities as Sector Risk Management Agency (SRMA) for cybersecurity for the energy sector, as established under the Fixing America's Surface Transportation (FAST) Act of 2015. As SRMA, DOE works closely with the critical infrastructure lead, the Department of Homeland Security (DHS), and our other federal partners including law enforcement and the intelligence community, as well as stakeholders across industry, and state and local governments, to secure the Nation's critical energy infrastructure from cyber threats and attacks.

Departmental Collaboration

As adversaries increase the frequency and sophistication of their malicious cyber activities, the Department has increased investment in cybersecurity to identify solutions to reduce risk for the energy sector, as well as the enterprise systems supporting the Department's internal operations. The FY 2025 request builds upon the strategy outlined in the Multiyear Plan (MYP) for Energy Sector Cybersecurity and the Office of Cybersecurity, Energy Security and Emergency Response (CESER) leading the efforts to strengthen the security and resilience of the U.S. energy infrastructure.

Highlights and Major Changes

Office of Cybersecurity, Energy Security, and Emergency Response

CESER is lead for energy sector cybersecurity initiatives across the Department.

In FY 2025, CESER will make investments in the following programmatic areas of Risk Management Tools & Technologies:

- **Advance Tools to Manage Cyber Risks**

    - **RD&D of Cybersecurity Tools and Technologies** Research, develop, demonstrate and transition to practice next generation cybersecurity tools and technologies for energy companies, emphasizing protection, monitoring, detection, response, containment, forensics, and recovery capabilities. These tools will leverage operational data and the physics of energy delivery to inform owners and operators of anomalous cybersecurity activities on their industrial controls systems and networks. These efforts will primarily be executed through competitive funding opportunities and research calls for energy companies, academia, National Laboratories, and/or manufacturers. This work focuses on tools that enable individual utilities to manage cybersecurity risks to next generation energy systems, such as microgrids, automated operational technologies (OT) infrastructure, virtual power plants, and cloud-connected systems, positioning the industry to stay ahead of the threat. CESER will leverage a threat-informed cyber RD&D gap analysis to inform efforts to ensure that the work underway continues to best address cyber threats by being intelligence and threat-informed.

    - **RD&D of Cybersecurity Situational Awareness & Information Sharing** Advancing cybersecurity threat situational awareness and information sharing through cyber tools and technologies with the U.S. energy sector is a critical effort for the Department. The funding enables threat information sharing tools and technologies for high priority critical energy systems and advances those tools for threat detection (i.e., deployment of Cyber Risk Information Sharing Program [CRISP] for high priority energy infrastructure) and enables the Department to continue building new and novel cyber threat situational awareness and information sharing tools. CESER collaborates with National Laboratories to create innovative tools for collaborative defense, detecting anomalies in various datasets, and disseminating on near/real-time threat intelligence to DOE and industry stakeholders. CESER also assesses potential applications of these technologies by electricity, oil, and natural gas owners and operators, including governmental stakeholders to contribute to and enhance the collective defense posture mentioned in the National Cyber Strategy.

- **University-Based RD&D and Energy Cybersecurity R&D Centers** University cybersecurity RD&D Centers will enable collaboration among regional utilities, National Laboratories, and regulatory bodies to perform RD&D that combines multi-disciplinary expertise including but not limited to power system engineering and the computer science of cybersecurity. This includes technology and innovation that reduce the risk of power disruption resulting from a cybersecurity incident impacting energy delivery systems. Academic RD&D involves unbiased, technology focused activities that, when combined with industry priorities and guidance, results in real-world, impactful solutions. This will not only provide discovery and innovation but will also contribute to energy cybersecurity learning and teaching across different communities in the country.

- **Supply Chain Cybersecurity Risk Management**

    - **Cyber Testing for Resilient Industrial Control Systems (CyTRICS)** CESER's Energy Cyber Sense program is focused on addressing supply chain cybersecurity threats to energy systems. The broader program will review national-level policies, develop tools and technologies, enable supply chain transparency, promote standards and best practices, and enhance technology and system designs. The program aligns with congressional directives and supports the Energy Sector Industrial Base (ESIB) in bolstering critical infrastructure resilience.

      CyTRICS, as part of the broader Energy Cyber Sense program, specializes in testing. It focuses in on identifying and prioritizing critical equipment, tracking provenance, offering mitigation solutions, and disclosing vulnerabilities. CyTRICS collaborates with energy sector manufactures and asset owners, leveraging classified threat intelligence

for expert testing. CESER leverages best-in-class test facilities and analytic capabilities at six DOE National Laboratories (INL, PNNL, SNL, NREL, ORNL, and LLNL) and fosters strategic partnerships across the sector.

In FY 2025, the program will expand CyTRICS testing, prioritizing risk-based systems and components. Partnerships with operational technology manufactures will be developed, integrating the testing pipeline into the Energy Cyber Sense program.

- **Cybersecurity of Distributed Energy Resources and Electric Vehicle Charging Infrastructure** CESER will work with the National Labs to conduct cybersecurity research and development related supply chain risk management of distributed energy resources (DERs). As DERs become pervasive energy sector stakeholders must increase investment in the cybersecurity of those components (e.g., solar, storage, controllable loads, etc. based on risk and technology landscape). In some communities across the U.S., DERs will begin to supply 100% of generation by 2030; consequently, it is a priority to research and address cybersecurity risks and the impacts to broader resilience to the grid. This work will be closely coordinated with technology specific research being performed in the Office of Energy Efficiency and Renewable Energy and storage research performed in the Office of Electricity. In FY 2025, this work will include demonstration pilots of cybersecurity measures being pursued in close collaboration with the Office of Energy Efficiency and Renewable Energy; research to strengthen the cybersecurity of communication protocols in the DER space; and development of tools and capabilities that ensure risks from DERs in the cloud environments are mitigated. Activities that may continue include the Clean Energy Cyber Accelerator (pilot) and the Renewable Energy and Storage Cybersecurity Research (RESCue) project on the cybersecurity of hybrid power plants that are inclusive of wind, solar, and energy storage. RMT is focused on ensuring cybersecurity is an integral part of the Nation's clean energy transition, to include the shift to electric vehicle (EVs). RMT will deliver solutions that mitigate cybersecurity risks and advance EV charging infrastructure resilience and performance. CESER's EV cybersecurity portfolio of work is done in close collaboration with the Joint Office of Energy and Transportation and the Vehicles Technologies Office. RMT will work with public and private partners to support development and promotion of cybersecurity standards across the EV and EVSE ecosystem and identify opportunities for harmonization; work towards the cybersecurity attributes needed for the emerging EV and EVSE ecosystem; and conduct targeted cybersecurity R&D for the EV and EVSE ecosystem.

- **Cyber Risk Assessments, Frameworks, and R&D Coordination**

  - **Cyber-Informed and Consequence Driven Engineering** The National Cyber-Informed Engineering (CIE) Strategy establishes foundational principles for integrating cybersecurity and engineering practices. RMT collaborates with utility, vendor, and university stakeholders to apply this strategy in the energy sector. RMT will support energy research programs in incorporating security by design principles into their R&D processes to ensure cyber defenses are integral to future technology design. Additionally, RMT will develop tools for better CIE application, validate infrastructure upgrades, analyze design patterns, to enhance engineering safeguards in the energy sector, and promote awareness and acceptance of the methodologies and among multiple stakeholders. Furthermore, RMT will extend CIE implementation into the core engineering curriculum of prominent U.S. research universities and collaborate with asset owners and operators to incorporate CIE principles into their engineering and infrastructure improvement initiatives.

    CESER uses the **CIE** framework and body of knowledge in **Consequence-Driven Cyber-Informed Engineering (CCE),** to apply the CIE's core principles to a specific organization, facility, or mission. CCE identifies their most critical functions, methods and means an adversary would likely use to manipulate or compromise them and determines the most effective means of removing or mitigating those risks. The operational phase of CCE will be executed to further ensure Critical Function Assurance (CFA) of high-risk infrastructure crucial for the energy sector and national security, encompassing elements whose compromise could disrupt essential fuel and electricity supplies. CCE assessments will systematically evaluate an organization's core functions, identifying areas for enhancement across personnel, processes, and technologies, thereby significantly mitigating the potential consequences of any compromise.

- **Cybersecurity for Operational Technology Environment (CyOTE)** RMT will continue to build upon the Cybersecurity for Operational Technology Environment (CyOTE) effort, to enhance early detection of anomalies and threats within operational technology (OT) environments, specifically developing tools and capabilities that can be provide energy asset owners and operators with timely alerts and actionable information. CyOTE will continue to incorporate new features, enhance functionality, and improve training for stakeholders. The CyOTE initiative will primarily focus on an enrichment platform tool that will process large amounts of data using Artificial Intelligence/machine Learning (AI/ML) to determine actionable information for energy asset owners and operators and to inform additional R&D.

- **Risk Management Guidance and Frameworks** RMT will develop guidance, tools and capabilities that can be used by energy industry to integrate cybersecurity maturity evaluations with quantitative and qualitative risk data. These frameworks and tools will enable risk-informed cybersecurity investment decisions allowing for optimal utilization of limited resources. RMT will also continue to develop and maintain the Cybersecurity Capability Maturity Model (C2M2) tool features and resources including user community forum, facilitated evaluations, and updates needed to align with Cybersecurity Framework (CSF) V2.0. RMT will also continue research of usage and impacts of NIST CSF, C2M2, and C2M2 derivatives.

- **Grid Modernization Laboratory Consortium (GMLC) and Lead Cyber RD&D Coordination Across DOE Offices** The Grid Modernization Initiative (GMI) represents a collaborative, cross departmental DOE endeavor aimed at orchestrating the development of technology, modeling, cybersecurity, and physical security strategies to facilitate grid modernization research and development via joint funding opportunities across various offices. CESER, as a Tier 1 voting member of the Grid Modernization Laboratory Consortium (GMLC), is dedicated to driving cybersecurity initiatives throughout the DOE's GMLC endeavors.

  In its role as the Sector Risk Management Agency (SRMA) for the energy sector, CESER is fostering coordination with partners from CISA, industry, academia, and other external stakeholders to ensure that cybersecurity RD&D effectively address the future needs of the energy sector.

In FY 2025, CESER will make investments in the following programmatic areas of Preparedness, Policy, and Risk Analysis:

- Energy Security Policy And Risk Management, And Cybersecurity Exercises, Training And Workforce Development PPRA leads the department's activities on sector-wide energy security policy and represent DOE at the National Security Council and across the interagency for cross-sector energy security policy and risk management, as well as supporting CESER's mission to be prepared for, respond to, and recover from, threats and hazards causing energy disruptions. PPRA will achieve this by:
  - Leading interagency risk management activities for the energy critical infrastructure including policy development.
  - Elevate the collective sector preparedness through platforms such as targeted cybersecurity training, exercises, and cybersecurity workforce development programs.

In FY 2025, CESER will make investments in the following programmatic areas of Response & Restoration:

- **Cyber Incident Response and Cyber Situational Awareness**

  - **Energy Threat Analysis Center:** The Department will operationalize the Energy Threat Analysis Center (ETAC) to address cyber threats to the U.S. energy sector, building off the success of the pilot. DOE will operationalize it pending input by OMB, Congress, and other critical partners in FY24 to ensure that the ETAC can be an enduring capability to support U.S. energy security and national security. The ETAC will leverage analytic tools and insights from energy infrastructure owners and operators, DOE's National Laboratories, and the intelligence community to exchange data, identify risks and threats to critical energy infrastructure, and develop mitigation strategies and technical advisories that help energy systems operators protect their systems from adversaries.

- **Cyber Response Training** The FY 2025 Budget will enhance ESF#12 responder training to continue to build a deeper knowledge of energy management systems (including for distributed energy resources and grid SCADA controls to support a cybersecurity response.

- **Cyber Incident Response** CESER will provide energy sector cybersecurity expertise supporting federal response during significant energy sector cybersecurity incidents as per the National Cyber Incident Response Plan (NCIRP). To fulfill DOE's duties, CESER will expand its cybersecurity portfolio to support cyber forensics in an operational technology environment, analyze malware, and conduct cyber hunts for cyber adversaries.

Office of Electricity (OE)

The Cyber Resilient and Secure Utility Communications Networks (SecureNet) program develops solutions to strengthen information security and resilience of the electricity delivery system against cyber-related threats through a security-by-design approach for operational data, communications networks, and control systems, through Secure Communications and Grid Technology Cyber Resilience research, development, and demonstration (RD&D).

Secure Communications Network RD&D supports next-generation grid communications RD&D for systems built from inception to mitigate communication failures and detect, reject, and withstand cyber incidents and other disruptions and includes the following lines of effort:

- Grid communications architecture and technology roadmap definition to support secure data communications requirements on the future grid.
- Technology RD&D in key gap areas identified by the architecture analysis and roadmap.
- Testbed development as a resource for labs, utilities, and communications providers to test and evaluate secure communications technologies in realistic grid environments.
- Industry outreach on important grid communications topics to ensure grid stakeholders are aware of and responsive to future grid communications developments.
- Grid communications network data collection, representation, and visualization to support grid modeling efforts.

Grid Technology Cyber Resilience RD&D makes key investments to ensure next generation grid technology can withstand and recover from incidents that disrupt the ability to rely on system operational data. This subprogram includes:

- Application of a cybersecurity lens to assess relevant OE R&D activities, ensuring they include a security-by-design philosophy throughout development and address cybersecurity concerns through design modifications or operational changes.
- Technology RD&D to enhance the cybersecurity of sensors, network devices, and control systems for the future grid.
- Engagement with the Department's cyber-related operational activities, including those in CESER and the Office of Intelligence and Counterintelligence, to ensure OE's R&D activities respond to operational needs, develop a broad base of scientific and technical expertise in grid communications and controls cybersecurity to support of the Department's national security mission, and strengthen public-private sector outreach, information sharing, and training in this area.

Office of Energy Efficiency and Renewable Energy

In FY 2025, EERE requests will support high priority RD&D with a clear path to deployment, technical assistance, and developing best practices to identify and mitigate cyber risks. Work supported by EERE complements the DOE Multiyear Plan for Energy Sector Cybersecurity and includes the following:

- The Budget provides sustained support for cyber physical security of the charging of Plug-in Electric Vehicles (PEV) and the interface between PEV charging and the electric grid through Vehicles Technologies.
- Hydrogen and Fuel Cell Technologies will support Potential FOA Topic on electrolyzer/grid integration where projects would include a cybersecurity task with some funding associated with this work.

- Renewable Energy Grid Integration will support the Grid Modernization Initiative Lab Call which will include Cybersecurity activities for Distributed Energy Resources in coordination and collaboration with CESER.
- Solar Energy Technologies will support FY25 Securing Solar for the Grid (S2G), FOA cybersecurity topic, collaboration with stakeholders (e.g. SEIA and NASEO) and support of other activities.
- Wind Energy Technologies will Continue support for FY23 wind cybersecurity lab projects in the areas of offshore wind, intrusion detection, field demonstration, tools development, and cybersecurity training.
- Water Power Technologies will provide support for the EERE cross-office program that is focused on risk detection and valuation of distributed renewables (CyberSHIELD).
- Building Technologies will support Grid Connected Solutions to Malware, Firming of Grid and Building Controls, FOA topic planned around Intelligent Buildings/Communities, Grid Edge.

Office of Nuclear Energy

In FY 2025, NE requests $5 million for the Advanced Reactor Safeguards and Security subprogram to develop cyber-informed engineering and defensive cyber architecture systems approaches, as well as research secure elements/tokens, control system component testing, and supply chain issues.

Office of Fossil Energy and Carbon Management (FECM)

In FY 2025, the Office of Fossil Energy and Carbon Management (FECM) (Headquarters) requests $1.5 million to support a proposed GMI lab call for Post-Quantum Cyber Security and continued development and demonstration of cyber-physical systems for design and integration of Hydrogen with Carbon Management systems.

Office of the Chief Information Officer

In FY 2025, CIO requests $1.553M for the DOE Spectrum Management Program for technical, logistical, and administrative support, as well as ongoing oversight and advocacy at an inter-agency level in the National Capital Region. The DOE Spectrum Program is mandated under Title 47, U.S. Code of Federal Regulations, 901, et. seq., and manages DOE radio frequency spectrum-dependent resources for NNSA, Power Marketing Administrations (PMAs), Office of Secure Transportation, and National Laboratory spectrum-dependent assets. DOE is the 9th largest holder of radio frequencies with more than 7,300 individual radio assignments across 34 sites receiving services from OSM including Headquarters, the National Labs, the PMAs, and NNSA sites. Critical DOE missions and essential functions utilizing Spectrum services include the National Power Grid, Interstate Electricity Transmission, Satellite Missions, Nuclear Emergency Search, Radiological Assistance, Secure Transportation and Safeguards, and Protective Force Communications.

Energy Storage
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**31,000**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	31,000	TBD	TBD	N/A
Electricity	**95,000**	**95,000**	**94,800**	**-200**
Energy Storage	95,000	95,000	94,800	-200
Energy Efficiency and Renewable Energy	**352,241**	**338,511**	**415,300**	**+63,059**
Advanced Manufacturing Office	25,500	25,500	0	-25,500
Advanced Materials and Manufacturing Technologies	0	0	34,000	+34,000
Building Technologies	15,000	15,000	15,000	0
Geothermal Technologies	7,900	500	5,000	-2,900
Hydrogen and Fuel Cell Technologies	118,000	111,000	118,000	0
Industrial Efficiency and Decarbonization	0	0	5,000	+5,000
Solar Energy Technologies	20,851	20,851	21,000	+149
Strategic Programs	350	700	700	+350
Vehicle Technologies	146,500	146,500	200,500	+54,000
Water Power Technologies	17,140	17,400	15,000	-2,140
Wind Energy Technologies	1,000	1,060	1,100	+100
Fossil Energy and Carbon Management	**6,000**	**6,000**	**6,000**	**0**
Energy Asset Transformation	3,000	3,000	3,000	0
Nuclear Energy	**23,000**	**23,000**	**11,500**	**-11,500**
Integrated Energy Systems	12,000	12,000	9,500	-2,500
Light Water Reactor Sustainability	11,000	11,000	2,000	-9,000
Science	**130,100**	**124,982**	**128,285**	**-1,815**
Basic Energy Sciences	130,100	124,982	128,285	-1,815
Grid Deployment Office	**0**	**0**	**5,000**	**+5,000**
DER Grid Planning and Markets	0	0	5,000	+5,000
Manufacturing and Energy Supply Chains	**0**	**0**	**34,350**	**+34,350**
Manufacturing Capacity and Competitiveness	0	0	28,350	+28,350
Supply Chain Mapping, Modeling & Analysis	0	0	6,000	+6,000
Technology Transitions	**100**	**100**	**100**	**0**
Technology Transitions Programs	100	100	100	0
Grand Total	**637,441**	**587,593**	**695,335**	**+88,894**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

The Department of Energy (DOE) Energy Storage crosscut encompasses activities to accelerate the research, development, and demonstration (RD&D), as well as deployment, of transformational energy storage technologies. Energy storage technologies are critical to decarbonizing the power, transportation, buildings, and industrial sectors. To achieve a net-zero emissions economy, DOE activities are focused on demonstrating and validating existing storage technologies for new uses

and identifying, developing, and commercializing new storage technologies for market adoption by the end of the decade. Because energy storage services can be provided by a range of distinct technologies, the Energy Storage Grand Challenge (ESGC) was established in 2020 across DOE offices to improve coordination and alignment of common goals for energy storage use cases. ESGC manages strategy across DOE on energy storage and coordinates the DOE- wide "Energy Storage System Research, Development, and Deployment Program" required by the Energy Act of 2020 (42 U.S. Code § 17232(b)).

The ESGC's strategies are guided in part by the Long Duration Storage Energy Earthshot™, which is a bold target to achieve 90% cost reductions for technologies that can provide 10 hours or longer duration of energy storage within the coming decade. As an Energy Earthshot™, the Long Duration Storage Shot™ highlights a top Administration research, development, demonstration, and deployment (RDD&D) focus area where innovation breakthroughs will address the climate crisis and create high-paying clean energy jobs in the United States.

Since FY 2020, the ESGC has awarded over $3.7 billion in financial assistance, including over $2.9 billion of Bipartisan Infrastructure Act awards, for more than 400 projects in 45 States, including Hawaii and Alaska—and encompassing disadvantaged communities and Tribal areas. These projects—carried out by large and small businesses as well as research institutions and other innovative organizations, partnerships, and consortia—represent the Department's work to advance energy storage technologies across its basic and applied research and development (R&D) portfolios and across applications that range from developing membranes for electrochemical energy storage to processing critical materials and from manufacturing structural battery enclosures to creating durable and cost-effective fuel cell systems and components for vehicles. Recent efforts also include construction of DOE's Grid Storage Launchpad at the Pacific Northwest National Laboratory, which will enable rapid operational testing and validation of storage technologies, facilitating reliable deployment. Construction is nearly complete, with beneficial occupancy reached in February 2024. Project closeout (critical decision 4) is planned for FY 2025.

Coordination Efforts

The Energy Storage Grand Challenge is co-chaired by the Offices of Electricity (OE) and Energy Efficiency and Renewable Energy (EERE) and includes the Offices of Fossil Energy and Carbon Management (FECM), Nuclear Energy (NE), Science (SC), Technology Transitions (OTT), Clean Energy Demonstrations (OCED), Manufacturing & Energy Supply Chains (MESC), Federal Energy Management Program (FEMP), Advanced Research Projects Agency-Energy (ARPA-E), Loan Programs Office (LPO), and the Grid Deployment Office (GDO), as key participants. The ESGC coordinates activities aligned with the ESGC Roadmap, which was published in 2020 and is being updated in 2024.

In addition to the core offices identified above, various crosscutting offices (including the Offices of Energy Justice & Equity and Office of Policy) contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments. Coordination throughout the Federal Government on batteries is facilitated through the Federal Consortium for Advanced Batteries (FCAB), which brings together Federal agencies that are interested in ensuring a domestic supply of lithium batteries and are committed to accelerating the development of a robust and secure domestic industrial base. Additionally, cross-participation and engagement with the Department's Grid Modernization Initiative ensures alignment and the ability to draw from all aspects of the Department.

Objectives and Action Areas

The ESGC is primarily guided by two crosscutting R&D targets:

- **Objective 1:** Achieve the Long Duration Storage Shot™ target: $0.05/kilowatt-hour (kWh) levelized cost of storage for long duration (10 or more hours) stationary applications by 2030, representing an approximately 90% reduction from 2020 costs. Achieving this levelized cost target would support the Administration's goals to achieve a carbon pollution-free power sector by 2035 and a net zero emissions economy by no later than 2050 as well as facilitate commercial viability for storage across a wide range of uses, including in:
  - Remote communities, which are frequently disconnected or may not have access to the grid, and
  - Grid-scale applications, where storage can meet load during periods of peak demand and ensure reliability of critical infrastructure, including communications and information technology.
- **Objective 2:** Achieve the Electric Vehicles (EV) Battery Target: Reduce EV battery cell cost by 50 percent to $60/kWh manufactured cost for a battery cell by 2030 for a 300-mile range electric vehicle to achieve cost parity with internal combustion engine vehicles. Advances in battery production for transportation applications are anticipated to

continue benefitting production, performance, and safety of similar technologies used in batteries for stationary applications.

DOE has supported over 30 distinct energy storage technologies, many of which have the potential to enable the long duration and EV battery targets shown above. In 2023, DOE issued ten specific Long Duration Storage Shot Strategy Assessments across a wide range of maturing technologies that employ varied processes, chemistries, and critical mineral supply chains. Achieving these aggressive 2030 targets will require resolution of key barriers throughout value chain, from basic and applied research through analysis, demonstration, manufacturing, and full integration into the power and end-use sectors. The ESGC will facilitate the prioritization and targeted funding necessary for the rapid pursuit of the core objectives. To address these barriers, the ESGC has identified the following priority collaboration action areas:

1. Investment & Finance: Emphasize modeling and development of economic and financial mechanisms necessary for the successful commercial deployment of a given energy storage technology.
2. Markets & Value: Analyze both current and potential future markets to understand how energy storage demand will evolve, what performance and cost characteristics will be needed for individual technologies to be competitive, and how those technologies will be valued and compensated.
3. Thermal Technologies: Continue RDD&D for multiple thermal technology pathways, including high-temperature sensible heat; phase change; low-temperature storage; thermo-photovoltaic; and thermochemical.
4. Power Electronic Systems: Advance power electronics and power conversion systems, including magnetics, capacitors, semiconductor switches, and optimized power converters for emerging lower voltage battery systems.
5. Electrochemical Batteries: Continue RDD&D or alternative and efficient use of materials, component design, and manufacture, as well as address end-of-life and material recovery.

Beyond the 2030 goals, the ESGC continues to identify future long-term targets that will enable additional transformative applications. After the diurnal applications for 10-hour storage have been met, weekly, monthly, and seasonal applications will require hundreds of hours of duration. After EVs achieve cost parity, use cases for aviation, shipboard, and other highly constrained applications will have much more demanding cost and density requirements.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Energy Storage will be determined in FY 2024.
2. **Office of Electricity (OE):** In FY 2025, OE will leverage the newly constructed Grid Storage Launchpad (GSL) and other facilities to:
    - Empower private sector investment through Enhanced Validation of Energy Storage Technologies (EnVEST), an industry voucher program for technology validation;
    - Expand the Rapid Operational Validation Initiative (ROVI) to improve the performance projection methodologies of more non-lithium technologies and help accelerate commercial financing by providing at least a 15-year technology life and performance prediction with a year or less of real-time testing;
    - Support deployment and validation of Long Duration Energy Storage (LDES) technologies at critical facilities for resilience applications through a Critical Facility Energy Resilience (CiFER) activity;
    - Help communities achieve new use cases with community benefit outcomes by expanding pilot demonstrations within the Energy Storage for Social Equity (ES4SE) program;
    - Expand training and technical assistance through a Blue Sky First Responder Training program to address safety, emergency response, and security concerns in operating energy storage;
    - Develop new materials and technologies for efficient power conversion and grid integration;
    - Resolve key R&D challenges to improve supply chains security through an energy storage Opportunities for Alternative Systems and Supply-Chain Innovations and Solutions (OASSIS) activity;
    - Simplify battery deployments through analysis to support strong safety standards; and

- Expand engagement to increase workforce, entrepreneurial, and education outreach efforts, including through the planned Storage Prize for Entrepreneurial Enrichment and Development (SPEED).

3. **Energy Efficiency and Renewable Energy (EERE):**
   - Advanced Materials and Manufacturing Office (AMMTO): AMMTO will continue collaborative projects to overcome manufacturing barriers of innovative integrated long duration energy storage systems and will pursue advances in materials to support thermal storage. AMMTO will support early applied stage projects to expand the application space of power electronics.
   - Building Technologies Office (BTO): FY 2025 funding will focus on thermal energy storage research, more sophisticated controls for storage enabling grid-interactive buildings, cost reductions and deployment of heat pumps with thermal energy storage (TES).
   - Geothermal Technologies Office (GTO): FY 2025 funding will support analysis of and additional demonstrations of reservoir thermal energy storage (RTES) in the U.S. supporting thermal energy for industrial and manufacturing applications.
   - Hydrogen Fuel Cell Technologies Office (HFTO): FY 2025 funding will support activities across hydrogen production, storage, infrastructure, and end use that support the goal of accelerating the development, commercialization, and utilization of next generation energy storage technologies.
   - Industrial Efficiency and Decarbonization Office (IEDO): FY 2025 funding will continue to focus on innovation related to incorporating energy storage into manufacturing processes and/or facilities to manage power and thermal energy and reduce industrial greenhouse gas (GHG) emissions.
   - Solar Energy Technologies Office (SETO): FY 2025 funding will continue to focus on TES integrated with concentrating solar-thermal power (CSP) systems, both for electricity generation as well as industrial process heating applications. CSP funding will continue to support high-efficiency, reliable TES, with a focus on technologies using solid particles as the heat transfer medium, leveraging the SETO funded megawatt-scale Generation 3 Concentrating Solar Power Systems (Gen3 CSP) test facility currently under construction.
   - Strategic Programs (SP): FY 2025 funding will continue to support the ESGC Policy & Valuation Track, which provides data, tools, and technical analysis that help policymakers and other energy system decision-makers maximize the value of energy storage.
   - Vehicle Technologies Office (VTO): FY 2025 funding proposes to increase support for research projects addressing next generation battery materials, including expansion to lithium-based battery alternatives that can meet key performance metrics.
   - Water Power Technologies Office (WPTO): FY 2025 funding supports a new effort to model vendors in accurately incorporating hydropower and pumped storage hydropower (PSH) into their software to improve industry-standard modeling products with state-of-the-art hydropower representations to directly target tools used by hydropower operators. This expands the Valuation Guidebook, provides technical assistance to PSH developers to support advancing to deployment, and continues technical assistance to the broader hydropower community.
   - Wind Energy Technologies Office (WETO): FY 2025 funding supports R&D on wind co-generation opportunities to enable wind hydrogen production demonstration for land-based and/or offshore wind applications.
4. **Fossil Energy and Carbon Management (FECM):** FECM's Energy Asset Transformation program includes a focus on the integration of long-duration energy storage technologies with a variety of fossil assets, including co-locating energy storage with some strategic fossil assets, which provides many benefits including improved asset flexibility and efficiency, improved grid reliability, and reduced greenhouse gas emissions. Energy storage enables many heavily decarbonized use cases (e.g., the integration of hydrogen energy storage systems with hydrogen turbine power production). The FY 2025 request provides support to integrate energy storage systems with energy assets to demonstrate progress to assess technical and commercial viability and enable widespread deployment. FECM will continue to focus on advancing energy storage concepts that leverage abandoned or under-utilized energy assets, including repurposing power plants with thermal energy storage and repurposing oil and gas infrastructure for geologic H_2 storage.
5. **Nuclear Energy (NE):** In FY 2025, the Light Water Sustainability program will explore concepts for extracting over 500 MW of heat from boiling water reactors and develop conceptual designs for thermal energy storage systems for use with light water reactors as a basis for thermal storage cost estimation. The Integrated Energy Systems program will research thermal storage systems as needed to compensate for dynamic thermal demands in industrial processes included in reference industrial plant designs that integrate thermal energy from advanced nuclear plants.

6. **Office of Science (SC):** In FY 2025, SC continues support for foundational, crosscutting, fundamental energy storage research, including through the Batteries and Energy Storage Energy Innovation Hub program (recompeted in FY 2023) and Energy Frontier Research Centers (EFRCs). Core research activities include crosscutting science that is relevant to electrochemical energy storage, hydrogen, and fuel cells. In FY 2025, the Request continues support for Energy Earthshot Research Centers (EERCs), which will work toward the stretch goals of the DOE Energy Earthshots and will provide a solid bridge between SC and the Energy Technology Offices.
7. **Grid Deployment Office (GDO):** In FY 2025, the Distribution and Markets program's Distributed Energy Resources (DER) Grid Planning and Markets subprogram will provide technical assistance to support the integration and utilization of LDES. The program will provide technical assistance to stakeholders, including state utility commissions, state energy offices, and Regional Transmission Organizations, in understanding the benefits and capabilities of LDES technologies and its potential contribution to grid resilience. GDO will also develop rate and market designs to support full market integration of LDES to maximize its potential benefits.
8. **Office of Manufacturing and Energy Supply Chains (MESC):** In FY 2025, MESC efforts impactful to the ESGC priority collaboration action areas include:
    - Stand up competitive prize for energy manufacturing projects using collaborative permitting and community / tribal engagement practices to design and develop projects to source critical minerals and rare earths relevant to energy supply chains in order to highlight how industry can accelerate U.S. supply chain development through forward-looking collaborative project design.
    - Invest in U.S. energy manufacturers' abilities to source essential equipment to build and modernize domestic factories and enable demand aggregation and supply scale-up through strategic investments in equipment manufacturers for key energy supply chains where equipment lead times and dependence is longest.
    - Foster the ability of at-scale U.S. manufacturers in energy supply chain segments of upmost national security to continue to innovate.
    - Build the capability to assess how new domestic processing and manufacturing capacity investments are reshaping global supply chains and enhancing the share of manufacturing capacity the U.S. is poised to provide in the most critical energy supply chain segments.
9. **Office of Technology Transitions (OTT):** OTT supports activities to accelerate the commercialization of energy storage technologies across the DOE portfolio, and integration of energy storage commercialization objectives into ESGC strategy and activities.
    - Co-management of the Markets and Valuation track of the ESGC, including coordination of the DOE National Lab-wide team focused on market adoption of energy storage technologies in partnership at the leadership level with Argonne National Lab (ANL), Pacific Northwest National Lab (PNNL), Lawrence Berkeley National Lab (LBNL), and the National Renewable Energy Lab (NREL).
    - Development and management of the *National Consortium for the Advancement of Long Duration Energy Storage Technologies* with Sandia National Lab to expand industry engagement and accelerate market adoption of DOE-developed technologies.
    - Coordination and project management of SLAC National Accelerator Lab's "Scaling to TWh Energy Endeavors from Research" (STEER) to develop a framework and understanding of the path to market adoption for innovative energy storage technologies.
    - Participation on the U.S.-India Energy Storage Task Force Steering Committee to connect domestic energy storage commercialization activities with international market opportunities.

Highlights and Major Changes from FY 2023 Enacted:

1. **Advanced Research Projects Agency-Energy:** In FY 2023, ARPA-E selected and/or obligated $31,000K in funding to projects aligned with the Energy Storage crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic; and Pioneering Railroad, Oceanic and Plane Electrification with 1K Energy Storage Systems programs.
2. **Office of Electricity:** The Request expands ROVI to complete phase 4/5 validation of lithium-ion and flow battery storage technologies, project assistance to selected ES4SE cohort communities, and OASSIS to address materials, power electronics components, and supply chain challenges. The Request also supports the Transmission-level Inverter Based Resource (TIBeR) activity to develop model standards for how energy storage can operate effectively as a grid asset; EnVEST to expand technology validation for early-state innovators; national Blue Sky First Responder Training to incorporate energy storage into fire and safety trainings; and SPEED to advance LDES and grid-scale storage technologies at the entrepreneurial stage.

3. **Energy Efficiency and Renewable Energy:**
    a. Advanced Materials and Manufacturing Office: Increase will support innovation of battery manufacturing platform technologies and equipment platforms.
    b. Building Technologies Office: No significant change.
    c. Geothermal Technologies Office: Decrease is due to the expansion of other priorities in the low temperature subprogram that are critical for advancing decarbonization goals.
    d. Hydrogen Fuel Cell Technologies Office: No significant change.
    e. Industrial Efficiency and Decarbonization Office: No significant change.
    f. Solar Energy Technologies Office: No significant change.
    g. Strategic Programs: Increase will expand the support the ESGC Policy & Valuation Track, which provides data, tools, and technical analysis that help policymakers and other energy system decision-makers maximize the value of energy storage.
    h. Vehicle Technologies Office: Increase to support research projects addressing next generation battery materials.
    i. Water Power Technologies Office: Continues technical assistance to the broader hydropower community, but at a lower level versus FY 2023 Enacted.
    j. Wind Energy Technologies Office: Increase will support for R&D on wind co-generation opportunities to enable wind hydrogen production demonstration for land-based and/or offshore wind applications.
4. **Fossil Energy and Carbon Management:** No change.
5. **Nuclear Energy:** Analysis of concepts for extracting heat from pressurized water reactors was completed and leveraged to analyze concepts for extracting heat from boiling water reactors. In FY 2025, initial reference designs for thermal storage systems will be produced in order determine the cost of thermal storage at temperatures suitable for light water reactors.
6. **Office of Science:** No major changes to report.
7. **Grid Deployment Office:** DER Grid Planning and Markets, under the Distribution and Markets program, is a new subprogram requested in FY 2025.
8. **Office of Manufacturing and Energy Supply Chains:** New activities, as described in previous section.
9. **Office of Technology Transitions:** No change.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs:
In addition to the annual appropriations request, IIJA funding will support the planning and execution of technology development, demonstration, scale-up, and deployment of battery and critical mineral recycling, battery material processing, and long duration energy storage. These investments are essential in addressing the supply chain and technology needs to support the storage needs for intermittent renewables and grid reliability. Expanded tax credits now available in IRA offer incentives for supply chain development. In September 2023, OCED's Long-Duration Energy Storage Demonstration program selected 15 projects across 17 states and one Tribal Nation ($325 million). These demonstration projects will increase community control of local power systems, mitigate risks associated with disruptions to the grid, and help communities develop reliable and affordable energy systems. OTT expects to make $15 million in IIJA Technology Commercialization Funding available for projects led by DOE national laboratories, plants, and sites to bring stakeholders across industries together as part of the Collaborative Alignment for Critical Technology Industries Lab Call.

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

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Energy Efficiency and Renewable Energy	**34,435**	**36,250**	**31,750**	**-2,685**
Advanced Manufacturing Office	25,000	25,000	0	-25,000
Bioenergy Technologies	5,000	5,000	3,000	-2,000
Industrial Efficiency and Decarbonization	0	0	25,000	25,000
Solar Energy Technologies	750	750	750	0
Water Power Technologies	3,685	5,500	3,000	-685
Nuclear Energy	**2,300**	**2,300**	**2,000**	**-3000**
Fuel Cycle Research and Development	2,000	2,000	1,500	-500
Light Water Reactor Sustainability	300	300	500	+200
Science	**14,500**	**14,500**	**14,500**	**0**
Basic Energy Sciences	9,500	9,500	9,500	0
Biological and Environmental Research	5,000	5,000	5,000	0
Fossil Energy and Carbon Management	**10,000**	**10,000**	**0**	**-10,000**
Resource Sustainability	10,000	10,000	0	-10,000
Grid Deployment Office	**0**	**0**	**250**	**+250**
Hydropower Incentives	0	0	250	+250
Grand Total	**61,235**	**63,050**	**48,500**	**-12,735**

Overview

Energy and water systems are inherently linked, often dependent on one another for normal, vital operations. As a strongly coupled system, they share efficiencies, resilience, and vulnerabilities, one affecting the other. Recognizing this interdependence is critical to successfully addressing the energy and environmental challenges that drive the Department of Energy's (DOE) mission. DOE has a major stake and fundamental role to play in advancing the integrated systems solutions that will address the Nation's combined water-energy challenges. Such solutions require a deeper understanding of the strongly connected nature of climate, water, energy, carbon, and broader biogeochemical cycles to inform the efficient and resilient systems of the future and, importantly, the research, development, and deployment of innovative, integrated energy-water science and technologies. The DOE Energy-Water Crosscut uses an integrated systems perspective to advance the science, transformational technologies, and innovations to meet the need for sufficient, safe, secure, and affordable energy and water.

Coordination Efforts

Through enhanced coordination within DOE and by extension the necessary interagency partners, the Energy-Water Crosscut aims to create more resilient, secure, affordable, integrated, and equitable interdependent energy and water systems to ensure America's energy, environmental, and economic security. The Energy-Water Crosscut employs an integrated systems approach to coupled energy-water initiatives and activities in DOE, recognizing the importance of considering the interdependence of energy, climate, carbon, and waters cycles. Through investments in research, development, demonstration, and deployment (RDD&D), the Department can address core problems in resource and environmental resiliency and sustainability for the future.

The Energy-Water Crosscut supports RDD&D that, in addition to technology development, includes a broad range of climate and Earth system modeling, analysis, and assessment capabilities and tools; technical support; informed policy, planning and financing tools; mitigation and remediation programs; and workforce development to aid in energy and water efficiency and replace America's outdated and deteriorating water infrastructure. The scope of these efforts spans municipalities, utilities, and industries, from the basic provisioning of power and water supplies to agriculture and resource

extraction operations (e.g., oil and gas, mining). Advances in this RDD&D will provide the essential foundations for rebuilding and strengthening the United States (U.S.) energy and water infrastructure and supporting climate change mitigation and adaptation. To this end, the Energy-Water Crosscut team has developed a strategy framework for Energy-Water and continues to increase coordination for RDD&D across DOE and the larger U.S. government. The strategy framework laid out by the Energy-Water Crosscut supports the clean water NetZero Game Changers Impact.

The Energy Act of 2020, Section 1010, authorizes the Nexus of Energy and Water for Sustainability (NEWS) RD&D Interagency Coordination Committee and Office. The Energy-Water crosscut supports the aligned activities of NEWS RDD&D.

The Offices of Energy Efficiency and Renewable Energy (EERE), Fossil Energy and Carbon Management (FECM), Science (SC), Nuclear Energy (NE), and Grid Deployment Office (GDO, support the Energy-Water crosscut and coordinate with other DOE offices, including Arctic Energy (AE), Clean Energy Demonstrations (OCED), and the National Nuclear Security Administration (NNSA).

In addition to the RDD&D offices identified above, various crosscutting offices (including the Office of Economic Impact & Diversity, Office of Policy, and Office of Technology Transitions) may contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments.

Objectives and Action Areas:

- Objective 1: Enable resilient, secure, affordable, appropriately integrated, and equitable energy-water systems with strategically aligned technology and process investments and innovations.
- Objective 2: Enhance and lead interagency, intergovernmental and international collaboration, including state and local partnerships, technical and financial assistance, and workforce development in support of Energy-Water systems.
- Objective 3: Deepen understanding and inform decision-making for energy-water systems with integrated approaches to data, modeling, and analysis and RDD&D frameworks that accelerate research-to-operations-to-research connections.

Action Areas:

1. **Human and Natural Effects & Interactions with the coupled energy-water systems** - Develop models, analyses, tools, and testbeds to advance a predictive understanding of energy and water interactions within the Earth system, between both human and natural components, to ensure RDD&D activities are built from an integrated view of water and energy systems and a circular water economy.
2. **Regionally Informed Energy Efficient Water Supply** - Explore regionally informed energy efficient water supply systems including desalination, demineralization treatments and regional demonstrations to meet needs of individual watersheds, local communities, and improve resiliency in a climate changing world.
3. **Sustainable Energy Water Systems** - Support RDD&D that ensures the sustainability of Energy-Water systems such that supported activities and technologies minimize harm to the natural and build environment, now and into the future, and enable energy and water needs. This includes reducing greenhouse gas emissions from water sources.
4. **Resource and Energy Recovery/Production from Water Sources** - Advance opportunities to produce and to recover energy and other valuable resources from water and wastewater sources.
5. **Efficient water recovery/usage associated with industrial and municipal processes** - Advance opportunities to efficiently use and reuse water associated with a broad range of industrial & municipal processes.
6. **Remediation/mitigation within energy-water systems** - Advance understanding and development of remediation and mitigation of contaminants within natural and anthropogenic energy-water systems.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Energy Efficiency and Renewable Energy (EERE):**
    a. Bioenergy Technologies Office (BETO): FY 2025 funding will support RD&D on strategies to manage wet wastes, including municipal wastewater, food waste, and manures. This effort includes technical assistance for communities, as well as R&D on technologies that can be used to manage waste and produce fuels, products and power.
    b. Industrial Efficiency and Decarbonization Office (IEDO): FY 2025 funding will continue support for

advancements in decarbonization water/wastewater treatment systems through research, development, and pilot scale demonstration of new technologies. IEDO also supports analysis to inform understanding of further decarbonization opportunities in the water sector. In addition, IEDO will support technical assistance for energy and water efficiency in industrial facilities, advanced desalination technologies, as well as water and wastewater facilities.

c. Solar Energy Technologies Offices (SETO): FY 2025 funding will continue support for market and technology analysis to help support the development and identification of promising solar thermal desalination systems and markets.

d. Water Power Technologies Office (WPTO): WPTO will partner with communities with energy and water data needs to identify potential sites for deployment of advanced hydrologic sensors and sensor networks.

2. **Fossil Energy and Carbon Management (FECM):** In FY 2025, FECM is not requesting additional funds. In FY 2023, FECM initiated the execution of projects to develop and improve technologies to characterize, treat, and manage energy water, particularly produced water related to oil and gas development.

3. **Nuclear Energy (NE):** NE supports early stage, cost-shared R&D to increase the efficiency of commercial nuclear power plants and enables technological advances in uranium mining, conversion, and transportation capabilities in the U.S. as well as conducting evaluations and assessments related to these areas, including:

   a. Fuel Cycle Research and Development / Mining, Conversion, and Transportation: R&D that enables technological advances in uranium mining, conversion, and transportation capabilities in the U.S. as well as conducting evaluations and assessments related to these areas. Mining sites are often located in disadvantaged communities and locations with limited water resources; improvements to mining technology spurred by R&D may enable local economic opportunities and include environmental justice equities while reducing the amount of water used during uranium production. In FY 2025, will continue (1) supporting technical experts at national labs to develop innovative separation technologies to improve in-situ uranium extraction efficiency and resource utilization for mining industry, and (2) demonstration efforts to restore groundwater geochemical conditions in-situ to background levels for uranium recovery operations. Light Water Reactor Sustainability: FY 2025 funding will support completing an assessment of Energy-Water issues affecting the long-term operation of operating nuclear power plants. R&D will identify water availability and usage requirements in areas adjacent to nuclear power plants that depend on these large sources of water for coolant, considering potential changes in sources due to climate change, population growth, and demand for these resources. The assessment will recommend highest priority areas of federal research to support long term plant operations in light of trends and challenges around water availability.

4. **Science (SC):** SC provides foundational knowledge and state-of-the-art capabilities in support of crosscut objectives and has supported theoretical and experimental science related to understanding chemical and biological processes, separations, materials, geochemistry, and Earth systems modeling, related to energy-water research for many years.

   a. Basic Energy Sciences (BES): For BES, the research focus in this area is identified in the Basic Research Needs (BRN) workshop for Energy and Water. Priority research directions identified in the workshop report include the prediction and control of molecular-to-macroscopic properties and behavior of complex, multicomponent fluids; mechanistic understanding and control of interfaces and transport in complex and extreme environments; the codesign of dynamic interactions between materials and reactive fluids for unprecedented tunability of purification, transformation, and transport processes in energy-water systems; and revolutionary advances in approaches to quantify, sense, predict, and manipulate coupled physical, chemical, and biological processes in subsurface environments. In FY 2022, three Energy Frontier Research Centers successfully recompeted for support and each received four-year renewal awards. Support for the Energy-Water Nexus crosscut will continue through the EFRCs in FY 2025.

   b. Biological and Environmental Research (BER): In FY 2025, BER research continues to contribute to reducing the greatest uncertainties in climate and Earth system model predictions, e.g., involving clouds and aerosols, the cryosphere, biosphere, and water cycle. In the last decade, DOE research has made considerable advances in increasing the reliability and predictive capabilities of these models using applied mathematics, effective use of DOE's fastest computers, and systematic comparisons with observational data to improve confidence in model predictions and thus the ability to use the model predictions to design and deploy climate resilient infrastructure, including the Nation's energy infrastructure.

      - Specifically, the current research incorporates artificial intelligence and machine learning capabilities and enables more sophisticated research based on higher model resolution, and the new Energy Exascale Earth System (E3SM) model version will add advanced capabilities for exploring changing water cycles on watershed and both urban and coastal hydrological systems down to spatial scales of 3 kilometers.

Additional core research to underpin emerging and future Earthshots will also be initiated.
- Overall, BER's research focuses on quantifying, addressing, and reducing the uncertainties in these system models (including the Earth's water cycle), based on more advanced process representations, sophisticated software, robust couplers, diagnostics, performance metrics, and advanced data analytics. Priority model components include the ocean, sea-ice, land-ice, atmosphere, terrestrial ecosystems, the cryosphere, and relevant human activities.

5. **Grid Deployment Office (GDO):** GDO's Hydropower Incentives program manages Infrastructure Investment and Jobs Act (IIJA) funded hydropower incentives that contribute to the availability of firm and flexible hydropower generation capacity to support resource adequacy. The FY 2025 funding supports the development of analytics for follow-up monitoring of the impact of the IIJA hydropower incentives on the modernization and maintenance of existing U.S. hydropower assets.

Highlights and Major Changes from FY 2023 Request

1. **Energy Efficiency and Renewable Energy:**
   a. Bioenergy Technologies Office: Technical assistance for communities' efforts will continue due to the high interest and positive feedback from communities. Feasibility studies will continue using prior year funds.
   b. Industrial Efficiency and Decarbonization Office: No significant change. This work was previously performed under AMO.
   c. Solar Energy Technologies Offices: No significant change.
   d. Water Power Technologies Office: Funding for the Regional Energy Water demonstrations started in FY 2024 is eliminated in the FY 2025 Request.
2. **Fossil Energy and Carbon Management:** FECM is not requesting funding captured within the Energy Water Crosscut. Separately, the Environmentally Prudent Stewardship effort within FECM's Advanced Remediation Technologies program supports work on produced water remediation as part of the overall effort to reduce environmental impacts of continued oil and gas production.
3. **Nuclear Energy:** No major changes to report.
4. **Science:** No major changes to report.
5. **Grid Deployment Office:** Hydropower Incentives is a new program requested in FY 2025.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs: In addition to the annual appropriations request, IIJA funded three distinct hydroelectric incentive programs aimed at adding hydroelectric capacity to non-powered dams or constructing small hydroelectric projects in areas of inadequate electric service; making capital improvements to improve facility efficiency; and making capital improvements related to grid resilience, dam safety, and environmental conditions. Managed by GDO, the Hydroelectric Incentives program oversees an investment of more than $750 million to support the continued operation of the U.S. hydropower fleet to meet the nation's clean energy goals and ensure a more reliable and resilient electric grid system.

Fusion
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**31,949**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	31,949	TBD	TBD	N/A
Science	**33,000**	**109,295**	**118,797**	**+85,797**
Advanced Scientific Computing Research	0	2,000	2,000	+2,000
Fusion Energy Sciences	33,000	107,295	116,797	+83,797
National Nuclear Security Administration	**20,290**	**16,040**	**26,850**	**+6,560**
Defense Nuclear Nonproliferation R&D	7,500	3,250	10,000	+2,500
Weapons Activities – Inertial Confinement Fusion	12,790	12,790	16,850	+4,060
Grand Total	**85,239**	**125,335**	**145,647**	**+92,357**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

The Fusion Crosscut identifies and coordinates research and development (R&D) activities across the Department of Energy (DOE) program offices to support the advancement of fusion energy R&D, including partnerships with the private sector. The Crosscut is highly aligned with several keystone Administration R&D priorities for the FY 2025 Budget, including the Net-Zero Game Changers initiative, advancing climate solutions, energy justice and equity, public-private partnerships, and employing innovative funding models. A White House Summit on *Developing a Bold Decadal Vision for Commercial Fusion Energy*[1] (March 2022) announced this Crosscut and unveiled the Administration's ambition to realize a fusion pilot plant (FPP) on a decadal timescale via new public-private partnerships. Fusion crosscut objectives and priorities are informed by multiple expert reports over the past decade, most notably the Fusion Energy Sciences Advisory Committee (FESAC) Long-Range Plan (LRP) (2020) and the National Academies of Sciences, Engineering, and Medicine (NASEM) report *Bringing Fusion to the U.S. Grid* (2021).

The fusion R&D landscape has been evolving rapidly over the past several years, with major scientific and technological (S&T) breakthroughs.[2] There has been significant private funding, approximately $6 billion cumulatively, invested predominantly in United States (U.S.)-based fusion companies and within the past 5 years. DOE is partnering with private industry via the Milestone and the Innovation Network for Fusion Energy (INFUSE) programs to resolve S&T gaps toward enabling a viable fusion-pilot-plant design FPP designs.

Fusion research has been supported by DOE and its predecessor agencies since the 1950s. In recent decades, the Office of Science (SC) Fusion Energy Sciences (FES) program has supported research to build the foundations for a fusion energy source, and the National Nuclear Security Administration (NNSA) has supported inertial confinement fusion (ICF) for Stockpile Stewardship. Sustained DOE support led to the recent achievements of scientific breakeven and ignition at the National Ignition Facility (NIF), as well as the development of myriad enabling and spinoff technologies, sophisticated physics-based computer modeling tools, and diagnostic methods/instruments. Although the NNSA ICF program is focused on supporting Stockpile Stewardship, the ICF workforce, capabilities, computer codes, and facilities can be leveraged to advance the S&T of inertial fusion energy (IFE). Similarly, the experience, capabilities, and expertise embodied in other NNSA programs within Defense Programs (DP) and Defense Nuclear Nonproliferation (DNN) can be leveraged to advance the fuel supply chains and nonproliferation frameworks that will be needed for global commercial fusion deployment. More

[1] https://www.whitehouse.gov/ostp/news-updates/2022/04/19/readout-of-the-white-house-summit-on-developing-a-bold-decadal-vision-for-commercial-fusion-energy.

[2] For example, world-first demonstration of fusion scientific breakeven and ignition on the DOE/NNSA National Ignition Facility at Lawrence Livermore National Laboratory, and demonstration by a privately-funded fusion company of a fusion-scale, high-temperature-superconducting magnet.

recently (since 2015), the Advanced Research Projects Agency-Energy (ARPA-E) has supported targeted, potentially transformative areas of fusion science and enabling materials/technologies with a focus on timely and lower-cost fusion research, development and demonstration (RD&D).

Coordination Efforts

The Fusion Crosscut Team was formed in June 2022, including representation from SC, NNSA, ARPA-E, Environmental Management (EM), Energy Justice and Equity (EJE), and Nuclear Energy (NE). The Crosscut Team serves as the coordinating body both internally and externally for pursuing the *Bold Decadal Vision*. Members of the Crosscut Team contributed to and participated in the DOE *Workshop on Fusion Energy Development via Public-Private Partnerships* in June 2022, and supported the formulation, launch, and awardee selections of the SC-FES Milestone-Based Fusion Development Program.

The SC FES budget included in this Crosscut, totaling over $116 million, is a priority and constitutes strategic new directions to accelerate fusion energy R&D, including Public-Private Partnerships,[3] Fusion Innovation Research Engine (FIRE) R&D Centers (that include significant growth in materials and blanket/fuel-cycle R&D), IFE, and Future Facilities Studies.

Although its mission is to support the Stockpile Stewardship Program, a subset of the NNSA Office of Experimental Sciences (NA-113) Budget included in this Crosscut includes specific "dual-use" R&D activities within the ICF program that are of most direct relevance for advancing IFE S&T.

Examples of Crosscut activities during FY 2023 include the following: (1) Crosscut team members supported the formulation of the Funding Opportunity Announcement (FOA), merit review, and award negotiations for the Milestone-Based Fusion Development Program; (2) FES co-organized several fusion technology community workshops[4] to begin strategizing fusion-materials and technology gaps outlined in the FESAC LRP and to inform the scope and priorities of the new FIRE R&D Centers; (3) NNSA Defense Nuclear Nonproliferation (NA-20) sponsored a workshop at Princeton University on Fusion Energy and Nonproliferation; (4) NNSA Office of Experimental Sciences (NA-113) sponsored a working group to develop policies and procedures on the use of NNSA computer codes by the private sector to advance IFE R&D; (5) SC Isotope R&D and Production (IP) and FES conducted an initial assessment and authored a report on the fuel isotope needs for eventual fusion demonstration and deployment; (6) EJE assisted FES and the Crosscut team in implementing the requirement of a Community Benefits Plan (CBP) in the Milestone Program FOA and in the evaluation of the CBP portions of Milestone Program applications; and (7) Crosscut team members led and/or participated in fusion-related interagency and international bilateral/multi-lateral discussions, as well as formal working groups, including the White House Net-Zero Game Changers Initiative, International Atomic Energy Agency's International Project on Innovative Nuclear Reactors and Fuel Cycles (IAEA INPRO) fusion study, and others.

Objectives and Action Areas

Key objectives of the Crosscut Team are to define, establish, and coordinate a framework by which the public and private sectors, including strategic interagency and international collaborations, will work together to advance the three S&T drivers identified in the FESAC LRP (first three objectives below); prepare the path broadly to fusion commercialization and scaleup, including energy justice (EJ), diversity, equity, inclusion, and accessibility (DEIA).

- **Objective 1 - Achieve and sustain a burning plasma:** A burning plasma has plasma heating that is primarily due to the energy released from fusion reactions, which is a requirement for most FPP concepts. The physics of burning plasmas is just beginning to be explored experimentally with NIF's ignition achievement. Burning plasmas may reveal new challenges in fusion-plasma behavior to be overcome and, for magnetic confinement concepts, will require advances in integration of the sustained, burning plasma with viable heat/particle exhaust solutions. In addition, this objective requires advances in a number of enabling technologies including but not limited to magnet, laser, and heating/actuator systems.
- **Objective 2 - Approaches and materials to handle extreme conditions:** An FPP will produce heat, particle, and neutron fluxes and fluences that significantly exceed those of present experimental fusion devices. New approaches and materials need to be developed, engineered, and tested for extended survival of the anticipated extreme conditions of FPPs and commercially viable fusion systems.

[3] Includes the Milestone-Based Fusion Development Program and INFUSE.

[4] Community workshops included: Fusion Neutronics hosted by Oak Ridge National Laboratory, Fusion Magnet R&D hosted by Princeton Plasma Physics Laboratory, and Fusion Blanket and Fuel Cycle hosted by the Electric Power Research Institute.

- **Objective 3 - Harnessing fusion power including a sustainable fuel cycle:** Beyond the plasma-facing "first wall" are key systems required to harness fusion power, sustainably breed and process tritium fuel in a breeding "blanket" and ensure the safe operation and maintenance of FPPs and commercial fusion systems. An FPP will require complex integration of multiple fuel-cycle subsystems, with many materials and components needing to be qualified prior to FPP construction. The fuel-cycle systems will be an important driver for the overall safety and environmental attractiveness of a commercial fusion system.
- **Objective 4 - Preparing the path to commercialization:** To support timely demonstration and subsequent commercial deployment/scaleup, it is necessary to prepare the path to commercialization in parallel[5] with resolving the remaining R&D challenges. This preparation requires addressing a broad set of issues including (but not limited to): regulatory/licensing, nuclear and cyber security (including nonproliferation and "security by design"), export control, public engagement and acceptance, incorporating the principles of EJ and DEIA throughout fusion programs/activities, building a diverse and inclusive workforce, ensuring/developing supply chains including critical materials and fuel supplies, industrial/manufacturing base, and market development/assistance.

FY 2025 Priority Action Areas

- **Action Area – SC FES Milestone-Based Fusion Development Program:** This program was authorized in the Energy Act of 2020, received $25 million each from Enacted FY 2022 and FY 2023 appropriations, and was announced on September 22, 2022.[6] It draws from elements of NASA Commercial Orbital Transportation Services (COTS)[7] and NE's Advanced Reactor Demonstration Program (ARDP). The selection of 8 teams was announced[8] on May 31, 2023. Technology Investment Agreements (TIAs) between DOE and the awardees are anticipated to be finalized in FY 2024. The Milestone Program seeks to employ innovative funding models and streamlined contracting, which is one of the Administration's priorities for FY 2025, through the use of DOE's Other Transactions authority.
- **Action Area – New SC FES FIRE R&D Centers** are targeted at national laboratories, universities, and other stakeholders to accelerate FPP-relevant R&D and innovations, in alignment with the three FESAC LRP S&T drivers (i.e., Objectives 1–3 above) and user-defined S&T gaps. The new Centers will support a balance of innovation and translation-oriented R&D, while developing and engaging a growing fusion S&T workforce and furthering EJ and DEIA objectives. The Centers will build on foundational research investments by FES, Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR), including materials performance in extremes and application of advanced computing capabilities. Centers expand support for tritium technologies (leveraging NNSA equities) and nuclear waste disposition (leveraging EM equities). Complementing this effort are new IFE innovation hubs to advance IFE S&T (leveraging NNSA and ARPA-E equities).
- **Action Area – Priority test facilities:** This effort will accelerate technology de-risking and design activities for priority test facilities or subsystem demonstrations, most notably a Fusion Prototypic Neutron Source[9] (FPNS). It will also support the development, testing, and eventual qualification of advanced, low-activation fusion materials and tritium-breeding/processing systems for a sustainable fuel cycle. International partnerships are critical for this effort and will be leveraged.
- **Action Area – Develop a strategic plan** including a public-private framework that enables multiple stakeholders (investors, supply chain performers, developers, energy suppliers and utilities, etc.) to advance towards FPP, identify new capabilities or facilities needed towards growing a domestic fusion industry. In addition to continued expansion of Crosscut activities across DOE, this effort would engage interagency/international initiatives and external stakeholders in state and local governments, philanthropic and investment groups, and multi-institutional financing models to accelerate fusion R&D towards demonstration and commercialization of fusion energy.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency - Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United

[5] https://www.whitehouse.gov/ostp/news-updates/2022/06/03/parallel-processing-the-path-to-commercialization-of-fusion-energy.
[6] https://www.energy.gov/science/articles/department-energy-announces-50-million-milestone-based-fusion-development-program.
[7] https://www.nasa.gov/commercial-orbital-transportation-services-cots.
[8] https://www.energy.gov/articles/doe-announces-46-million-commercial-fusion-energy-development.
[9] https://www.epri.com/research/products/000000003002023917.

States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Fusion will be determined in FY 2024.

2. **Science (SC):**
    a. Fusion Energy Sciences: The FES program supports the development of the scientific and technological foundation needed for a fusion energy source and engages with the private sector through partnerships to accelerate progress toward this. FES utilizes both domestic and international facilities to strengthen DOE's experimental database upon which an FPP can be built. With this experimental database, FES establishes the predictive modeling and simulation capabilities that will assist with the design and operation of future devices. FES also develops the required nuclear technologies and materials that can withstand the harsh burning plasma environment and breed the required fuel elements so that fusion can be an inexhaustible future clean energy source. FES is the home office for growing fusion public-private partnership (PPP) activities, including a new Milestone-based fusion development program.
    b. Advanced Scientific Computing Research (ASCR): ASCR partners with FES through the Scientific Discovery for Advanced Computing (SciDAC) program and continues support for fusion applications currently funded by the Exascale Computing Project, which is scheduled to end in FY 2024. These activities will reinforce the Fusion Initiative and will be leveraged to accelerate the computational and simulation research using state-of-the-art advanced computing tools, techniques, and resources.
3. **National Nuclear Security Administration (NNSA)**: NNSA's major missions are maintaining the nuclear stockpile, nuclear nonproliferation, nuclear counterterrorism/counterproliferation, and powering the nuclear navy. Two primary NNSA equities for this Crosscut include:
    a. NA-10 Defense Programs capabilities in the Office of Experimental Sciences ICF program support the Fusion Crosscut through capabilities, facilities, and staff expertise that can help advance IFE. FES recently sponsored an assessment of basic research needs in IFE and identified activities that may have dual benefit with the ongoing ICF program, e.g., diagnostics, targets, laser and pulsed-power drivers, experimental controls, simulation codes, and applications of artificial intelligence to experiment design and analysis. NNSA and FES are working together to identify activities with potential for dual benefit, noting however that NNSA staff and facilities are generally fully subscribed in support of NNSA's mission. Separately, conversations have been initiated through the Fusion Crosscut to explore future opportunities for coordination and leveraging of tritium technologies at SRNL to assist with the development of the tritium/deuterium fuel-cycle technologies for fusion energy.
    b. NA-20 Defense Nuclear Nonproliferation will support policy analysis and technical development to understand and address the potential risks associated with a commercial fusion energy industry. Efforts will support Objective 4, "Preparing the Path to Commercialization," by ensuring that risks are understood, mitigation approaches are developed, and U.S. nonproliferation policies concerning a commercial fusion energy industry are well-articulated and established. DNN expects to support this effort with policy, export control, and pathway analysis; tritium-related R&D; and nuclear data measurements.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency - Energy:** In FY 2023, ARPA-E selected and/or obligated $31.9 million in funding to projects aligned with the Fusion crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic and Creating Hardened and Durable fusion first Wall Incorporating Centralized Knowledge (CHADWICK) programs.
2. **Science:** Increase in funding in FES reflects the growing R&D and prioritization of this work in DOE to close critical gaps in fundamental and applied fusion science and technology. Most of the increase goes to the FIRE Centers that will help to address the significant scientific and technical challenges that must be addressed to make fusion an energy source for the future.
3. **National Nuclear Security Administration**: No significant changes.

Grid Modernization
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**86,347**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	86,347	TBD	TBD	N/A
Electricity	**267,500**	**267,500**	**273,300**	**+5,800**
Applied Grid Transformation Solutions	10,000	10,000	12,000	+2,000
Cyber Resilient & Secure Utility Communications Networks (Secure Net)	15,000	15,000	15,000	0
Energy Delivery Grid Operations Technology	31,000	31,000	31,000	0
Energy Storage	95,000	95,000	94,800	-200
Resilient Distribution Systems	55,000	55,000	49,000	-6,000
Transformer Resilience and Advanced Components	27,500	27,500	32,500	+5,000
Transmission Reliability and Resilience	34,000	34,000	39,000	+5,000
Energy Efficiency and Renewable Energy	**162,440**	**171,100**	**247,990**	**+85,550**
Advanced Manufacturing Office	0	11,900	0	0
Advanced Materials and Manufacturing Technologies	0	0	20,000	+20,000
Building Technologies	300	300	300	0
Hydrogen and Fuel Cell Technologies	16,000	10,000	16,000	0
Industrial Efficiency and Decarbonization	0	0	7,000	+7,000
Renewable Energy Grid Integration	45,000	45,000	65,000	+20,000
Solar Energy Technologies	55,000	55,000	63,000	+8,000
Strategic Programs	0	2,500	2,500	+2,500
Vehicle Technologies	18,000	18,000	35,690	+17,690
Water Power Technologies	17,140	17,400	15,000	-2,140
Wind Energy Technologies	11,000	11,000	23,500	+12,500
Nuclear Energy	**188,000**	**2,000**	**2,000**	**-186,000**
Advanced SMR RD&D	165,000	0	0	-165,000
Integrated Energy Systems	12,000	2,000	0	-12,000
Light Water Reactor Sustainability	11,000	0	2,000	-9,000
Fossil Energy and Carbon Management	**3,700**	**3,700**	**3,700**	**0**
Carbon Dioxide Removal	750	750	750	0
Carbon Transport and Storage	750	750	750	0
Hydrogen with Carbon Management	1,000	1,000	1,000	0
Point-Source Carbon Capture	1,200	1,200	1,200	0
Clean Energy Demonstrations	**50,000**	**0**	**0**	**-50,000**
Clean Energy Demonstrations	50,000	0	0	-50,000
Cybersecurity, Energy Security, and Emergency Response	**125,000**	**125,000**	**106,500**	**-18,500**
Risk Management Tools and Technologies	125,000	125,000	106,500	-18,500
Grid Deployment Office	**59,500**	**59,500**	**90,085**	**+30,585**
Distribution and Markets	0	0	24,335	+24,335
Grid Planning and Development	16,000	16,000	0	-16,000

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Grid Technical Assistance	25,000	25,000	0	-25,000
Hydropower Incentives	0	0	250	+250
Interregional and Offshore Transmission Planning	2,000	2,000	0	-2,000
Microgrid Generation and Design Deployment	0	0	30,000	+30,000
Transmission Planning and Permitting	0	0	35,500	+35,500
Wholesale Electricity Market Technical Assistance and Grants	16,500	16,500	0	-16,500
Grand Total	**942,487**	**628,800**	**723,575**	**-132565**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview:

The U.S. Department of Energy's (DOE) Grid Modernization Crosscut encompasses activities focused on research, development, demonstration, and deployment (RDD&D) to ensure a resilient, reliable, secure, affordable, flexible, environmentally sustainable, and equitable grid. The portfolio of grid modernization work helps integrate all sources of electricity, improve the security of our Nation's grid, solve challenges of energy storage and distributed generation, and provide a critical platform for U.S. competitiveness and innovation in a global energy economy. These efforts directly support this Administration's goals of reducing U.S. greenhouse gas emissions 50-52 percent below 2005 levels in 2023, reaching 100 percent carbon pollution-free electricity by 2035, and achieving a net-zero emissions economy by 2050 as well as support the Administration's cross-agency Net Zero Game Changers (NZGC) Initiative[1] in the net-zero power grid and electrification area.

The Grid Modernization Initiative (GMI) is a core partnership of DOE Offices that drive this Crosscut. The GMI establishes a grid modernization strategy and implements this strategy by co-funding multi-office collaborative RDD&D through competitive opportunities and by coordinating broad DOE grid modernization activities for a common future grid. As part of the GMI, the Grid Modernization Laboratory Consortium (GMLC) was established as a strategic partnership across the National Laboratories to bring together leading experts, technologies, and resources to collaborate on the goal of modernizing the Nation's grid. To accomplish its goals, the GMI regularly engages with the GMLC and stakeholders from academia, utilities, manufacturers, and the broader power sector.

The GMI works to set the nation on an affordable path to a clean energy future. The GMI focuses on developing new tools and technologies to measure, analyze, predict, protect, and control the grid of the future. The GMI envisions a fully integrated electric system from generation to transmission to load consumption, including interdependent infrastructures, with an emphasis on maintaining the reliability and resilience of the grid. The results of this work will inform regulatory authorities and other oversight bodies, policymakers, industry, and broad stakeholders to facilitate widespread adoption of new technologies in generation, transmission, and distribution.

Coordination Efforts

Through the Grid Modernization Crosscut, DOE coordinates activities across the Offices of Electricity (OE), Energy Efficiency and Renewable Energy (EERE), Fossil Energy and Carbon Management (FECM), Nuclear Energy (NE), Science (SC), Cybersecurity, Energy Security, and Emergency Response (CESER), Technology Transitions (OTT), Energy Justice & Equity (EJE), Clean Energy Demonstrations (OCED); the Grid Deployment Office (GDO); and the Advanced Research Projects Agency-Energy (ARPA-E).

[1] U.S. White House, November 2022, "FACT SHEET: Biden-Harris Administration Makes Historic Investment in America's National Labs, Announces Net-Zero Game Changers Initiative," https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/04/fact-sheet-biden-harris-administration-makes-historic-investment-in-americas-national-labs-announces-net-zero-game-changers-initiative/

In addition to the aforementioned offices, others such as the Office of Policy and Loan Programs Office may contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments. Additionally, there is cross-participation and engagement with the Department's Energy Storage Grand Challenge to ensure alignment.

Within the net-zero power grid and electrification area of the Net Zero Game Changers Initiative, DOE also coordinates with other federal agencies including the Department of Transportation, the Joint Office of Energy and Transportation, the National Science Foundation, the Environmental Protection Agency, and the Department of Interior, focusing on accelerating electric infrastructure expansion, integration of diverse energy resources, managing multi-sector coupling, and enhancing energy justice.

Objectives and Action Areas

The Grid Modernization crosscut works to address barriers to achieving key objectives concerning the complex U.S. grid system, which needs to deploy technologies and the infrastructure necessary to implement a decarbonized economy. ~~E~~. Electricity generation is expanding by location, size, and resource type (such as wind, solar, geothermal, hydropower, nuclear, biomass, and fossil energy). The generation portfolio is facing increased diversification, transitioning from conventional, centralized generation to distributed, coordinated resources especially at the grid edge. Deeper electrification of energy end uses including electric vehicles (EVs) to grid interactive buildings to industrial heat is significantly increasing electricity demand. All of these components increase the complexity of the grid. To address such complexity, the Grid Modernization Crosscut aims to advance the following fundamental power system objectives:

- Clean Energy Integration: The United States is a resource-rich country with abundant clean energy resources that will require connection to the electric transmission and distribution systems, either in front of or behind the meter.[2]
- Grid Infrastructure Expansion: There is broad agreement, supported by the work of DOE and many others, on the need for significant amounts of new transmission capacity.[3] A variety of studies have shown that many tens of GW of additional long-distance transmission capacity would facilitate the export of zero-carbon electricity from resource-rich regions to load centers. Increased transmission interconnection between regions will provide additional benefits, including improved system reliability, resilience to extremes of weather and other physical disasters, and operating flexibility.
- Managing Electrification: Electrification of transportation, industrial, and building loads will require considerable additional capacity and power system infrastructure. This presents a huge opportunity to help meet our grid modernization objectives. By appropriately managing load, newly electrified sectors can provide demand shifting and leveling, supply firming, and other reliability services.
- Reliability, Resilience, and Security: Operational reliability in the design and engineering of energy delivery along with the functional preservation of operations in the face of natural and man-made threats and hazards is a foundational aspect of the grid that needs to be maintained and improved.
- Affordability: A household's energy burden—the percentage of household income spent on energy bills—provides an indication of energy affordability. Researchers define households with a 6% energy burden or higher to experience a high burden.[4] According to DOE's Low-Income Energy Affordability Data (LEAD) Tool,[5] the national average energy burden for low-income households is 8.6%, three times higher than for average households, which is estimated at 3%. In some areas, depending on location and income, energy burden can be as high as 30%. Of all U.S. households, 44% or about 50 million, are defined as low-income.[6]

The Grid Modernization Crosscut organizes around six key Action Areas to address the barriers to achieving the power system objectives identified above. The Action Areas correspond to the six technical pillars in the 2023 Grid Modernization

[2] Department of Energy, "Renewable Energy Resource Assessment Information for the United States". https://www.energy.gov/eere/analysis/renewable-energy-resource-assessment-information-united-states.
[3] Department of Energy. "National Transmission Needs Study - Draft for Public Comment" (February 2023), https://www.energy.gov/sites/default/files/2023-02/022423-DRAFTNeedsStudyforPublicComment.pdf.
[4] American Council for an Energy Efficient Economy, "Understanding Energy Affordability", https://www.aceee.org/sites/default/files/energy-affordability.pdf.
[5] Department of Energy, "Low-Income Energy Affordability Data (LEAD) Tool", https://www.energy.gov/eere/slsc/low-income-energy-affordability-data-lead-tool.
[6] Department of Energy, "Low-Income Community Energy Solutions", https://www.energy.gov/eere/slsc/low-income-community-energy-solutions.

Strategy. The topics within each respective Action Area are addressed through multiple program types that include R&D, testing and validation, simulation, demonstration, technical assistance, and analysis. It is worthwhile to note that many of these topics are interrelated; in particular, cybersecurity and energy justice are interwoven throughout all Action Areas.

- Action Area 1 – **Devices and Integrated Systems**: This Area aims to create needed devices with proper controls, establish understanding of the interactions among the devices at the system level, and develop methods for the integration of such devices to ensure the electrical system can operate effectively as a whole.
- Action Area 2 – **Operations**: This Area aims to develop procedures and technologies needed to run the future grid reliably during normal or steady-state conditions, as well as during extreme situations.
- Action Area 3 – **Planning**: This Area aims to provide the grid community with next-generation planning tools for policy analysis, grid expansion planning, and day-ahead planning and to support policy development, economic assessments, engineering design, and risk and vulnerability analysis impacting billions of dollars of capital investments and operational costs.
- Action Area 4 – **Markets, Policies, and Regulations**: This area includes market, policy, and regulatory research aimed at creating strategies to develop an efficient grid capable of ensuring a reliable energy supply, while achieving the Administration's deep decarbonization targets in an equitable and just manner.
- Action Area 5 – **Resilient and Secure Systems**: This Area aims to improve the resilience and security of the electric sector by developing physical and cybersecurity solutions; characterize risk, assess impacts, and develop mitigation approaches; and provide situational awareness/incident support during energy-related emergencies. It also includes resilience and security considerations for supply chains.
- Action Area 6 – **Flexible Generation and Load**: This Area aims to enable and maximize flexibility in energy generation or load that responds to the variability and uncertainty of conditions at one or more temporal and spatial scales, including a range of energy futures.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy:** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Grid Modernization will be determined in FY 2024.
2. **Office of Electricity**: A reliable, resilient, and secure power grid is vital to our national security, economic security, and the services Americans rely upon. Working closely with its private and public partners, OE leads the Department's research, development, and demonstration programs to strengthen and modernize our Nation's power grid. In FY 2025, OE pursues grid modernization research for technologies to improve grid reliability, resilience, affordability, and security, including communications architectures to support secure information flows and alternate synchronization and timing technology to support resilient grid operations. OE also develops core analytic, assessment, and engineering capabilities that can evolve as technology and policy needs mature to support decision making involving complex interdependencies among energy infrastructure systems. OE continues support for private sector innovation investment in data platforms and advanced communications/control designs as well as regional and national deployment through cooperative agreements.
3. **Energy Efficiency and Renewable Energy:**
    a. **Advanced Materials and Manufacturing Technology Office (AMMTO):** FY 2025 funding will continue to support the development and demonstration of highly conductive materials that can provide significant efficiency improvements to the grid and grid-connected applications.
    b. **Building Technologies Office (BTO):** FY 2025 funding will continue to support RDD&D on advanced and grid-interactive technologies, such as controls, interoperability, and energy storage, will partner with industry stakeholders to develop and deploy grid-interactive efficient buildings related systems, capable of connecting with the power grid in new and increasingly adaptive manners to help with overall energy system efficiency, reliability, resilience, environmental performance, and energy affordability. These capabilities are an integral and necessary part of a decarbonized power system that maximizes use of renewable resources and can significantly reduce energy use at times when this provides a valuable option for utilities and their customers.
    c. **Hydrogen and Fuel Cell Technologies Office (HFTO):** HFTO's FY 2025 funding for Grid Energy Storage and Power Generation activity supports grid modernization activities like Nuclear Energy and electrolyzer integration for power generation.

d. **Industrial Efficiency & Decarbonization Office (IEDO):** Funding increase will support innovative electrification technology concepts to improve industrial production system efficiencies and process yield of electrified systems and retire barriers preventing increased use of net-zero electricity sources at industrial facilities.
e. **Renewable Energy Grid Integration (REGI):** Prioritizes FY 2025 investments to directly support validated data, tools, technical assistance, and real-world experience that give power system and grid edge decision-makers the confidence to increase renewable generation and decarbonize end uses while maintaining or improving affordability, reliability, and resilience for end users.
f. **Solar Energy Technologies Office (SETO):** Funding will continue to support analysis and RDD&D of grid integration technologies at the bulk power and distribution system levels to allow reliable, resilient, and secure grid planning and operation with increasing amounts of solar, energy storage, hybrid systems, and other inverter-based assets.
g. **Strategic Programs Office (SPO):** Funding will support DECARB dataset development and analysis, e.g., distribution costs and high-resolution loads, as well as non-DECARB power sector modeling, dataset development, and analysis.
h. **Vehicle Technologies Office (VTO):** FY 2025 funding includes enhanced support for research and development (R&D) that improves understanding of the potential impacts on, and benefits of, electric vehicle (EV) charging to the Nation's electric grid. Core research focus areas include: developing EV charging, charge management, Distributed Energy Resources (DER) integration, grid services, and cyber-physical security technologies for reliable and cost-effective high-power and wireless charging of light-, medium-, and heavy-duty EVs.
i. **Wind Energy Technology Office (WETO):** Funding will support RD&D to enable efficient and timely interconnections of wind to the nation's power grid and to ensure reliable, cybersecure, cost-effective, and resilient grid operations with increasing levels of wind. Increased funding in FY 2025 would also support a new R&D campaign to address deepwater floating offshore wind transmission challenges through subsea cable technologies and floating substations.
j. **Water Power Technologies Office (WPTO):** Funding request includes a new effort to support model vendors in accurately incorporating hydropower and PSH into their software to improve industry-standard modeling products with state-of-the-art hydropower representations, enhancing operational timescale models, and inflow forecasting models to directly target tools used by hydropower operators. The Request continues to expand the Valuation Guidebook and provide technical assistance to PSH developers to support advancing their projects to deployment. It also continues technical assistance to the broader hydropower community, including collaboration with cross-office initiatives on remote communities and broader generation and transmission planning processes, but at a lower level versus FY 2023 Enacted.

4. **Fossil Energy and Carbon Management:** In FY 2025, FECM will seek to directly fund FECM projects involving applied power grid simulations using quantum technologies, social justice and engagement in power systems planning, and climate impacts on future grid states. FECM has an extensive portfolio of research, development, and demonstration (RD&D) activities that also contribute to the Department's Grid Modernization crosscut efforts. Execution of these projects will be done through GMI's GMLC or joint funding opportunity announcements (FOA) in coordination with other program offices.
5. **Nuclear Energy:** The Light Water Reactor Sustainability program will provide technical assistance for applications that could provide demand response or store energy to balance the grid. No new funding in FY 2025 is requested for the Small Modular Reactor Research, Development, and Demonstration program.
6. **Office of Clean Energy Demonstrations**: No new funding in FY 2025 is requested related to the Grid Modernization crosscut.
7. **Cybersecurity, Energy Security and Emergency Response:** CESER integrates cybersecurity activities across the Department and coordinates with other DOE offices to ensure cybersecurity is built in across different research, development, and demonstration (RD&D) programs. CESER leverages DOE's National Laboratory to advance the goal of securely modernizing the Nation's electric grid. All of CESER's cybersecurity risk management tools and technology funding are included in the GMI. For FY 2025, this includes developing cyber situational awareness and analytics; cradle-to-grave supply chain cybersecurity, including programs like Energy Cyber Sense, digital components enumeration and mitigation effort; developing tools, guidance, and practices that help organization's understanding and management of cybersecurity risk; cyber residence through cyber-informed and consequence driven engineering in the program's implementation phase; and collaboration with universities to support workforce development and to stimulate innovation by students to address cyber risks to energy infrastructure.
8. **Grid Deployment Office:** GDO's priority is to develop and deploy innovative grid modernization solutions to address local, state, regional and national electricity system needs, while ensuring the availability of clean, firm generation

capacity, like hydropower and nuclear energy. All GDO activities fall under the Grid Modernization Crosscut with the exception of GDO Program Direction. The FY 2025 Request continues to maintain and invest in critical generation facilities to ensure resource adequacy and support activities to improve and expand transmission and distribution systems to ensure all communities have access to reliable, affordable electricity while supporting economic development:

a. **Transmission Planning and Permitting:** Supports innovative efforts in transmission reliability and clean energy analysis and programs in addition to energy infrastructure and risk analysis to enhance grid resilience. The FY 2025 Request kickstarts scoping efforts for the second National Transmission Planning Study,[7] strengthens the partnership with the national laboratories to further develop grid planning modeling capabilities at the transmission level, and supports launch of the next iteration of the National Transmission Needs Study.
b. **Distribution and Markets:** Works with electricity system partners and stakeholders to establish and improve centrally-organized market components and bilateral market arrangements, as well as advance distribution-level market opportunities that will enable a clean, reliable, resilient, and equitable grid. In FY 2025, the Request continues to address wholesale electricity markets, focuses on supporting the integration and utilization of long-duration energy storage, and expands distribution level modeling for grid planning with the national laboratories.
c. **Hydropower Incentives:** Develops modeling and analyses of the results from the capital improvements funded through the BIL's Hydroelectric Incentives program. The FY 2025 Request continues to support the development of analytics for follow-up monitoring of the impact of hydropower incentives for the modernization and maintenance of existing U.S. hydropower assets.
d. **Microgrid Generation and Design Deployment:** New program proposed in FY 2025 that focuses on grid resiliency at scale by deploying microgrid solutions to communities that experience high frequency and/or long duration of outages. In FY 2025, the program will initiate awards to communities to conduct strategic analysis, project design, and generation investment activities for microgrids.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy:** In FY 2023, ARPA-E selected and/or obligated $86.3 million in funding to projects aligned with the Grid Modernization crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic; Superconducting Tape Exploratory Topic; Grid Overhaul with Proactive, High-Speed Undergrounding for Reliability, Resilience, and Security (GOPHURRS); Grid Optimization Competition; and Unlocking Lasting Transformative Resiliency Advances by Faster Actuation of power Semiconductor Technologies (ULTRAFAST) programs.
2. **Office of Electricity**:
   a. **Transmission Reliability and Resilience (TRR):** TRR focuses on U.S. electric grid reliability and resilience through R&D on system observability and control capabilities. TRR develops and demonstrates operational tools for grid enhancing technologies (GETS), develops and validates models to characterize evolving system needs, identifies pathways to achieve an equitable transition to decarbonization and electrification, addresses ongoing industry challenges, and mitigates risks across integrated energy systems. The Request includes increases for operational and control tools to modernize the transmission system and to develop new models to increase the net power flowing through transmission lines.
   b. **Energy Delivery Grid Operations Technology (EDGOT):** Predicting the impact of a specific event on energy system operations, restoration, and recovery is vexing due to the scale of the North American energy system—crossing organizational, geographic, sector, and jurisdictional boundaries—and the underlying physics of energy transport. Our current ability to analyze extreme events in this context is limited due to the lack of key information and capabilities. The Request focuses on developing and enhancing the portfolio of tools to help address these limitations and to transition the underlying capabilities to a robust, secure operational state.
   c. **Resilient Distribution Systems (RDS):** RDS develops transformative technologies, tools, and techniques to enable industry to modernize the distribution portion of the electric delivery system. RDS also pursues strategic investments that improve reliability, increase resilience, support vehicle electrification, integrate distributed energy resources, and increase consumer choice. The Request includes increases for next-level advancements in the development and demonstration of microgrid technology as strategic building blocks of the future grid; transformative control approaches to keep electricity affordable, reliable, resilient, and secure; and sensor data analytics R&D on data standards required for advanced analytics and software interoperability.

[7] https://www.energy.gov/gdo/national-transmission-planning-study

d. **Cyber Resilient and Secure Utility Communications Networks (SecureNet):** SecureNet develops technical solutions to accelerate and expand efforts to strengthen electricity communications infrastructure against cyber threats. SecureNet's core R&D focus is on grid communication and data network information security and resilience, including enabling components and technologies such as alternate timing and blockchain.
e. **Energy Storage:** The Request expands the Rapid Operational Validation Initiative (ROVI) to complete phase 4/5 validation of lithium-ion and flow battery storage technologies, project assistance to selected Energy Storage for Social Equity (ES4SE) cohort communities, and Opportunities for Alternative Systems and Supply-Chain Innovations and Solutions (OASSIS) to address materials, power electronics components, and supply chain challenges. The Request also supports the Transmission-level Inverter Based Resource (TIBeR) activity to develop model standards for how energy storage can operate effectively as a grid asset; Enhanced Validation of Energy Storage Technologies (EnVEST) to expand technology validation for early-state innovators; national Blue Sky First Responder Training to incorporate energy storage into fire and safety trainings; and the Storage Prize for Entrepreneurial Enrichment and Development (SPEED) to advance long-duration energy storage and grid-scale storage technologies at the entrepreneurial stage.
f. **Transformer Resilience & Advanced Components (TRAC):** TRAC develops innovations to control, convert, condition, and transport electricity, equipping the grid to achieve decarbonization goals while enhancing its reliability and resilience. TRAC encompasses materials research, exploratory concepts, and modeling and analysis to fill fundamental R&D gaps and encourage the adoption of new technologies and approaches. The Request accelerates efforts to address HVDC hardware technical challenges, performing a field demonstration exercise of medium-voltage advanced power electronic systems at distribution scale, and expanding advanced transformer development, including solid-state, flexible, and modular transformers.
g. **Applied Grid Transformation Solutions (AGTS):** AGTS assesses and tests new grid systems and subsystems, including energy storage, transmission, distribution, and power control and conversion systems, in integrated pilot environments. These assessments provide utilities with needed information for quantifying and validating functionality, performance, and economic benefits before deploying new technologies. The Request enhances at least one existing national electrical grid advanced testing capability and at least one new pilot demonstration in a field or laboratory environment to validate technological maturity and show how new technologies achieve desired technical, economic, societal, policy, and market outcomes.

3. **Energy Efficiency and Renewable Energy:**
   a. **Advanced Materials and Manufacturing Technology Office (AMMTO**): Funding increase supports innovation for high conductivity materials for supporting electrification goals.
   b. **Industrial Efficiency & Decarbonization Office (IEDO):** This is the first year that IEDO is requesting funding for Grid Modernization. Funding will support innovative electrification technology concepts to improve industrial production system efficiencies and process yield of electrified systems and retire barriers preventing increased use of net-zero electricity sources at industrial facilities.
   c. **Building Technologies Office (BTO):** No significant change.
   d. **Hydrogen and Fuel Cell Technologies Office (HFTO):** No significant change.
   e. **Vehicle Technologies Office (VTO):** Funding increase will support R&D to improve electric vehicle (EV) charging to the Nation's electric grid.
   f. **Wind Energy Technology Office (WETO):** Funding increase will support a new R&D campaign to address deepwater floating offshore wind transmission challenges through subsea cable technologies and floating substations.
   g. **Solar Energy Technologies Office (SETO):** Funding increase provides for the Systems Integration (SI) subprogram, supporting the DOE Grid Modernization Initiative (GMI) and Energy Storage Grand Challenge (ESGC), that funds RD&D of technologies that better enable solar energy to support the reliability, resilience, and security of the electric power system.
   h. **Renewable Energy Grid Integration (REGI):** Funding request prioritizes investments to directly support validated data, tools, technical assistance, and real-world experience that give power system and grid edge decision-makers the confidence to increase renewable generation and decarbonize end uses while maintaining or improving affordability, reliability, and resilience for end users.
   i. **Water Power Technologies Office (WPTO):** Funding continues technical assistance to the broader hydropower community, including collaboration with cross-office initiatives on remote communities and broader generation and transmission planning processes, but at a lower level versus FY 2023 Enacted.
   j. **Strategic Programs Office (SPO):** Funding increase will provide additional support for sector modeling, dataset development, and analysis.

4. **Fossil Energy and Carbon Management:** No change in funding from FY 2023.
5. **Nuclear Energy:** The funding decrease for Advanced SMR RD&D reflects the termination of the Carbon Free Power Project in November 2023. Funding decrease in Integrated Energy Systems reflects completed Framework for Optimization of Resources and Economics (FORCE) modeling and simulation capabilities, which is used for optimization of power generation dispatch on the grid.
6. **Office of Clean Energy Demonstrations**: In September 2023, OCED issued a FOA for $50 million using FY 2023 annual appropriations focused on flexible operations for distributed and renewable energy systems. No additional funding is requested in FY 2025.
7. **Cybersecurity, Energy Security and Emergency Response:** This decrease reflects a reduction in the number of cybersecurity RD&D projects.
8. **Grid Deployment Office:** The FY 2025 Request proposes the new Microgrid Generation and Design Deployment program, focusing on grid resiliency at scale by deploying microgrid solutions to communities, including those that experience high frequency and/or long duration of outages. In FY 2025, the program will initiate awards for 3-6 microgrid projects in communities that demonstrate a need for increased electricity system resilience and reliability. Microgrid generation and design awards will enable communities to conduct strategic energy analysis, project design, and generation investment activities for microgrids.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs:
In addition to annual appropriations, BIL funding will support planning and execution of technology development, demonstration, scale-up, and deployment of cybersecurity and cyber resilience for the energy sector and rural and municipal utilities; advanced nuclear reactor demonstration; energy storage and system reliability work; smart grid investments; and programs to assess risks, prevent outages, improve grid resilience, and facilitate transmission. IRA funding will deepen the Department's investments in transmission by expanding interregional and offshore wind transmission planning efforts, offering additional financing to accelerate transmission deployment, and awarding grants to address transmission siting and permitting challenges. These investments are essential in addressing the supply chain and technology needs to support growth in clean energy and the grid.

Hydrogen
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**20,000**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	20,000	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**216,160**	**203,560**	**210,100**	**-6,060**
Advanced Manufacturing Office	25,000	25,000	0	-25,000
Hydrogen and Fuel Cell Technologies	170,000	170,000	170,000	0
Industrial Efficiency and Decarbonization	0	0	25,000	+25,000
Solar Energy Technologies	7,500	7,500	3,500	-4,000
Vehicle Technologies	10,000	0	10,500	+500
Water Power Technologies	2,600	0	0	-2,600
Wind Energy Technologies	1,060	1,060	1,100	+40
Fossil Energy and Carbon Management	**122,000**	**122,000**	**110,400**	**-10,600**
Energy Asset Transformation	1,000	1,000	1,000	0
Hydrogen with Carbon Management	95,000	95,000	85,000	-10,000
Natural Gas Decarbonization and Hydrogen Technologies	26,000	26,000	24,400	-1,600
Nuclear Energy	**23,000**	**23,000**	**6,000**	**-17,000**
Integrated Energy Systems	12,000	12,000	5,000	-7,000
Light Water Reactor Sustainability	11,000	11,000	1,000	-10,000
Science	**50,299**	**45,306**	**50,731**	**+432**
Basic Energy Sciences	50,299	45,306	50,731	+432
Grand Total	**431,459**	**393,866**	**377,231**	**-34,228**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

The Department of Energy (DOE) Hydrogen crosscut encompasses activities across multiple offices in DOE that sponsor research, development, demonstration, and deployment (RDD&D) to foster innovations and develop widely available, net-zero emission, cost-competitive technologies for the production, storage, and delivery of clean hydrogen (H_2), and for its end use as a fuel, chemical feedstock or energy storage media. Hydrogen is a versatile energy carrier that can be produced with near net-zero greenhouse gas (GHG) emissions by using diverse domestic resources including renewables, nuclear, and fossil fuels with carbon capture, utilization, and storage (CCUS). Accordingly, clean hydrogen is an enabling piece of DOE's portfolio of solutions to achieve an abundant, reliable, and affordable supply of clean energy to meet our climate goals and maintain our prosperity throughout the 21st century and beyond.

Crosscut activities are guided by the United States (U.S.) National Hydrogen Strategy and Roadmap and will focus on enabling clean hydrogen for hard-to-decarbonize applications in industry and heavy-duty transport, as well as in power generation and energy storage. Hydrogen can be used in a wide range of end-use sectors and several DOE offices are involved in developing different hydrogen production and delivery methods as well as application spaces. By integrating those efforts, each office benefits from joint analyses and assessments and therefore more effectively targets their funding to the highest priority areas and avoids duplication of efforts.

Coordination Efforts

A crosscutting team of DOE program offices coordinates activities aligned with the DOE Hydrogen Program Plan, which outlines key activities and a matrix of roles and responsibilities across the pipeline of hydrogen production, delivery, storage, conversion, and end use RDD&D efforts. Coordinating offices share status, progress, identify gaps, and develop plans to execute on the DOE Hydrogen Program Plan and the U.S. National Clean Hydrogen Strategy and Roadmap, which was required in the Infrastructure Investment and Jobs Act (IIJA) and released in June 2023. DOE also launched the Hydrogen Interagency Taskforce in 2023 across 11 agencies and coordinates regularly on hydrogen activities (www.hydrogen.gov). Coordinated activities also include a joint Annual Merit Review and Peer Evaluation Meeting, joint regional analysis, lifecycle emissions and supply chain assessments, joint summits, workshops, and requests for information, coordinated funding opportunities, and joint proposal peer reviews for solicitations.

Crosscutting activities are co-led by the Energy Efficiency and Renewable Energy (EERE)'s Hydrogen and Fuel Cell Technologies Office (HFTO) and the Office of Clean Energy Demonstrations (OCED) to facilitate coordination of RDD&D activities within the Hydrogen Program supported by appropriations, as well as coordination with demonstration and deployment activities supported by IIJA funding. Participating offices include the Offices of Fossil Energy and Carbon Management (FECM), Nuclear Energy (NE), Science (SC), and the Advanced Research Projects Agency-Energy (ARPA-E). In addition to the funding offices identified here, the Office of Electricity (OE) participates in technology coordination on topics including utilization of clean hydrogen as an option for clean heat, power, and energy storage applications. . Various crosscutting offices such as the Technology Transitions (OTT), Office of Energy Justice & Equity (EJE), and Office of Policy (OP) also may contribute staff time and coordinate with the RDD&D funding offices to enhance the impact of the Department's investments. As additional offices such as Office of Manufacturing and Energy Supply Chains (MESC), Loan Program Office (LPO), and Indian Energy (IE) are ramping up activities related to hydrogen, they are also included in crosscutting activities. Coordination with OCED, particularly related to hydrogen hubs, will be essential to maximize IIJA-related hydrogen provisions going forward.

Objectives and Action Areas

The DOE-wide Hydrogen crosscut is aligned with the U.S. National Clean Hydrogen Strategy and Roadmap. The DOE Hydrogen Program coordinates clean hydrogen and fuel cell activities across the DOE Offices, spanning fundamental scientific research and development (R&D); applied research, development, and demonstration (RD&D); in addition to scale-up and deployment. The collaborative RDD&D aims to accelerating the technology, manufacturing, and commercial-readiness of affordable options for clean hydrogen production, storage, delivery and utilization across sectors. Key objectives through 2025 include:

- **Clean Hydrogen Production** - Including direct support of the Hydrogen Shot™ goal to reduce the cost of clean hydrogen by 80% to $1 per 1 kilogram in 1 decade ("1 1 1"), for incentivizing new and growing markets for clean hydrogen, particularly in sectors that are otherwise hard to decarbonize:
  - Catalyze RD&D in electrolysis, thermal conversion, and new pathways to meet the Hydrogen Shot production cost goal of $1/kilogram (kg) by 2031, with an interim target of $2/kg by 2026.
  - Demonstrate replicable, scalable production from renewable and nuclear power, as well as fossil and waste conversion with CCUS.
- **Delivery and Storage Infrastructure -** Including optimal end-use-specific options for cost-effective transport and storage of clean hydrogen in gaseous, liquid, or carrier forms:
  - Identify and prioritize barriers to infrastructure roll out, including delivery and storage based on compressed gaseous hydrogen, cryogenic liquid hydrogen, and/or hydrogen carriers.
  - Initiate supporting infrastructure for regional hubs.
- **Application and Liftoff Pathways -** Including a near-term goal of developing cost-effective technology solutions leveraging clean hydrogen for high-impact industrial-sector decarbonization, and a long-term goal of deep decarbonization through widespread adoption of these solutions**:**
  - Engage relevant stakeholders to lay groundwork for strategic adoption across sectors including transportation; chemicals and industry; and power generation and energy storage.
  - Demonstrate performance and durability of integrated energy systems relevant to applications in different sectors.
  - Initiate industrial projects and develop offtake agreements.
- **Conversion -** Including advancing fuel-cell-based and combustion-based technologies for clean hydrogen conversion to provide cost-effective solutions for decarbonization in heat, power, and energy storage applications:

- Catalyze RD&D in medium- to heavy-duty fuel cells for transportation applications as well as is stationary/hybrid energy systems for energy storage and power generation, as well as poly-generation (e.g., power, heat, and hydrogen generation).
- Catalyze RD&D in low nitric oxide (NOx) hydrogen-fired turbines for heavy-duty transportation and power generation applications.

- **Enablers -** Including addressing hydrogen safety; implementing workforce development and energy and environmental justice plans; advancing manufacturing and supply chains; and evaluating environmental and social impacts and benefits:
  - Engage stakeholders and communities in addressing safety codes and standards;
  - Develop and expand workforce, talent pools, and apprenticeship programs;
  - Develop strategies to ensure 40% of benefits flow to disadvantaged communities impacted by DOE-funded clean hydrogen projects;
  - Expand efforts to understand, quantify, and address environmental, social, and economic effects of hydrogen and fuel cell technologies;
  - Innovate in the manufacturing of hydrogen and fuel cell technologies, including through automation;
  - Address critical supply chains issues, including through recycling and reuse; and
  - Identify and address life-cycle-based environmental impacts of clean hydrogen and fuel cell technologies, including through recycling and reuse.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Hydrogen will be determined in FY 2024.
2. **Energy Efficiency and Renewable Energy (EERE):**
   a. Hydrogen and Fuel Cells Technologies Office (HFTO): HFTO supports clean hydrogen production, storage and delivery/infrastructure, fuel cells, and end uses, including systems development and integration, as well as analysis, safety, codes, standards, and workforce development. HFTO serves as the primary coordinator of DOE Hydrogen Program activities.
   b. Industrial Efficiency and Decarbonization Office (IEDO): FY 2025 funding will continue to support in-process innovations to advance the economic use of low-carbon hydrogen for industrial processes. These innovations include RD&D for hydrogen-compatible equipment to enable high-impact end uses (e.g., combustion, ammonia, steel, etc.).
   c. Solar Energy Technologies Office (SETO): FY 2025 funding will support the lab RD&D of concentrating solar thermal power systems that can be used for hydrogen production or in conjunction with hydrogen as a chemical feedstock for decarbonized industrial processes and of hybrid energy systems combining solar power with H2-based energy storage/transport.
   d. Vehicle Technologies Office (VTO): FY 2025 funding supports the development of efficient combustion and fuels technology for hard to electrify segments of the transportation sector. These include off-road vehicles, such as construction, agriculture and forestry, and rail, marine and aviation that can use renewable fuels like hydrogen to reduce greenhouse gas (GHG) and criteria emissions to near-zero levels.
   e. Wind Energy Technologies Office (WETO): FY 2025 funding will support R&D on wind co-generation opportunities to enable wind hydrogen production demonstration for land-based and/or offshore wind applications.
   f. Water Power Technologies Office (WPTO): FY 2025 eliminates funding for WPTO participation in the Hydrogen Crosscut.
3. **Fossil Energy and Carbon Management (FECM):** FECM focuses primarily on hydrogen production from carbon-based or fossil resources coupled with CCUS to achieve carbon-neutral hydrogen; hydrogen conversion to electricity via combustion turbines and reversible solid oxide fuel cells; and large-scale hydrogen storage and delivery infrastructure options. The Office of Carbon Management Technologies includes RD&D on gasification of diverse carbon-based feedstocks (including fossil, biomass, waste, and plastics) with CCUS, on pre-combustion CCUS for natural gas reforming, and on conversion based on solid-oxide fuel cells or combustion/turbines. The Office of

Resource Sustainability's contribution to the Hydrogen Crosscut includes extramural RD&D related to clean hydrogen production and infrastructure for natural gas decarbonization, technologies for enabling the safe and efficient transportation of clean hydrogen within the U.S. natural gas pipeline system, and research to enable high-volume subsurface hydrogen storage.

4. **Nuclear Energy (NE):** Several reference plant designs for nuclear integration will include hydrogen production. These industries include refineries, chemical synthesis and biomass processing. The Integrated Energy Systems program will begin development of reference plant designs for polymers, chemicals and metals processing. The Light Water Reactor Sustainability program will provide technical assistance to develop energy pathways that include hydrogen and continue research to reduce the regulatory risk of nuclear-integrated industrial applications, including hydrogen.
5. **Office of Science (SC)**: Basic Energy Sciences (BES) provides foundational knowledge and state-of-the-art capabilities in support of the Hydrogen Crosscut objectives and continues to support theoretical and experimental science related to understanding hydrogen technologies and materials that will continue through FY 2025. The Request continues support for the Energy Earthshot Research Centers (EERCs), which focus on the stretch goals of the Energy Earthshots and provide a solid bridge between SC and the energy technology offices. Through strong alignment with the technology offices, EERCs will address key basic research challenges, with relevance to applied R&D activities. Scientific opportunities were further defined by a BES roundtable on Foundational Science for Carbon-Neutral Hydrogen Technologies, organized with input from the DOE technology offices.

   Key activities include supporting scientific discoveries and major scientific tools to transform our understanding of clean hydrogen-related technologies, including hydrogen storage, production, utilization, and conversion. SC operates major x-ray, neutron, nanoscience, and high-performance computing user facilities that provide advanced synthesis, fabrication, characterization, and computational capabilities to this community for basic, applied, and industrial research. BES research enables breakthrough advances for clean hydrogen production beyond conventional approaches such as electrolysis; related work is conducted by the Fuels from Sunlight Hub program and the Energy Frontier Research Centers, which complement the technology-specific RD&D supported by DOE's applied energy offices and provide foundational knowledge that can bring advances to many areas of technology development.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy:** In FY 2023, ARPA-E selected and/or obligated $20 million in funding to projects aligned with the Hydrogen crosscut through ARPA-E's Geologic Hydrogen (H2) Exploratory Topic programs.
2. **Energy Efficiency and Renewable Energy:**
   a. Hydrogen and Fuel Cells Technologies Office: No significant change.
   b. Industrial Efficiency and Decarbonization Office: No significant change.
   c. Solar Energy Technologies Office: In FY 2025, the Concentrated Solar Program does not plan a new funding opportunity announcements (FOA) topic on clean fuels nor on Hydrogen and the indicated funding will come from lab projects, as the program is rotating annual FOA topics to address competing objectives in a multi-year cycle.
   d. Wind Energy Technologies Office: No significant change.
   e. Vehicle Technologies Office: Increase in funding will support development of efficient combustion and fuels technology for hard to electrify segments of the transportation sector.
   f. Water Power Technologies Office: The FY 2025 Request no longer supports funding for WPTO participation in the Hydrogen Crosscut.
3. **Fossil Energy and Carbon Management:**
   a. Resource Sustainability: Natural Gas Decarbonization and Hydrogen Technologies will fully fund research on utilizing natural gas storage for hydrogen and pilot-scale technology demonstration.
   b. Carbon Management Technologies: Hydrogen with Carbon Management will develop alloy compositions and manufacturing techniques to improve resistance to hydrogen embrittlement, as well as a reduced effort in basic RDD&D to mature Reversible Solid Oxide Fuel Cell (R-SOFC) technologies, including operating as Solid Oxide Electrolysis Cells (SOEC).
4. **Nuclear Energy:** Decrease of funding reflects the completion of the pre-conceptual design of thermal and electrical distribution systems for hydrogen applications with light water reactors. Efforts also provided technical assistance and focused on risk reduction for secondary applications of nuclear energy.
5. **Office of Science**: No significant change.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs
In addition to the annual appropriations request, IIJA funding will support the initial stages of planning and execution of technology development, demonstration, scale-up, and deployment for clean hydrogen hubs, clean hydrogen electrolysis and clean hydrogen manufacturing and recycling. In October 2023, OCED announced selections for seven hydrogen hubs ($7 billion) that are expected to collectively produce three million metric tons of hydrogen annually, reaching nearly a third of the 2030 U.S. production target and lowering emissions from hard-to-decarbonize industrial sectors that represent 30 percent of total U.S. carbon emissions. These investments are essential in addressing the supply chain and technology needs to support growth in clean energy. Tax credits in IRA will additionally incentivize the hydrogen supply chain.

Industrial Decarbonization
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**77,260**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	77,260	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**612,788**	**572,538**	**603,927**	**-8,861**
Advanced Manufacturing Office	309,500	309,500	0	-309,500
Advanced Materials and Manufacturing Technologies	0	0	57,500	+57,500
Bioenergy Technologies	147,982	147,982	107,700	-40,282
Geothermal Technologies	7,900	0	5,000	-2,900
Hydrogen and Fuel Cell Technologies	124,000	95,000	90,000	-34,000
Industrial Efficiency and Decarbonization	0	0	322,727	+322,727
Solar Energy Technologies	19,056	19,056	20,000	+944
Strategic Programs	4,350	1,000	1,000	-3,350
Fossil Energy and Carbon Management	**258,000**	**258,000**	**240,700**	**-17,300**
Carbon Transport and Storage	90,000	90,000	76,600	-13,400
Hydrogen with Carbon Management	68,000	68,000	56,000	-12,000
Point-Source Carbon Capture	50,000	50,000	48,100	-1,900
Carbon Dioxide Conversion	50,000	50,000	60,000	+10,000
Nuclear Energy	**66,000**	**66,000**	**26,100**	**-39,900**
Advanced Reactor Technologies	17,000	17,000	5,600	-11,400
Integrated Energy Systems	12,000	12,000	7,500	-4,500
Light Water Reactor Sustainability	11,000	11,000	1,500	-9,500
National Reactor Innovation Center	26,000	26,000	11,500	-14,500
Science	**69,678**	**50,762**	**44,735**	**-24,943**
Basic Energy Sciences	69,678	50,762	44,735	-24,943
Clean Energy Demonstrations	**0**	**50,000**	**0**	**0**
Clean Energy Demonstrations	0	50,000	0	0
Manufacturing and Energy Supply Chains	**0**	**0**	**21,000**	**+21,000**
Manufacturing Capacity and Competitiveness	0	0	5,000	+5,000
Workforce Capacity and Competitiveness	0	0	16,000	+16,000
Grand Total	**1,083,726**	**997,300**	**936,462**	**-70,704**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

The Industrial Decarbonization crosscut engages multiple offices across the Department of Energy (DOE) to foster innovations and enable scale-up of cost-competitive, low-emissions technologies to achieve the United States' (U.S.) goal of decarbonizing energy intensive and high greenhouse gas (GHG)-emitting industries to achieve net-zero GHG emissions, economy-wide, no later than 2050. The crosscut leverages research, development, demonstration, and deployment

(RDD&D) across the pillars of industrial decarbonization identified in DOE's Industrial Decarbonization Roadmap[1]: energy efficiency; electrification; low carbon input sources; and carbon capture, utilization, and storage (CCUS). The crosscut also focuses on the development of alternative strategies – including manufacturing technology innovation and negative emissions technologies – that reach beyond the four pillars.

Given the range of technologies and systems interdependencies across the decarbonization pillars, crosscut activities are a key piece of DOE's approach to achieve net-zero emissions economy-wide by 2050, with the potential to contribute to a reduction of 400 million metric tons (MMT) of CO_2 of industrial emissions in the most energy and emissions intensive industrial subsectors by 2050. Additionally, industrial decarbonization investments can improve manufacturing productivity, develop innovative products, and meet expanding societal needs while enabling jobs and maintaining the Nation's prosperity throughout the 21st Century and beyond.

Coordination Efforts

DOE is developing and executing an overall strategy across the RDD&D spectrum to decarbonize industry and increase U.S. competitiveness in a net-zero emissions economy. Cross-office activities include coordinating RDD&D, communications and budget development informed by the DOE Industrial Decarbonization Roadmap and the Industrial Decarbonization Pathways to Commercial Lift Off Reports. A common goal that guides crosscutting activities is achieving the Industrial Heat Shot™ of cost-competitive industrial heat decarbonization technologies with greater than 85 percent lower GHG emissions by 2035.

This joint strategy effort is led by the Offices of Manufacturing and Energy Supply Chain (MESC), Clean Energy Demonstrations, and Energy Efficiency and Renewable Energy's (EERE) Industrial Efficiency and Decarbonization Office (IEDO). Critical contributors to crosscutting efforts include additional DOE Program Offices from Fossil Energy and Carbon Management (FECM), Science (SC), Nuclear Energy (NE), Technology Transitions (OTT), and Advanced Research Projects Agency-Energy (ARPA-E). Other Offices contribute staff time and provide expertise to enhance the impact of the Department's investments and crosscutting work. These Offices include Electricity; Cybersecurity, Energy Security and Emergency Response; Energy Justice & Equity; Policy; International Affairs; and Loan Programs.

This effort is aligned with the recent White House report, U.S. Innovation to Meet 2050 Climate Goals, which identified Industrial Products and Fuels for a Net-Zero, Circular Economy as a "Net-Zero Game Changer Initiative." Further, the group addresses and implements crosscutting requests and requirements from Congress, including the Industrial Emissions Reductions Technology Development Program.

Objectives and Action Areas

- Objective 1**:** Create and implement an integrated RDD&D strategy across the Department to drive the development and deployment of energy efficiency and decarbonization technologies that reduce emissions and increase competitiveness of the U.S. industrial sector in a net-zero economy.
- Objective 2**:** Achieve the Industrial Heat Shot™ goal to develop cost-competitive solutions for industrial heat with at least 85 percent lower GHG emissions by 2035. The Industrial Heat Shot advances a platform capability and works in tandem with strategies to decarbonize specific industrial verticals.

Due to the reliance on carbon and the variation of energy sources, uses, and product mixes, it will be critical to proactively pursue multiple decarbonization approaches in parallel, which include the following:

Action Areas

1. **Energy Efficiency:** RDD&D focuses on enabling energy efficiency in hard-to-decarbonize sectors ranging from energy intensive unit operations (e.g., process heating) to facilities/systems operations. This includes waste heat recovery and flexible combined heat & power (CHP) approaches that could significantly reduce energy consumption and associated GHG emissions in the near term enabling a transition to fully clean (zero carbon-emitting) energy sources in the mid- to long-term (i.e., ensure that unintended fossil fuel lock-in does not occur). This also includes research, development, and demonstration (RD&D) efforts for process intensification approaches for large scale

[1] DOE, Industrial Decarbonization Roadmap, September 7, 2022, https://www.energy.gov/eere/doe-industrial-decarbonization-roadmap

systems, modular chemical processes for distributed manufacturing, and advanced chemistry and reactor designs for feedstock degradation.

2. **Carbon Management Technologies**: Fossil fuel energy use in operations as well as some processes inherent to manufacturing (e.g., cement production, fermentation of biofuels) generate CO_2. In addition to utilizing zero carbon generation electricity, carbon management approaches such as carbon capture, utilization, and storage (CCUS) can reduce emissions at the source. RDD&D focuses on technologies that can improve capture performance; generate lower carbon intensive products (i.e., ethanol, hydrogen (H_2), cement); convert CO_2 into valuable products – in some cases augmenting products produced in the industrial sector such as cement and the curing of concrete; and safely store CO_2 in geologic formations. Viable CCUS and CO_2 conversion pathways need both a value proposition as well as assessment of the availability of primary energy, water, and other inputs to ensure holistic, sustainable, low-life cycle emissions pathways, ensuring proper stewardship of the environment and benefits to communities.
3. **Transition Energy Sources- Low Carbon Fuels, Feedstocks and Energy Sources:** RDD&D focuses on hydrogen, low carbon fuels and feedstocks, solar thermal, and other sources to be cost-effectively used to reduce energy and emission intensity. Low-carbon and sustainably sourced biomass feedstocks offer an effective alternative to replace current petroleum-based feedstocks for a variety of high-volume chemical products leading to significant GHG emissions reductions. This also includes enhanced thermal conversion systems and integrated energy systems for Clean Heat and Power (CHP) from a range of clean energy sources.
4. **Industrial Electrification:** Electrification, particularly from thermal processes, provides an opportunity to leverage decarbonized and inexpensive electricity sources - including an electric grid that will undergo a clean energy transformation over the next decade - and reduce industrial emissions from onsite combustion of fossil fuels. Significant RDD&D opportunities exist to develop indirect and direct electrification systems for heat generation, innovation in electrochemical or electromechanical systems, and overcoming economic and technical barriers to implementation of existing electrified technologies.
5. **Manufacturing Technology Innovation and Alternate Pathways:** The current predominantly linear production system from materials extraction to manufacturing, product use, and then to disposal is not optimized around energy or GHG emissions. Circular economy approaches and reverse supply chain processes provide entirely new opportunities for energy and emissions improvements in concert with new economic opportunities for transformative material and resource utilization. Opportunities exist to foster fundamental science and applied R&D efforts to align with other crosscuts and DOE priorities. These can include advanced manufacturing, to include biomanufacturing; circularity for critical materials, plastics, and water; as well as entirely new pathways for carbon dioxide removal (CDR) approaches via reaction of CO_2 with alkaline by-products or waste (e.g., mine tailings) to produce synthetic aggregates, which can serve as replacements for sand and gravel.
6. **Crosscutting Activities:** Work that crosses these technical focus areas includes robust systems analysis including life-cycle analysis (LCA), resource, regional and techno-economic analysis (TEA); coordination on workforce development and best practices to diversify the industrial workforce and ensuring Energy and Environmental Justice (EJ) principles are embedded throughout the development and implementation of industrial decarbonization solutions.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy:** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Industrial Decarbonization will be determined in FY 2024.
2. **Energy Efficiency & Renewable Energy:**
    a. Industrial Efficiency and Decarbonization Office (IEDO): FY 2025 funding ramps up investments in priority cross-sector technologies for decarbonization based on the DOE Industrial Decarbonization Roadmap.
    b. Bioenergy Technologies Office (BETO): BETO's RD&D activities focus on developing safe and secure domestic supply chains for renewable waste streams and biomass that can be used to produce valuable chemicals and materials that can replace petrochemicals with renewable alternatives and also help enable the production of biofuels. Bioenergy Technologies Office (BETO): BETO's RD&D activities focus on developing safe and secure domestic supply chains for renewable waste streams and biomass that can be used to produce valuable chemicals and materials that can replace petrochemicals with renewable alternatives and also help enable

the production of biofuels. This work includes R&D on biomass and waste feedstocks and technologies that can convert these renewable carbon resources into chemicals and materials that can displace petroleum incumbents.

c. Hydrogen and Fuel Cell Technologies Office (HFTO): HFTO continues to support RD&D within the hard-to-decarbonize industrial and chemical applications, including demonstrating clean hydrogen as a feedstock or fuel (ammonia production) or as a direct reducing agent (i.e., steel production) while also prioritizing medium-duty (MD)/heavy-duty (HD) hard to decarbonize transportation applications.
d. Solar Energy Technologies Office (SETO): FY 2025 funding will continue to support RD&D of both low-temperature systems – in the range of 100 to 400 °C – integrated with existing technologies, as well as the development of components and high temperature system designs that are difficult to decarbonize through electrification. Low-temperature applications include the development of thermal processes, including thermal desalination, which can efficiently couple with a solar thermal energy input. High temperature systems work includes the development of solar thermal pathways for the carbon-emission-free production of energy-intensive chemicals, commodities, and fuels, like ammonia, steel, cement, and hydrogen.
e. Geothermal Technologies Office (GTO): FY 2025 funding will support additional demonstrations of reservoir thermal energy storage (RTES) in the U.S. supporting thermal energy for industrial and manufacturing applications.
f. Strategic Programs (SP): FY 2025 funding will support Industrial sector dataset, model development, circular economy analysis.
g. Advanced Materials and Manufacturing Technologies Office (AMMTO): FY 2025 funding will support RD&D in the following areas: circular economy of manufactured materials that reduce emissions through material efficiency and reducing the embodied energy of feedstocks; advanced materials for applications in industry that include harsh service environments and/or that can leverage high conductivity for improved efficiency; semiconductor manufacturing for use in industrial applications; and smart manufacturing, including high performance computing (HPC), to leverage plant data to make process and product design improvements.

3. **Fossil Energy and Carbon Management:** FECM will conduct RDD&D on carbon management technologies, including point source carbon capture, hydrogen with carbon management, and carbon transport and storage. FECM will also collaborate alongside other DOE offices with international partners to share lessons learned and leverage capabilities to facilitate carbon management development and deployment for the industrial sector.
4. **Nuclear Energy:** The Light Water Reactor Sustainability Program will provide technical support for siting and integration of hydrogen plants with nuclear plants. The Integrated Energy Systems program will complete reference industrial plant designs for nuclear integration with refineries, fuel and chemical synthesis, and biomass processing. Integrated Energy Systems will develop and test thermal distribution components and systems for a variety of heat transfer fluids as needed for modeling thermal transport systems. Microreactor Applications, Research, Validation and Evaluation (MARVEL) will be a nuclear microreactor test platform to test microreactor technologies and end-use applications. In FY 2025, fabrication of fuel and components for MARVEL will be completed and construction will be initiated. In FY 2025, construction of the Demonstration of Microreactor Experiments (DOME) test bed at the Idaho National Laboratory will be completed to enable development and future demonstration of microreactor technologies.
5. **Science:** Basic Energy Sciences (BES) provides foundational knowledge and state-of-the-art capabilities in support of crosscut objectives, including theoretical and experimental science related to understanding opportunities for decarbonizing industry. The research to support this crosscut is also discussed in the Carbon Dioxide Removal, Critical Materials and Minerals, and Hydrogen crosscut narratives. SC operates major x-ray, neutron, nanoscience, and high-performance computing user facilities that provide advanced synthesis, fabrication, characterization, and computational capabilities to this community for basic, applied, and industrial research. In FY 2025, BES will support the Hard to Decarbonize crosscut in several ways, including:
    a. Scientific discoveries and major scientific tools to transform our understanding of materials and conversion processes related to chemicals and low carbon fuels (including hydrogen and biofuels).
    b. Advances in synthesis, catalysis, modeling, artificial intelligence/machine learning, analytical instrumentation at user facilities, high-performance computing, and bio-inspired approaches. Key basic research focus areas include: Novel materials for low carbon fuels/feedstocks (e.g., hydrogen in coordination with the Hydrogen crosscut); membranes for separations; design of catalysts at the nanoscale; manufacturing processes that reduce/eliminate need for process heat; and synthesis science.
6. **Clean Energy Demonstrations:** No new funding in FY 2025 is requested related to the Industrial Decarbonization crosscut. In FY 2024, OCED will support potential areas of interest to include projects that demonstrate smart

manufacturing principles, energy efficiency, carbon management, alternative low-carbon feedstocks or fuels, circular economies through reuse of waste streams in other industries, and electrification of industrial processes.

7. **Manufacturing and Energy Supply Chains:** In FY 2025, MESC will support manufacturers in optimizing energy efficiency and environmental performance through the implementation of smart manufacturing, energy management, sustainable manufacturing, waste management, resiliency planning, and industrial decarbonization technologies. Specifically, MESC will:
    a. Provide services through both the existing and expanded Industrial Assessment Centers in historically underserved communities and will continue to support engineers-in-training and Small- and Medium-Sized Manufacturers (SMMs) nationwide, including through the program's growing emphasis on decarbonization and resiliency planning alongside efficiency and performance.
    b. Reduce the risk for small- and medium-sized manufacturers to deploy emerging high efficiency technologies, advanced manufacturing, or low-carbon materials. Data from these projects will be used to further enhance lab capabilities to increase confidence and accelerate validation at additional sites.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy:** In FY 2023, ARPA-E selected and/or obligated $77,260K in funding to projects aligned with the Industrial Decarbonization crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic, Grid-free Renewable Energy Enabling New Ways to Economical Liquids and Long-term Storage (GREENWELLS), and Revolutionizing Ore to Steel to Impact Emissions (ROSIE) programs.
2. **Energy Efficiency & Renewable Energy:**
    a. Industrial Efficiency and Decarbonization Office (IEDO): Ramps up investments in priority cross-sector technologies for decarbonization based on the DOE Industrial Decarbonization Roadmap.
    b. Bioenergy Technologies Office (BETO): Reduction in funds reflects a shift from earlier stage and lower technology readiness level (TRL) R&D within the Renewable Carbon Resources subprogram and Conversion subprogram that will be scaled back in favor of supporting pilot and demonstration-scale biorefinery projects and advancing furthering maturing technologies, facilitating their transfer to industry, developing overall process data, and increasing commercial readiness.
    c. Hydrogen and Fuel Cell Technologies Office (HFTO): Reduction in funding reflects shift in priorities, with continued emphasis still on medium-duty (MD)/heavy-duty (HD) hard-to-decarbonize transportation applications.
    d. Solar Energy Technologies Office (SETO): SETO will continue to support the industrial heat and long duration storage systems at a similar funding level in FY 2025 based on planned solicitations and other anticipated funding.
    e. Strategic Programs (SP): Reduces funding to shift to other priority activities in the program.
    f. Advanced Materials and Manufacturing Technologies Office (AMMTO): Increased funding will support development and demonstration of smart manufacturing and circular economy technologies to address industrial decarbonization goals.
    g. Geothermal Technologies Office (GTO): FY 2025 decrease is due to the expansion of other priorities in the low temperature subprogram that are critical for advancing decarbonization goals.
3. **Fossil Energy and Carbon Management:** Decrease maintains efforts on industrial decarbonization, but shifts priority to cover a range of industrial sources, research, and pilot-scale testing.
4. **Nuclear Energy:** Integrated Energy Systems focused on developing reference plant designs for integrating nuclear energy with the polymer, chemicals, and metals manufacturing industries; as well as technology validation testing of thermally integrated chemical synthesis reactors or measuring process parameters needed for determining economic feasibility of nuclear energy pathways. In FY 2023, 90% final design was completed for the MARVEL test platform and the construction contract for the DOME test bed was awarded.
5. **Science:** No major changes to report.
6. **Clean Energy Demonstrations:** No major changes to report**.**
7. **Manufacturing and Energy Supply Chains:** As part of the FY 2025 request, MESC has reorganized its subprograms to more clearly outline and explain MESC's broad/ enduring mission.
    a. Manufacturing Capacity and Competitiveness: Support improving manufacturing efficiency and competitiveness activities, including deployment of smaller-scale solutions that improve efficiency or reduce emissions at small- and medium-sized manufacturers (SMMs) and build market confidence in new solutions. This activity would enable more efficient and competitive U.S. manufacturers in the near term and spur

domestic manufacturing demand for these new technologies and solutions.

b. Workforce Capacity and Competitiveness: Continue to support engineers-in-training and SMMs nationwide, including through the Industrial Assessment Centers (IAC) program's growing emphasis on decarbonization and resiliency planning alongside efficiency and performance.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs

In addition to the annual appropriations request, IIJA and IRA funding supports the planning and execution of demonstration, scale-up, and deployment for advanced industrial technologies. The Industrial Demonstration to Deployment Program will provide large scale demonstrations for transformative solutions. The Section 48C investment tax credit and the Advanced Manufacturing and Recycling Implementation Grants Program include projects with >20% GHG emissions reduction for industrial facilities. These investments are essential in addressing the technology needs to support growth in decarbonizing industry and increasing U.S. competitiveness in a net zero economy. Lessons learned from these investments will feed future R&D opportunities to increase the performance or reduce cost for essential decarbonization levers.

Infrastructure

Infrastructure funding is managed within several programs and includes direct and indirect funding for capital equipment, maintenance and repair, minor construction, line-item construction, and excess facilities. The Department of Energy (DOE) program offices and 17 National Laboratories are working to ensure that the community has the facilities to conduct cutting edge scientific research and meet DOE goals and objective. Infrastructure funding improves the reliability, efficiency, and capability of core infrastructure to meet mission requirements. The Department's Infrastructure activities are tied to its programmatic missions, goals, and objectives that will be met in a safe, secure, and cost-effective manner. DOE will also use its expansive loan authority to invest in American products, and its regulatory authority to innovate in advanced building technologies and energy efficient appliances.

DOE prioritizes infrastructure investments to reduce safety risk by addressing numerous obsolete support and safety systems, to reduce mission risk by revitalizing facilities that are beyond the end of their design life, and to maximize return on investment while considering mission risk, improving sustainability, and working toward meeting the Department's climate action goals by addressing climate adaptability and resilience. This crosscut summarizes the infrastructure funding that is distributed through the budget volumes.

Descriptions of each program's Infrastructure components can be found in the budget justifications for:

- Defense Environmental Cleanup
- Defense Nuclear Nonproliferation
- Energy Efficiency and Renewable Energy
- Enterprise Assessments
- Fossil Energy and Carbon Management
- Legacy Management
- Naval Reactors
- Nuclear Energy
- Non-Defense Environmental Cleanup
- Science
- Strategic Petroleum Reserve
- Uranium Enrichment D&D Fund
- Weapons Activities

The following tables show department-wide summaries of Infrastructure Funding by Program and by Category.

Table 1. Overall DOE Infrastructure Funding by Program (FY 2023 – FY 2025)

Infrastructure by Program[5]	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted ($)	FY 2025 Req vs. FY 2023 Enacted (%)
Defense Environmental Cleanup	2,022,666	2,022,666	2,034,489	11,823	1%
Defense Nuclear Nonproliferation	283,887	288,190	252,768	-31,119	-11%
Energy Efficiency and Renewable Energy	103,893	103,893	144,595	40,702	39%
Enterprise Assessments	1,771	1,824	1,878	107	6%
NNSA Federal Salaries and Expenses	-	-	500	500	n/a
Fossil Energy and Carbon Management	19,036	19,036	18,996	-40	0%
Legacy Management	4,964	4,964	6,545	1,581	32%
Naval Reactors	730,221	394,643	533,266	-196,955	-27%
Non-Defense Environmental Cleanup	13,681	13,681	3,302	-10,379	-76%
Nuclear Energy	82,113	125,113	184,770	102,657	125%
Science	2,151,262	2,234,076	2,154,109	2,847	0%
Strategic Petroleum Reserve	30,899	27,598	49,881	18,982	61%
Uranium Enrichment D&D Fund	159,952	159,952	184,719	24,767	15%
Weapons Activities	5,574,967	5,550,797	6,027,985	453,018	8%
Total, Infrastructure[1]	**11,179,312**	**10,946,433**	**11,597,803**	**418,491**	**4%**

Table 2. Overall DOE Infrastructure Funding by Category (FY 2023 – FY 2025)

Infrastructure by Category	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted ($)	FY 2025 Req vs. FY 2023 Enacted (%)
Capital Equipment	**1,544,029**	**1,510,861**	**1,628,101**	**84,072**	**5%**
Defense Nuclear Nonproliferation	127,000	136,000	144,000	-17,000	13%
Energy Efficiency and Renewable Energy	7,220	7,220	38,753	31,533	437%
Naval Reactors	42,000	12,900	33,300	-8,700	-21%
Nuclear Energy	2,110	2,110	33,225	31,115	1,475%
Science	253,699	214,631	195,527	-58,172	-23%
Weapons Activities	1,112,000	1,138,000	1,183,296	71,356	6%
Excess Facilities	**156,713**	**134,608**	**120,176**	**-36,537**	**-23%**
Defense Environmental Cleanup	35,000	35,000	-	-35,000	-100%
Fossil Energy & Carbon Management	40	40	-	-40	-100%
Naval Reactors	44,979	33,531	32,604	-12,375	-28%
Non-Defense Environmental Cleanup	10,554	10,554	-	-10,554	-100%
Science	4,722	5,377	6,522	1,800	38%
Weapons Activities	61,418	50,106	81,050	19,632	32%
Line-Item Construction[2]	**6,173,988**	**5,914,373**	**5,846,078**	**-309,910**	**-5%**
Defense Environmental Cleanup	1,178,774	1,178,774	981,325	-197,449	-17%
Defense Nuclear Nonproliferation	71,764	71,764	40,000	-31,764	-44%
Energy Efficiency and Renewable Energy	45,000	45,000	54,000	9,000	20%
Naval Reactors	534,218	299,284	378,672	-155,546	-29%
Nuclear Energy	27,300	27,300	18,748	-8,552	-31%
Uranium Enrichment D&D Fund	65,720	65,720	87,875	22,155	34%
Science	1,224,550	1,199,869	1,198,400	-26,150	-2%
Weapons Activities	3,026,662	3,026,662	3,105,058	78,396	3%
Maintenance and Repair[3]	**2,143,361**	**2,153,952**	**2,363,322**	**219,961**	**10%**
Defense Environmental Cleanup	722,337	722,337	795,406	73,069	10%
Energy Efficiency and Renewable Energy	22,129	22,129	22,869	740	3%
Enterprise Assessments	1,771	1,824	1,878	107	6%
Fossil Energy & Carbon Management	18,996	18,996	18,996	-	0%
Legacy Management	4,964	4,964	6,545	1,581	32%
Naval Reactors	20,424	23,112	33,132	12,708	62%
Non-Defense Environmental Cleanup	3,127	3,127	3,302	175	6%
Nuclear Energy	52,003	52,003	35,423	-16,580	-32%
Science	361,428	365,544	375,059	13,631	4%
Strategic Petroleum Reserve	30,899	27,598	49,881	18,982	61%
Uranium Enrichment D&D Fund	89,068	89,068	81,244	-7,824	-9%
Weapons Activities	816,215	823,250	939,587	123,372	15%
Minor Construction[4]	**1,161,221**	**1,232,639**	**1,622,126**	**460,905**	**40%**
Defense Environmental Cleanup	86,555	86,555	257,758	171,203	198%
Defense Nuclear Nonproliferation	85,123	80,426	68,768	-16,355	-19%
Energy Efficiency and Renewable Energy	29,544	29,544	28,973	-571	-2%
Federal Salaries and Expenses	-	-	500	500	n/a
Naval Reactors	88,600	25,816	55,558	-33,042	-37%
Nuclear Energy	700	43,700	97,374	96,674	13,811%
Science	306,863	448,655	378,601	71,738	23%
Uranium Enrichment D&D Fund	5,164	5,164	15,600	10,436	202%
Weapons Activities	558,672	512,779	718,994	160,322	29%
Total, Infrastructure[1]	**11,179,312**	**10,946,433**	**11,597,803**	**418,491**	**4%**

Capital Equipment

Capital Equipment funding includes the cost of equipment either acquired by purchase or fabricated by a site/facility management contractor that exceeds the capitalization threshold of $500,000. Included in the capital equipment funding are major items of equipment (MIEs). MIEs are listed individually in each program's budget justification.

Excess Facilities

Excess Facilities are facilities no longer required to support the Department's needs, present or future missions or functions, or the discharge of its responsibilities. The funding to deactivate and dispose (D&D) of excess infrastructure, including stabilization and risk reduction activities at high-risk excess facilities, resulting in surveillance and maintenance cost avoidance and reduced risk to workers, the public, the environment, and programs is included. Also included is the maintenance of excess facilities (including high-risk excess facilities) necessary to minimize the risk posed by those facilities prior to disposition.

Line-Item Construction

Line-Item Construction funding includes all construction projects specifically authorized by law for which the approved total estimated cost exceeds the minor construction threshold [50 US Code 2741]. The funding captured in this crosscut includes the annual total project costs – both total estimated costs and other project costs. The individual line-item construction projects can be found in both the programs' construction projects summary and the individual project data sheets.

Maintenance and Repair

The Facilities Maintenance and Repair activities funded by this budget are intended to improve asset condition and maintain operability. This excludes maintenance of excess facilities (including high-risk excess facilities) necessary to minimize the risk posed by those facilities prior to disposition.

Minor Construction

Minor Construction funding includes all minor construction projects. A Minor Construction Project is any construction project not specifically authorized by law for which the approved total estimated cost does not exceed the minor construction threshold[4]. Minor Construction Projects, including Accelerator Improvement Projects (AIPs), that exceed $5 million are listed individually in each program's budget justification.

[1]Does not include annual lease costs
[2]Reflects Total Project Costs (TPC) for each Line-Item Construction Project
[3]Includes both direct- and indirect funded dollars
[4]50 USC 2743 applies only to funds authorized by a DOE national security authorization; 50 USC 2741 sets the minor construction threshold
[5]NNSA FY23 and FY24 numbers reflect the Schedule C January 2024 submission

Contractor Pensions and Other Postretirement Benefits

This section of the budget provides projected costs of contractor defined benefit (DB) pension plan contributions and other postretirement benefit reimbursements. The DB pension plan contributions are provided in Section I below for FY 2023 through FY 2025 by plan. The section also shows the allocations of those contributions to the following Department of Energy (DOE) Departmental Elements: [a]

- National Nuclear Security Administration (NNSA)
- Office of Environmental Management (EM)
- Office of Science (SC)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Nuclear Energy (NE)

Information regarding projected reimbursements for other postretirement benefits (primarily medical) is provided in Section II below.

Contractors that manage and operate DOE's laboratories, weapons plants, and execute environmental cleanup projects at various government-owned sites and facilities are contractually required by DOE to assume sponsorship of the existing contractor DB pension plans and other postretirement benefit plans for incumbent employees. DOE reimburses the costs of the contractors' contributions to DB pension plans and the benefits paid from other postretirement benefit plans. These costs are typically allocated as indirect costs, though DOE does directly pay the costs of some legacy plans.[b]

Due to the timing of the required annual valuation for the contractor DB pension plans, the actual amount of the contractors' annual contributions to these DB pension plans that DOE will reimburse each fiscal year will not generally be known until after budget development. Budgetary line items that include DOE reimbursement of contractor contributions to DB pension plans assume an indirect rate anticipated to be sufficient to meet reimbursement requirements. In the case of plans covering contractor employees whose costs are reimbursed by various programs, the allocation of contributions among NNSA, the Program Offices, and Reimbursable Work is done based on each site's best estimate of the allocation of work based on current and anticipated work for the various parties that the site serves.[c]

[a] Tables include projected contributions from "Reimbursable Work" and "Other" entities (e.g., DOE departmental administration, classified programs, etc.). Reimbursable Work also includes the costs associated with the Naval Reactors contractor's plans covered by its contract with the Department of the Navy.

[b] The NNSA legacy University of California (UC) plans and the Oak Ridge Reservation Cleanup Contract Pension Plan for Grandfathered Employees (formerly called the East Tennessee Technology Park Pension Plan for Grandfathered Employees) rely on direct funding. For fiscal years 2022 through 2024, NNSA and EM plan to directly fund the reimbursement of the unfunded liability of the Savannah River Nuclear Solutions, LLC Multiple Employer Pension Plan.

[c] These allocations were provided by the contractors to the DOE in July 2023 and represent contractors' expectation of work for these years.

Section I - Contractor DB Pension Plan Contributions[d]

DOE reimburses contractors for pension contributions at levels that are at least equal to the minimum required contribution (MRC) by the Employee Retirement Income Security Act (ERISA), as amended. The MRC is determined on a plan year basis. Only two of the contractor plans have a plan year that coincides with the federal fiscal year and, therefore, the majority of fiscal year pension allocations are spread across two plan years. At a minimum, plan sponsors of single or multiple employer plans[e] in which the plan assets were less than liabilities in the prior year must make quarterly contributions during the plan year, with the first contribution due 3½ months after the beginning of the plan year and any outstanding amount due 8½ months after the plan year ends.

Contractors develop long-term projections of future asset investment returns that affect estimates of future MRCs for each plan. Asset returns that are higher or lower than the projected long-term investment returns affect future MRCs, though the provisions of ERISA ensure that these effects are somewhat smoothed by allowing recognition over a two (single/multiple) or a five-year period (multiemployer/state).

Reimbursement of contractor costs in excess of the MRC requires specific approval. Reimbursements requested in excess of the MRC are reviewed by the cognizant program office, the Office of the Chief Financial Officer, the Office of Management, and the Office of the General Counsel through an annual pension management plan process. Table 1 provides information related to plans where funding in excess of the MRC was requested during FY 2023; it includes the MRC, the contribution approved, and the actual amount contributed during FY 2023. In FY 2023, contractors requested reimbursement of contributions in excess of the MRC for 20 plans and were approved. Contributions in excess of the MRC were approved primarily to minimize volatility for future payments and mitigate increases in future contribution requirements.

Table 1: FY 2023 Contributions in Excess of the MRC ($K)

Plan	Program Office	FY 2023 Congressional Budget Justification	FY 2023 Estimated Minimum Required Contribution	Preliminary Additional Amount Requested in Year of Execution	Final FY 2023 Amount Approved and Contributed
ORRCC Pension Plan for Grandfathered Employees	EM	20,700	9,975	13,725	23,700
Pension Plan for Eligible Bettis Employees and Retirees	NNSA	23,100	-	23,100	23,100
Pension Plan of the Pacific Northwest Laboratories, Battelle Memorial Institute	Science	-	-	20,000	20,000
Retirement Program for Employees of Consolidated Nuclear Security, LLC at the U. S. Department of Energy Facilities at Oak Ridge, Tennessee	NNSA	48,700	-	21,870	21,870
Idaho National Laboratory Employee Retirement Plan	NE	-	-	7,944	7,944
Salaried Employee Pension Plan for KAPL Employees and Retirees	NNSA	25,000	-	25,000	25,000
Pension Plan for KAPL Employees in Participating Bargaining Units	NNSA	2,400	-	2,400	2,400

[d] DOE has reimbursed contributions for 28 funded DB pension plans and 12 non-qualified DB pension plans in FY 2023. Non-qualified plans have no assets and are funded on a pay-as-you-go basis.

[e] A single employer plan is a plan sponsored by only one employer; a multiple employer plan is a plan sponsored by 2 or more unrelated employers and not maintained pursuant to a collective bargaining agreement; a multiemployer plan is a plan maintained pursuant to a collective bargaining agreement between an employee organization and more than one employer.

Plan	Program Office	FY 2023 Congressional Budget Justification	FY 2023 Estimated Minimum Required Contribution	Preliminary Additional Amount Requested in Year of Execution	Final FY 2023 Amount Approved and Contributed
Triad Defined Benefit Pension Plan (TCP1)	NNSA	1,430	-	69,165	69,165
LLNS Defined Benefit Pension Plan	NNSA	60,000	-	47,010	47,010
National Renewable Energy Laboratory Retirement Plan	EERE	23,000	4,710	23,290	28,000
Mission Support and Test Services, LLC (MSTS) Employee Retirement Plan	NNSA	18,485	-	8,235	8,235
Consolidated Nuclear Security, LLC Retirement Plan for Bargaining Unit Members of the Pantex Guards Union	NNSA	2,800	-	1,260	1,260
Retirement Plan for Bargaining Unit Employees of the Metal Trades Council of Consolidated Nuclear Security, LLC	NNSA	7,900	-	3,555	3,555
Consolidated Nuclear Security Retirement Plan for Non-Bargaining Pantex Location Employees	NNSA	13,900	-	6,255	6,255
NTESS Retirement Income Plan	NNSA	-	-	45,270	45,270
Savannah River Nuclear Solutions, LLC Multiple Employer Pension Plan	EM	296,000	-	296,000	296,000
Pension Plan for Employees at ORNL	Science	69,000	-	69,000	69,000
Waste Isolation Pilot Plant Pension Plan	EM	19,100	-	19,100	19,100
NNSS Staff Pension Plan	NNSA	47	-	489	489
NNSS IGAN Pension Trust Fund	NNSA	1,314	414	1,325	1,739
Total		632,876	15,099	703,993	719,092

Projections of future DB pension plan contributions are highly sensitive to underlying data, methods, and assumptions. Changes in the population data that are different from the expected data impact the future costs of these plans; participants retiring earlier and/or living longer than expected may increase costs; compensation increases that are higher than expected will increase the costs. The most significant assumptions affecting the contribution amounts are those assumptions with respect to future market conditions. In particular, the difference between actual experience of the markets and the assumption of the expected return on investments earned by the plans each future year, as well as future corporate bond yields, have the largest impact on the ultimate contributions that will be reimbursed by the DOE. For example, the actual contributions for fiscal year 2025 will not be known until January 2025 at the earliest because these contributions will be determined based on the asset value as of December 31, 2024, and the discount rate in effect at that time. Estimated contributions above the MRC submitted during this budget process do not receive final approval until the year of execution.

Therefore, it is important to emphasize that the actual amounts reimbursed for the applicable fiscal years shown will almost certainly vary from the projections provided in this section. The information provided for the funded plans (excluding the non-qualified plans) is based on plan contributions projected by the DOE's contractors in July 2023. The non-qualified plan amounts equal the expected benefit payments which were provided by the contractors in the prior year's

financial statements. This information has been reviewed by NNSA, relevant DOE Program Offices, and by the Office of the Chief Financial Officer.

- Table 2 provides aggregate FY 2023 actual and FY 2024 through FY 2025 estimated pension plan contributions eligible for reimbursement for all plans.
- Table 3 provides plan-by-plan FY 2023 actual contributions and FY 2024 and FY 2025 estimated pension contributions eligible for reimbursement by NNSA, the DOE, and reimbursable work customers.

Table 2: NNSA and DOE Program Office Actual Contributions for FY 2023 and Projected Contributions for FY 2024 and FY 2025 ($K)
Based on July 2023 data and allocated by Program Office [f]

Program Office	FY 2023	FY 2024	FY 2025
NNSA	383,492	592,330	497,144
EM	322,346	245,448	131,899
SC	90,004	97,198	105,302
EERE	38,759	42,316	45,901
NE	3,671	5,711	6,131
Reimbursable Work	81,113	132,192	132,718
Other	23,388	29,188	20,879
Total	**942,774**	**1,144,383**	**939,973**

There may be small variances in totals due to rounding. Numbers may not add.

Tables 3 and 4 provide the following information for each plan:

Plan name and Plan type: Single employer, multiemployer, multiple employer, state, or non-qualified.

Status: *Open* means that the plans are open to new employees who earn benefits under a traditional defined benefit formula. *Closed* means that the qualified plans are closed to new employees, but active employees who were employed prior to the plan being closed continue to earn benefits; this includes plans where new entrants only or new entrants and legacy employees receive benefits under reduced hybrid formulas which are much less volatile (indicated by the word hybrid after closed). For non-qualified plans, "closed" means that the universe of possible participants is limited to individuals who are currently accruing benefits in the closed qualified plan at the respective site and who may at some point qualify for the non-qualified plan under the terms of the non-qualified plan). *Partially Closed* means that the plan is closed to some subset of the employee population, but that certain represented employees covered by collective bargaining agreements are still becoming members of the plan at the time of hire. *Frozen* means that plan liabilities are frozen (*i.e.,* that there are no longer any employees accruing credit for current service under the plan).

Reimbursements & Allocations: Expected contributions are allocated by program office for fiscal years 2023-2025 with 2023 representing actual contributions and contributions for later years based on submissions as outlined in footnote f.

[f] Final information for FY 2023 contributions was reported in October 2023 while projected contributions for FY 2024 and on were reported in July 2023 for all departmental elements.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
ORRCC Pension Plan for Grandfathered Employees	EM-Partially Closed	2023	23,700	-	23,700	-	-	-	-	-
	Multiemployer	2024	12,773	-	12,773	-	-	-	-	-
		2025	14,213	-	14,213	-	-	-	-	-
University of California Retirement Plan - Lawrence Berkeley National Laboratory	SC-Open	2023	56,525	791	107	38,488	7,388	300	8,258	1,193
	State	2024	50,054	701	95	34,082	6,542	265	7,313	1,056
		2025	54,229	759	103	36,925	7,088	287	7,923	1,144
Pension Plan for Eligible Bettis Employees and Retirees	NA-Closed	2023	23,100	12,705	-	-	-	-	10,395	-
	Single	2024	28,700	15,785	-	-	-	-	12,915	-
		2025	23,900	13,145	-	-	-	-	10,755	-
Pension Plan of the Pacific Northwest Laboratories, Battelle Memorial Institute	SC-Open	2023	20,000	4,500	340	3,640	2,520	560	6,140	2,300
	Single	2024	40,000	9,000	680	7,280	5,040	1,120	12,280	4,600
		2025	50,000	11,250	850	9,100	6,300	1,400	15,350	5,750
Retirement Program for Employees of Consolidated Nuclear Security, LLC at the U.S. Department of Energy Facilities at Oak Ridge, Tennessee	NA-Closed	2023	21,870	20,995	-	-	-	-	875	-
	Single	2024	77,800	74,688	-	-	-	-	3,112	-
		2025	58,100	55,776	-	-	-	-	2,324	-
IHA Pension Benefit Plan *(formerly HPMC Occupational*	EM-Closed	2023	110	-	110	-	-	-	-	-
	Single	2024	209	-	209	-	-	-	-	-
		2025	244	-	244	-	-	-	-	-

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
Health Services Retirement Plan)										
Hanford Multi-Employer Pension Plan	EM-Closed	2023	99,273	-	99,273	-	-	-	-	-
	Multiemployer	2024	102,895	-	102,895	-	-	-	-	-
		2025	74,458	-	74,458	-	-	-	-	-
Idaho National Laboratory Employee Retirement Plan	NE-Closed	2023	7,944	-	7,944	-	-	-	-	-
	Multiple	2024	2,770	-	2,770	-	-	-	-	-
		2025	16,050	-	16,050	-	-	-	-	-
Salaried Employee Pension Plan for KAPL Employees and Retirees	NA-Closed	2023	25,000	13,750	-	-	-	-	11,250	-
	Single	2024	20,000	11,000	-	-	-	-	9,000	-
		2025	21,000	11,550	-	-	-	-	9,450	-
Pension Plan for KAPL Employees in Participating Bargaining Units	NA-Closed	2023	2,400	1,320	-	-	-	-	1,080	-
	Single	2024	1,000	550	-	-	-	-	450	-
		2025	1,000	550	-	-	-	-	450	-
Kansas City Division Hourly Employees' Pension Plan	NA-Closed	2023	-	-	-	-	-	-	-	-
	Single	2024	-	-	-	-	-	-	-	-
		2025	-	-	-	-	-	-	-	-
Honeywell Retirement Earnings Plan for Aerospace Employees at the Kansas City Division	NA-Closed	2023	-	-	-	-	-	-	-	-
	Single	2024	-	-	-	-	-	-	-	-
		2025	-	-	-	-	-	-	-	-
Triad Defined Benefit Pension Plan (TCP1)	NA-Closed	2023	69,165	58,237	553	2,490	484	346	6,225	830
	Multiple	2024	125,000	105,250	1,000	4,500	875	625	11,250	1,500
		2025	125,000	105,250	1,000	4,500	875	625	11,250	1,500
	NA-Frozen	2023	24,192	24,192	-	-	-	-	-	-

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
University of California Retirement Plan - Lawrence Livermore National Laboratory Retained Segment	State	2024	20,151	20,151	-	-	-	-	-	-
		2025	27,088	27,088	-	-	-	-	-	-
LLNS Defined Benefit Pension Plan	NA-Closed	2023	47,010	36,197	-	1,410	470	-	7,992	940
	Single	2024	105,000	82,950	-	2,100	1,050	-	14,700	4,200
		2025	100,000	79,000	-	3,000	1,000	-	14,000	3,000
Fluor-BWXT Portsmouth, LLC USW Career Pension Plan for Appendix A USW-Represented Employees	EM-Closed	2023	857	-	857	-	-	-	-	-
	Single	2024	1,225	-	1,225	-	-	-	-	-
		2025	1,034	-	1,034	-	-	-	-	-
University of California Retirement Plan - Los Alamos National Laboratory Retained Segment	NA-Frozen	2023	32,036	32,036	-	-	-	-	-	-
	State	2024	28,658	28,658	-	-	-	-	-	-
		2025	33,454	33,454	-	-	-	-	-	-
National Renewable Energy Laboratory Retirement Plan	EE-Closed - Hybrid	2023	28,000	-	-	1,400	20,160	-	3,920	2,520
	Single	2024	25,000	-	-	1,250	18,000	-	3,500	2,250
		2025	27,000	-	-	1,350	19,440	-	3,780	2,430
Golden SVCS, LLC Pension Plan	SC-Closed	2023	336	-	215	121	-	-	-	-
	Multiple	2024	600	-	360	240	-	-	-	-
		2025	600	-	360	240	-	-	-	-

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
Mission Support and Test Services, LLC (MSTS) Employee Retirement Plan	NA-Closed-Hybrid	2023	8,235	7,214	371	-	-	-	453	198
	Single	2024	34,860	30,537	1,569	-	-	-	1,917	837
		2025	24,130	21,138	1,086	-	-	-	1,327	579
Consolidated Nuclear Security, LLC Retirement Plan for Bargaining Unit Members of the Pantex Guards Union	NA-Closed	2023	1,260	1,260	-	-	-	-	-	-
	Single	2024	2,300	2,300	-	-	-	-	-	-
		2025	2,300	2,300	-	-	-	-	-	-
Retirement Plan for Bargaining Unit Employees of the Metal Trades Council of Consolidated Nuclear Security, LLC	NA-Closed	2023	3,555	3,555	-	-	-	-	-	-
	Single	2024	12,400	12,400	-	-	-	-	-	-
		2025	8,600	8,600	-	-	-	-	-	-
Consolidated Nuclear Security Retirement Plan for Non-Bargaining Pantex Location Employees	NA-Closed	2023	6,255	6,130	-	-	-	-	125	-
	Single	2024	25,600	25,088	-	-	-	-	512	-
		2025	16,600	16,268	-	-	-	-	332	-
NTESS Retirement Income Plan	NA-Closed	2023	45,270	28,520	272	860	996	407	13,309	905
	Single	2024	150,000	94,200	1,050	3,300	3,600	1,500	43,500	2,850
		2025	150,000	94,200	1,050	3,300	3,600	1,500	43,500	2,850
Savannah River Nuclear Solutions, LLC Multiple	EM-Closed	2023	296,000	116,890	167,802	-	-	-	-	11,307
	Multiple	2024	170,000	62,747	98,821	-	-	-	-	8,432
		2025	-	-	-	-	-	-	-	-

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
Employer Pension Plan										
DUF6 Pension Plan for Grandfathered Employees	EM-Closed	2023	-	-	-	-	-	-	-	-
	Single	2024	1,690	-	1,690	-	-	-	-	-
		2025	1,187	-	1,187	-	-	-	-	-
USW Career Pension Plan for Appendix A USW-Represented Employees (Paducah)	EM-Closed	2023	633	-	633	-	-	-	-	-
	Single	2024	925	-	925	-	-	-	-	-
		2025	906	-	906	-	-	-	-	-
Pension Plan for Employees at ORNL	SC-Open	2023	69,000	7,797	69	40,779	6,555	2,001	8,763	3,036
	Single	2024	74,000	8,362	74	43,734	7,030	2,146	9,398	3,256
		2025	78,000	8,814	78	46,098	7,410	2,262	9,906	3,432
Waste Isolation Pilot Plant Pension Plan	EM-Open	2023	19,100	-	19,100	-	-	-	-	-
	Single	2024	19,100	-	19,100	-	-	-	-	-
		2025	19,100	-	19,100	-	-	-	-	-
West Valley Pension Plan	EM-Closed	2023	-	-	-	-	-	-	-	-
	Single	2024	-	-	-	-	-	-	-	-
		2025	-	-	-	-	-	-	-	-
NNSS Staff Pension Plan	NA-Closed	2023	489	489	-	-	-	-	-	-
	Single	2024	664	664	-	-	-	-	-	-
		2025	609	609	-	-	-	-	-	-
NNSS IGAN Pension Trust Fund	NA-Closed	2023	1,739	1,739	-	-	-	-	-	-
	Single	2024	1,731	1,731	-	-	-	-	-	-
		2025	1,640	1,640	-	-	-	-	-	-

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
Battelle Memorial Institute Excess Benefit and Supplemental Executive Pension Plans	NA-Closed	2023	5	1	0	1	1	0	1	1
	Non-Qualified	2024	5	1	0	1	1	0	1	1
		2025	5	1	0	1	1	0	1	1
Executive and Supplemental Pension Plans for Designated Bettis Employees	NA-Closed	2023	2,148	1,182	-	-	-	-	967	-
	Non-Qualified	2024	2,248	1,236	-	-	-	-	1,012	-
		2025	2,236	1,230	-	-	-	-	1,006	-
Excess and Supplemental Pension Plan for Designated KAPL Employees	NA-Closed	2023	341	187	-	-	-	-	153	-
	Non-Qualified	2024	336	185	-	-	-	-	151	-
		2025	328	180	-	-	-	-	148	-
Triad 401(a)(17) Restoration Plan	NA-Closed	2023	281	237	2	10	2	1	25	3
	Non-Qualified	2024	287	241	2	10	2	1	26	3
		2025	277	233	2	10	2	1	25	3
Triad Restoration Plan	NA-Closed	2023	167	141	1	6	1	1	15	2
	Non-Qualified	2024	180	152	1	6	1	1	16	2
		2025	198	167	2	7	1	1	18	2
LLNS 401(a)(17) Restoration Plan	NA-Closed	2023	1,589	1,224	-	48	16	-	270	32
	Non-Qualified	2024	1,769	1,398	-	35	18	-	248	71
		2025	1,900	1,501	-	57	19	-	266	57
LLNS Restoration Plan	NA-Closed	2023	344	265	-	10	3	-	58	7
	Non-Qualified	2024	652	515	-	13	7	-	91	26
		2025	776	613	-	23	8	-	109	23

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
NTESS Nonqualified Pension Plan	NA-Closed	2023	2,317	1,460	14	44	51	21	681	46
	Non-Qualified	2024	2,292	1,440	16	50	55	23	665	44
		2025	2,254	1,416	16	50	54	23	654	43
Savannah River Nuclear Solutions, LLC Nonqualified Pension Plan	EM-Frozen	2023	429	169	243	-	-	-	-	16
	Non-Qualified	2024	329	121	191	-	-	-	-	16
		2025	310	133	160	-	-	-	-	17
Washington Government Services Executive Pension Plan (TRU Solutions Participants Only)	EM-Frozen	2023	-	-	-	-	-	-	-	-
	Non-Qualified	2024	-	-	-	-	-	-	-	-
		2025	-	-	-	-	-	-	-	-
Washington Government Services Executive Pension Plan (West Valley Participants Only)	EM-Frozen	2023	738	-	738	-	-	-	-	-
	Non-Qualified	2024	-	-	-	-	-	-	-	-
		2025	-	-	-	-	-	-	-	-
Consolidated Nuclear Security, LLC Equalization Retirement Income Plan and Supplemental Retirement Income Plan	NA-Closed	2023	183	176	-	-	-	-	7	-
	Non-Qualified	2024	171	164	-	-	-	-	7	-
		2025	163	156	-	-	-	-	7	-
UT-Battelle Equalization Retirement Income Plan and Supplemental	SC-Open	2023	1,178	133	1	696	112	34	150	52
	Non-Qualified	2024	1,008	114	1	596	96	29	128	44
		2025	1,086	123	1	642	103	31	138	48

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Table 3: Projected FY 2023 through FY 2025 Contributions by Plan, NNSA, and Program Office ($K)

Based on July 2023 data and allocated by Program Office [g]

Plan Name	Plan status	Fiscal Year	Total	NNSA	EM	SC	EERE	NE	Reimbursable Work	Other
Retirement Income Plan										
Total		**2023**	**942,774**	**383,492**	**322,346**	**90,004**	**38,759**	**3,671**	**81,113**	**23,388**
		2024	**1,144,383**	**592,330**	**245,448**	**97,198**	**42,316**	**5,711**	**132,192**	**29,188**
		2025	**939,973**	**497,144**	**131,899**	**105,302**	**45,901**	**6,131**	**132,718**	**20,879**

[g] May be small variances in totals due to rounding. For the Naval Reactors contractor's plans, Reimbursable Work includes the portion of contributions covered by the contract with the Department of the Navy.

Section II - Other Postretirement Benefit Plans

For the most part, contractors do not fund other postretirement benefit plans in advance, but instead pay the claims incurred by the retired members or the premiums required to cover the plan benefits. The other postretirement benefits covered by the contractors are primarily medical, including prescription drugs, but may also include dental, vision, and life insurance benefits that are provided upon retirement from the contractor. The costs associated with these plans are expected to grow as the retired population grows and as healthcare cost trends continue to increase.

Since claims are not paid until incurred and processed, the actual amounts of contractors' payment of claims that DOE will reimburse for FY 2024 and FY 2025 will not be known until after budget development. The contractor costs are included in indirect costs. The budget assumes an indirect rate sufficient to meet reimbursement requirements. [h] As mentioned in the pension section, the allocation of contributions among NNSA, the Program Offices, and Reimbursable Work, is done based on each site's best estimate of the allocation of work based on current and anticipated work for the various parties that the site serves.

The contractors are making concerted efforts to reduce the costs associated with these plans as the costs have steadily increased. In recent years, contractors have made changes to their other postretirement benefit plans in an effort to reduce the costs associated with them, simplify administration, or increase the efficiency of the delivery of benefits. These changes include adjusting plan options to include high deductible health plan options, putting in place Employer Group Waiver Plans (EGWP) and other programs to manage prescription drug costs, adjusting the premiums for health and dental plans, and adjusting eligibility rules for retiree health plans.

Projections of future postretirement benefits to be paid are highly sensitive to underlying data, methods, and assumptions, particularly assumptions related to future increases in the expected claims paid each year as well as the underlying assumptions regarding usage and coverage. Thus, the actual amounts reimbursed in a future fiscal year may be different. All of the information for FY 2024 and FY 2025 is based on expected reimbursements as reported by the DOE's respective contractors in July 2023; this information has been reviewed by the appropriate NNSA and DOE program office and the Office of the Chief Financial Officer. The information reported for FY 2023 is primarily based on information of final employer contributions as reported by the contractors for the FY 2023 agency financial statements. Table 5 provides these aggregate FY 2023-2025 projected other postretirement benefit reimbursements.

Table 5: FY 2023-2025 NNSA and DOE Program Office Projected Other Postretirement Benefits Payments ($K)
Based on July 2023 data and allocated by Program Office [h]

Program Office	FY 2023	FY 2024	FY 2025
NNSA	163,666	181,037	188,208
EM	63,704	67,159	64,011
SC	51,505	59,254	62,575
EERE	6,241	7,604	7,942
NE	6,125	7,994	8,390
Reimbursable Work	41,780	47,077	48,024
LM	31,303	33,935	33,359
Other	6,902	9,275	9,178
Total	371,226	413,335	421,686

There may be small variances in totals due to rounding. Numbers may not add in total.

[h] The LM plans rely on direct costs.

Research and Development

Conduct of Research and Development (R&D) and R&D Facilities and Equipment	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Basic Research	6,775,087	6,323,444	6,923,928	148,841	2.2%
Applied Research	6,643,422	7,086,132	7,351,354	707,932	10.7%
Experimental Development	4,497,154	5,269,618	5,342,574	845,420	18.8%
Subtotal, Conduct of R&D	**17,915,663**	**18,679,194**	**19,617,856**	**1,702,193**	**9.5%**
Construction and Rehabilitation, R&D Facilities	1,965,058	2,687,139	2,728,468	763,410	38.8%
Major Equipment, R&D Equipment	907,909	868,878	1,094,097	186,188	20.5%
Subtotal, R&D Facilities and Equipment	**2,872,967**	**3,556,017**	**3,822,565**	**949,598**	**33.1%**
Total, R&D Conduct and R&D Facilities and Equipment	**20,788,630**	**22,235,211**	**23,440,421**	**2,651,791**	**12.8%**

Summary

Base and supplemental funding through the Infrastructure Investment and Jobs Act (IIJA) support research and development (R&D) activities across the Department. FY 2025 aggregate funding includes an overall increase of $2.65 billion (or 12.8 percent) in R&D Conduct and R&D-Related Facilities and Equipment compared with FY 2023 funding. The Department of Energy (DOE) has identified challenging goals in an effort to avoid the worst effects of climate change and mitigate the effects of changes that can no longer be avoided. These goals towards decarbonization across all segments of the economy will be managed across the Department through crosscutting activities, enabling synergies that can be developed only through the collaboration and coordination of multiple Department offices. Each R&D related crosscut is described in its own programmatic section in the budget justifications and new crosscuts have been added in response to the Administration goal of net-zero emissions economy-wide by 2050 through a concerted effort in transportation, agriculture, industry, and electric power generation. Each DOE office has contributions to the overall success of our R&D efforts. These are summarized as follows.

Office of Science (SC) supports a balanced research portfolio of basic scientific research probing some of the most fundamental questions in areas such as: high energy, nuclear, and plasma physics; materials and chemistry; biological and environmental systems; applied mathematics; next generation high-performance computing and simulation capabilities; and basic research for advancement in new energy technologies. The SC FY 2025 Request increases investments in Administration priorities including basic research on artificial intelligence (AI) and machine learning (ML), basic research on climate change and clean energy, the SC Energy Earthshots Initiative, Microelectronics Science Research Centers, and accelerating fusion development in support of the Bold Decadal Vision for Commercial Fusion Energy. The SC Request also promotes the domestic establishment of critical isotope supply chains to reduce U.S. dependency on foreign supply and increase U.S. resilience. SC continues efforts to enhance inclusion and advance equity, in underserved communities in SC-sponsored research, as well as increase capacity at emerging research institutions, Historically Black Colleges and Universities (HBCUs) and minority serving institutions (MSI) in the Reaching a New Energy Sciences Workforce (RENEW) and Funding for Accelerated, Inclusive Research (FAIR) initiatives. As part of this increase, a RENEW graduate fellowship will support graduate studies for students who received their bachelor's degree from emerging research institutions, HBCUs or MSIs.

The Request supports SC's basic research portfolio, which includes extramural grants and contracts supporting over 29,000 researchers located at over 300 institutions and 16 DOE national laboratories, spanning all 50 states, District of Columbia, and U.S. territories. In FY 2025, SC's suite of 28 scientific user facilities will continue to provide unmatched tools and capabilities for nearly 40,000 users per year from universities, national laboratories, industry, and international partners. In addition to facility operations, the Request will support the construction of new and upgraded user facilities and the R&D necessary for future facilities to continue to provide world class research capabilities to U.S. researchers.

Energy Efficiency and Renewable Energy (EERE) accelerates the research, development, demonstration, and deployment (RDD&D) of technologies and solutions to equitably transition America to net-zero greenhouse gas emissions economy-wide by no later than 2050, creating good paying jobs, and ensuring the clean energy economy benefits all Americans, especially workers and communities impacted by the energy transition and those historically underserved by the energy

system and overburdened by pollution. To achieve this mission, EERE is increasing investment in the integration of clean energy technologies that are ready to be demonstrated and deployed, as well as R&D activities that advance early-stage technologies with a clear path to deployment.

This Request builds on FY 2023 investments with key changes that further RDD&D for net-zero greenhouse gas emissions goals which includes achieving technology cost and performance targets and addressing deployment barriers to drive catalytic commercialization and widespread adoption of EERE technologies from the lab to the everyday American; integrating renewable energy and new demand from transportation, buildings, and industry in an affordable, reliable and resilient power system; doubling down on decarbonizing energy-intensive industries and supporting clean energy manufacturing; accelerating the cost-effective decarbonization of all modes of transportation. The Request also prioritizes increased investments in these priority areas critical to reduce emissions in the near term drastically, while investing in research to ensure American leadership and competitiveness in advanced clean energy technology.

Fossil Energy and Carbon Management (FECM) supports funding to ensure responsible use of fossil and mineral resources that minimize environmental impacts; advance technologies to reduce and remove carbon emissions, particularly in sectors and applications that are difficult to decarbonize including the industrial sector; advance technologies and methods for carbon management activities, such as capturing, transporting, and storing carbon dioxide, converting it into products, or removing it from the atmosphere; accelerating clean hydrogen; and reducing methane emissions all while ensuring these projects benefit local communities. The FECM Request will help support both local communities and workers transitioning their skills to new positions in various areas, such as building carbon capture and hydrogen systems on existing industrial and power plant facilities or reinforcing existing pipelines to minimize methane emissions.

Nuclear Energy (NE) supports the diverse civilian nuclear energy programs of the U.S. Government to research and develop nuclear energy technologies, including generation, safety, and security technologies, assisting in unleashing the clean energy transition through strategic and innovative methods. NE seeks to enhance availability, economics, and security of nuclear-generated electricity in the U.S. NE focuses on nuclear reactor research as well as materials aging and degradation, safety margin characterization, safety technologies, and instrumentation and controls. Research into other Advanced Reactor Technologies, such as fast reactor technologies and high temperature reactor technologies for the production of electricity and high temperature process heat to improve the economic competitiveness and flexibility of nuclear energy is also conducted. Additionally, NE provides research and development activities in advanced manufacturing methods, fabrication, and instrumentation technologies that includes strong investments in modeling and simulation tools.

Advanced Research Projects Agency – Energy (ARPA-E) supports the delivery of innovative, investable opportunities to the commercial sector. ARPA-E will continue to deliver value to the U.S. economy with continued emphasis on maintaining a healthy portfolio of projects. These projects cover a broad range of topics, with a growing focus on additional scale-up of the most promising projects that have demonstrated success in technical development, project management, and definition of commercial pathways. ARPA-E executes its budget through funding opportunity announcements that address applications that are not represented in its present portfolio and develops new opportunities opened by the outcomes of previous programs.

Office of Cybersecurity, Energy Security, and Emergency Response (CESER) seeks to enhance the security and resilience of the nation's critical energy infrastructure from all hazards. CESER's R&D investments aim to bolster capabilities by developing game-changing cybersecurity tools, technologies, methodologies, and guidance that aid in securing energy infrastructure. These tools and technologies will help energy industry identify, protect, detect, respond, and recover in the face of increasingly advanced cyber threats. CESER has instituted coordination and integration of cybersecurity requirements in research and development efforts across DOE's science and energy programs, building cybersecurity into the energy delivery system components. CESER will supplement these efforts with development, demonstration and deployment of crosscutting tools leveraging emerging technologies and techniques. CESER also includes research, development and demonstration (RD&D) to address risks to the energy sector from non-cyber hazards such as physical attack and impacts of climate change, e.g., increased wildfires and severe hurricanes. CESER will develop tools that help with risk characterization and analysis and enable early detection and mitigation of these risks.

Office of Electricity (OE) supports R&D for new technologies to strengthen, transform, and improve electricity delivery infrastructure so consumers have access to resilient, secure, and clean sources of electricity.

National Nuclear Security Administration (NNSA) contributes directly and crucially to U.S. nuclear security R&D. NNSA supports key investments in science and technology innovation that support the science-based stewardship of the nuclear weapons stockpile, modernize the nuclear security enterprise, protect the U.S. from weapons of mass destruction threats, and provide the U.S. Navy with nuclear reactors that meet complex and evolving requirements.

Conduct of Research and Development Details

The following tables detail funding of Basic, Applied and Experimental Development R&D.

Basic Research	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Cybersecurity, Energy Security, and Emergency Response	15,000	14,000	11,000	(4,000)	-26.7%
Defense Nuclear Nonproliferation	166,172	159,529	173,458	7,286	4.4%
Electricity	8,915	8,915	12,000	3,085	34.6%
Science	6,585,000	6,141,000	6,727,470	142,470	2.2%
Subtotal, Basic Research	**6,775,087**	**6,323,444**	**6,923,928**	**148,841**	**2.2%**

Applied Research	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Advanced Research Projects Agency--Energy	235,000	235,000	225,000	(10,000)	-4.3%
Bonneville Power Administration Fund	1,000	1,000	1,000	-	0.0%
Cybersecurity, Energy Security, and Emergency Response	59,000	61,000	67,000	8,000	13.6%
Defense Environmental Cleanup (EM)	14,190	14,190	11,187	(3,003)	-21.2%
Defense Nuclear Nonproliferation	227,870	191,435	206,912	(20,958)	-9.2%
Electricity	62,553	62,553	74,000	11,447	18.3%
Energy Efficiency and Renewable Energy	819,000	1,397,000	1,397,000	578,000	70.6%
Fossil Energy and Carbon Management	843,070	843,070	838,145	(4,925)	-0.6%
Naval Reactors	141,400	137,000	123,200	(18,200)	-12.9%
Nuclear Energy	1,097,000	1,000,545	1,180,704	83,704	7.6%
Weapons Activities	3,143,339	3,143,339	3,227,206	83,867	2.7%
Subtotal, Applied Research	**6,643,422**	**7,086,132**	**7,351,354**	**707,932**	**10.7%**

Experimental Development	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Advanced Research Projects Agency--Energy	235,000	235,000	225,000	(10,000)	-4.3%
Bonneville Power Administration Fund	1,000	1,000	1,000	-	0.0%
Clean Energy Demonstrations	217,000	217,000	179,000	(38,000)	-17.5%
Cybersecurity, Energy Security, and Emergency Response	29,000	28,000	30,000	1,000	3.4%
Defense Environmental Cleanup (EM)	28,810	28,810	22,713	(6,097)	-21.2%
Defense Nuclear Nonproliferation	154,884	140,917	157,626	2,742	1.8%
Electricity	94,962	94,962	104,000	9,038	9.5%
Energy Efficiency and Renewable Energy	1,135,000	1,917,000	1,917,000	782,000	68.9%
Fossil Energy and Carbon Management	950,000	965,000	965,000	15,000	1.6%
Naval Reactors	700,073	719,825	776,488	76,415	10.9%
Nuclear Energy	336,816	307,495	272,747	(64,069)	-19.0%
Weapons Activities	614,609	614,609	692,000	77,391	12.6%
Subtotal, Experimental Development	**4,497,154**	**5,269,618**	**5,342,574**	**845,420**	**18.8%**

Conduct of Research and Development (R&D)	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Advanced Research Projects Agency--Energy	470,000	470,000	450,000	(20,000)	-4.3%
Bonneville Power Administration Fund	2,000	2,000	2,000	-	0.0%
Clean Energy Demonstrations	217,000	217,000	179,000	(38,000)	-17.5%
Cybersecurity, Energy Security, and Emergency Response	103,000	103,000	108,000	5,000	4.9%
Defense Environmental Cleanup (EM)	43,000	43,000	33,900	(9,100)	-21.2%
Defense Nuclear Nonproliferation	548,926	491,881	537,996	(10,930)	-2.0%
Electricity	166,430	166,430	190,000	23,570	14.2%
Energy Efficiency and Renewable Energy	1,954,000	3,314,000	3,314,000	1,360,000	69.6%
Fossil Energy and Carbon Management	1,793,070	1,808,070	1,803,145	10,075	0.6%
Naval Reactors	841,473	856,825	899,688	58,215	6.9%
Nuclear Energy	1,433,816	1,308,040	1,453,451	19,635	1.4%
Science	6,585,000	6,141,000	6,727,470	142,470	2.2%
Weapons Activities	3,757,948	3,757,948	3,919,206	161,258	4.3%
Total, Conduct of R&D	**17,915,663**	**18,679,194**	**19,617,856**	**1,702,193**	**9.5%**

Research and Development Related Facilities and Equipment Details

The following tables detail funding of Construction and Rehabilitation for R&D Facilities and Major R&D Equipment.

Construction and Rehabilitation, R&D Facilities	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Energy Efficiency and Renewable Energy	42,000	1,017,000	1,017,000	975,000	2321.4%
Fossil Energy and Carbon Management	28,000	29,000	20,000	(8,000)	-28.6%
Naval Reactors	554,218	199,300	337,002	(217,216)	-39.2%
Nuclear Energy	7,000	-	-	(7,000)	-100.0%
Science	1,257,000	1,365,000	1,301,932	44,932	3.6%
Weapons Activities	76,840	76,839	52,534	(24,306)	-31.6%
Subtotal, R&D Facilities	**1,965,058**	**2,687,139**	**2,728,468**	**763,410**	**38.8%**

Major Equipment, R&D Equipment	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Defense Nuclear Nonproliferation	31,339	29,513	31,399	60	0.2%
Energy Efficiency and Renewable Energy	16,000	23,000	23,000	7,000	43.8%
Fossil Energy and Carbon Management	25,000	25,000	23,000	(2,000)	-8.0%
Naval Reactors	23,005	8,800	19,200	(3,805)	-16.5%
Science	248,000	218,000	192,498	(55,502)	-22.4%
Weapons Activities	564,565	564,565	805,000	240,435	42.6%
Subtotal, R&D Equipment	**907,909**	**868,878**	**1,094,097**	**186,188**	**20.5%**

R&D Facilities and Equipment	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Defense Nuclear Nonproliferation	31,339	29,513	31,399	60	0.2%
Energy Efficiency and Renewable Energy	58,000	1,040,000	1,040,000	982,000	1693.1%
Fossil Energy and Carbon Management	53,000	54,000	43,000	(10,000)	-18.9%
Naval Reactors	577,223	208,100	356,202	(221,021)	-38.3%
Nuclear Energy	7,000	-	-	(7,000)	-100.0%
Science	1,505,000	1,583,000	1,494,430	(10,570)	-0.7%
Weapons Activities	641,405	641,404	857,534	216,129	33.7%
Total, R&D Facilities and Equipment	**2,872,967**	**3,556,017**	**3,822,565**	**949,598**	**33.1%**

Program Detail

The following tables shows the totals for Conduct of R&D and R&D Facilities and Equipment by Program.

R&D by Program	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs FY 2023 Enacted $	FY 2025 Req vs FY 2023 Enacted %
Advanced Research Projects Agency--Energy	470,000	470,000	450,000	(20,000)	-4.3%
Clean Energy Demonstrations	217,000	217,000	179,000	(38,000)	-17.5%
Cybersecurity, Energy Security, and Emergency Response	103,000	103,000	108,000	5,000	4.9%
Electricity	166,430	166,430	190,000	23,570	14.2%
Energy Efficiency and Renewable Energy	2,012,000	4,354,000	4,354,000	2,342,000	116.4%
Fossil Energy and Carbon Management	1,846,070	1,862,070	1,846,145	75	0.0%
Nuclear Energy	1,440,816	1,308,040	1,453,451	12,635	0.9%
Science	8,090,000	7,724,000	8,221,900	131,900	1.6%
Defense Environmental Cleanup (EM)	43,000	43,000	33,900	(9,100)	-21.2%
Bonneville Power Administration Fund	2,000	2,000	2,000	-	0.0%
Defense Nuclear Nonproliferation	580,265	521,394	569,395	(10,870)	-1.9%
Weapons Activities	4,399,353	4,399,352	4,776,740	377,387	8.6%
Naval Reactors	1,418,696	1,064,925	1,255,890	(162,806)	-11.5%
TOTAL, Program R&D	**20,788,630**	**22,235,211**	**23,440,421**	**2,651,791**	**12.8%**

Safeguards and Security

Mission

The Safeguards and Security (S&S) program at headquarters and at each DOE field site focuses on enterprise security, protecting against theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts which may cause damage to national security, program continuity, the health and safety of employees, the public or the environment. The 'crosscut' summarizes the S&S programs that are distributed through the budget volumes. Each program's S&S components are described in the budget justifications for:

- Science
- Weapons Activities
- Defense Nuclear Nonproliferation
- Naval Reactors
- Defense Environmental Cleanup
- Nuclear Energy
- Energy Efficiency and Renewable Energy
- Fossil Energy and Carbon Management
- Strategic Petroleum Reserve
- Legacy Management
- Loan Programs Office
- Enterprise Assessments
- Environment, Health, Safety and Security
- Energy Information Administration
- Specialized Security Activities
- NNSA Federal Salaries and Expenses
- Chief Financial Officer
- Chief Information Officer

Overview

The FY 2025 Budget Request for the direct funded S&S programs is organized to ensure consistency in program and budget execution and ensure management, direction, tracking and monitoring of security costs throughout the Department of Energy (DOE). Each program budget provides visibility for S&S issues to help management ensure effective and efficient S&S program implementation. Figure 1 shows comparable overall funding for S&S in the FY 2023 Enacted, FY 2024 Annualized CR and the FY 2025 Request.

Figure 1: Overall DOE S&S Funding

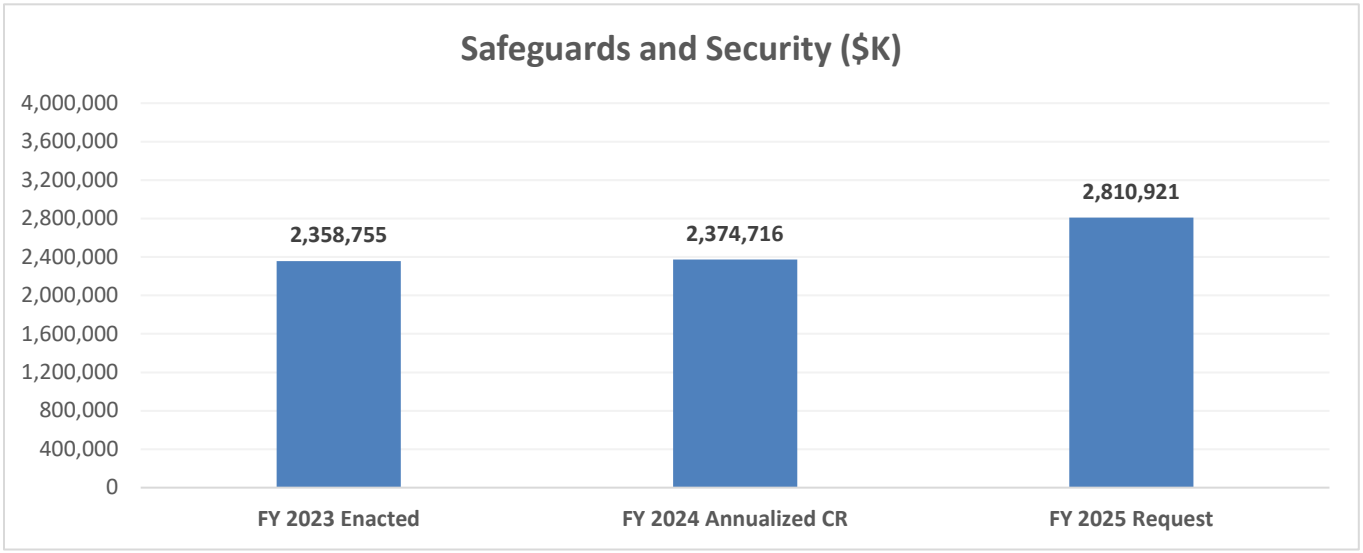


Table 1: Functional Components of S&S

The S&S crosscut budget is comprised of the functional components shown in the following table.

Protective Forces	Provides for the protection of special nuclear materials, information, employees, and government property from theft, diversion, sabotage, and malicious destruction.
Physical Security Systems	Addresses access control and interior/exterior intrusion detection systems.
Information Security	Ensures that individuals protect classified matter and sensitive unclassified matter and establishes protection systems that require degrees of protection for each classification level.
Cybersecurity	Assures protection of IT resources and networks, to include modernizing cybersecurity defenses by protecting federal networks, improving information-sharing between the U.S. government and the private sector on cyber issues, and strengthening the United States' ability to respond to incidents when they occur.
Personnel Security	Supports activities associated with the access authorization program.
Material Control and Accountability	Provides assurance that the nuclear materials used and/or stored at DOE facilities are always properly controlled and accounted for.
Program Management	Assures a framework for efficient and effective security operations.
Security Investigations	Provides for background investigations for access authorizations.
Transportation Security	Provides secure transportation of nuclear materials.
Security Infrastructure/ Construction	Provides for update and repair of security-related infrastructure and construction for that purpose.

Table 2 shows S&S funding by program cost elements; and Table 3 by functional cost elements. Subsequent sections break out each functional element of S&S by program.

Highlights

In FY 2025, the Department's overall S&S investment (field and HQ) is $2.8 billion, an increase of +$452 million, or 19.2%, above the FY 2023 Enacted level.

By functional element, DOE is making strategic investments in Cybersecurity (+$193 million, or +37.6%), Protective Forces (+$97 million, or +11.2%), Security Infrastructure/Construction (+$52 million, or +104.0%), Physical Security Systems (+$32 million, or 15.7%), Transportation Security (+$27 million, 7.8%), and Program Management (+$24 million, 17.6%).

By program, there are significant increases from FY 2023 Enacted to the FY 2025 Request for Weapons Activities (+$486 million, or +33.6%) for additional security requirements associated with mission growth across the nuclear security enterprise, including plutonium pit production and the transfer of security responsibility from the Office of Environmental Management to NNSA at the Savannah River Site. Additionally, there are notable increases in the Office of Science (SC; +$11 million, or +5.6%), Fossil Energy & Carbon Management (FECM; +$6.6 million, or +76.3%), the Office of the Chief Information Officer (CIO; +$7.7 million or +7.7%), and the Office of the Chief Financial Officer (CFO; +$1.4 million or +35.5%)

Table 2: S&S Funding by Program Cost Elements

Safeguards and Security (S&S) by Program Cost Elements	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Chief Financial Officer	2,450	2,935	3,800	1,350	55%
Chief Information Officer	92,361	92,361	100,097	7,736	8%
Defense Environmental Cleanup	329,220	329,220	265,197	-64,023	-19%
Defense Nuclear Nonproliferation	426	438	450	24	6%
Energy Efficiency and Renewable Energy	16,750	16,750	17,850	1,100	7%
Energy Information Administration	1,396	2,004	2,104	708	51%
Enterprise Assessments	9,335	10,123	10,123	788	8%
Environment, Health, Safety and Security	80,430	80,430	81,244	814	1%
Federal Salaries and Expenses (NNSA)	2,822	1,560	1,874	-948	-34%
Fossil Energy and Carbon Management	8,592	8,592	15,148	6,556	76%
Grid Deployment Office	35	-	25	-10	-29%
Legacy Management	2,676	2,676	3,092	416	16%
Naval Reactors	1,441	1,359	1,388	-53	-4%
Nuclear Energy	150,000	150,000	150,000	-	0%
Office of Electricity	50	25	28	-22	-44%
Science	184,099	200,000	195,000	10,901	6%
Strategic Petroleum Reserve	29,822	28,993	30,855	1,033	3%
Title 17: Loan Guarantee Program	583	583	609	26	4%
Weapons Activities	1,446,267	1,446,667	1,932,037	485,770	34%
Total, S&S	**2,358,755**	**2,374,716**	**2,810,921**	**452,166**	**19%**

Table 3: S&S Funding by Functional Cost Element

Safeguards and Security (S&S) by Program Cost Elements	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Protective Forces	862,864	866,106	959,403	96,539	11%
Physical Security Systems	205,010	216,762	237,123	32,113	16%
Information Security	93,200	92,930	100,862	7,662	8%
Cybersecurity	512,856	517,998	705,852	192,996	38%
Personnel Security	87,047	87,301	97,204	10,157	12%
Material Control and Accountability	60,970	61,383	71,190	10,220	17%
Program Management	134,010	134,187	157,592	23,582	18%
Security Investigations	7,804	6,480	7,499	-305	-4%
Transportation Security	344,652	344,652	371,499	26,847	8%
Security Infrastructure/Construction	50,342	46,917	102,697	52,355	104%
Total, S&S	**2,358,755**	**2,374,716**	**2,810,921**	**452,166**	**19%**

Protective Forces
Funding Schedule

Protective Forces	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	192,248	194,462	120,422	(71,826)	-37%
Energy Efficiency and Renewable Energy	3,600	3,600	3,910	310	9%
Environment, Health, Safety and Security	40,000	40,000	37,200	(2,800)	-7%
Fossil Energy & Carbon Management	3,164	3,164	3,164	-	0%
Legacy Management	670	670	969	299	45%
Nuclear Energy	88,497	88,497	97,794	9,297	11%
Science	52,341	53,911	54,300	1,959	4%
Strategic Petroleum Reserves	21,407	20,865	23,352	1,945	9%
Weapons Activities	460,937	460,937	618,292	157,355	34%
Total, Protective Forces	**862,864**	**866,106**	**959,403**	**96,539**	**11%**

Mission

The Protective Forces element of field and headquarters S&S provides funding to protect the Department's critical assets, which include nuclear weapons in DOE custody, nuclear weapons components, special nuclear materials, classified information, and DOE facilities against a spectrum of threats, including terrorist activity, sabotage, espionage, theft, diversion, loss, or unauthorized use.

Protective Forces programs throughout the complex provide for personnel salaries, wages, and benefits for personnel; management and supervision; and well-maintained and logically deployed equipment and facilities to ensure effective performance of assigned functions and tasks under normal and emergency conditions.

Protective Forces programs include the conduct of access control and security response operations; the physical protection of special nuclear material, classified matter and information, and government property; emergency response forces and tactical assistance during events as well as an on-scene security commander; random patrols; coordination with local law enforcement and protective force elements aimed at providing effective response to emergency situations; random prohibited article inspections; security alarm monitoring and dispatch services; the collection and destruction of classified matter; and testing of the protective force to respond to various event scenarios.

Protective Forces programs maintain a Special Response Team capability to provide resolution of incidents that require effective and timely response with force options that exceed the capability of front-line protective force personnel. This includes prevention, recapture and recovery operations involving the use of special weapons systems and tactics to prevent access to special nuclear material or effect recovery from unauthorized control.

Highlight

- The Weapons Activities increase is due to associated with mission growth across NNSA's (Nuclear Security Enterprise (NSE), including support for pit production, Uranium Processing Facility (UPF) preparation efforts, and Kansas City National Security Campus (KCNSC) expansion. Increases also reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA.
- The Nuclear Energy increase reflects costs to train, equip, and maintain the Protective Force personnel staffing levels and associated equipment consistent with Departmental requirements and existing labor wage agreements.

Physical Security Systems
Funding Schedule

Physical Security Systems	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	30,511	31,137	20,172	-10,339	-34%
Energy Efficiency and Renewable Energy	925	925	950	25	3%
Environment, Health, Safety and Security	6,238	6,238	7,160	922	15%
Fossil Energy & Carbon Management	171	171	171	-	0%
Legacy Management	127	127	143	16	13%
Nuclear Energy	12,203	12,203	13,420	1,217	10%
Science	24,693	35,812	31,640	6,947	28%
Strategic Petroleum Reserves	1,123	1,130	1,208	85	8%
Weapons Activities	129,019	129,019	162,259	33,240	26%
Total, Physical Security Systems	**205,010**	**216,762**	**237,123**	**32,113**	**16%**

Mission

The Physical Security Systems element of field and headquarters S&S provides for the physical protection of special nuclear material and equipment, sensitive information, Departmental property, and unclassified facilities. Included are buildings, fences, barriers, lighting, sensors, surveillance devices, entry control devices, access control systems, explosive detection systems, power systems and other real property and hardware designed for or affecting security. This hardware and equipment are operated and used to support the protection of DOE property and other interests of national security.

Security Systems programs support DOE-wide efforts required to conduct performance assurance testing. These programs also ensure that security alarm systems are operational and functioning in accordance with applicable DOE requirements. Physical Security System programs are also responsible for two subprograms: (1) a barriers, secure storage, and lock program to restrict, limit, delay or deny entry into a designated area; and (2) an entry control and access program that provides positive identification of personnel requiring access to facilities and initial access to facilities in general, ensuring that persons entering or leaving facilities are authorized, and do not introduce prohibited articles into or remove Government property from Departmental facilities.

The budget estimates include all access control administrative activity involving production, accountability and destruction of access authorization badges and firearms credentials. They also include systems components and tamper-safe oversight by monitoring and responding to alarms, determining access, and securing all alarmed structures on site. In addition, this element provides for handling all radio communications for the protection of the facilities.

Highlights

- The SC FY 2025 increase reflects continued prioritization of security technologies, including artificial intelligence-based security systems, at the 10 Science national laboratories and three Federally operated sites. These investments support the replacement of end-of-life security systems and the employment of technologies to address evolving threats while minimizing the reliance on reoccurring costs. Additionally, the increase is critical to the implementation of HSPD-12 for long-term uncleared personnel, which addresses risks posed by insiders with physical and/or logical access. SC has a dynamic workforce of nearly 40,000 current long-term uncleared contractors requiring the HSPD-12 credential and approximately 10,000 new personnel engaging the laboratories on an annual basis.
- For Weapons Activities, the increase supports Physical Security Center of Excellence (PSCOE) initiatives and increases associated with mission growth across NNSA's NSE, including support for pit production, UPF preparation efforts, and KCNSC expansion. The increase also reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA.

Information Security
Funding Schedule

Information Security	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Energy Efficiency and Renewable Energy	575	575	600	25	4%
Environment, Health, Safety and Security	13,679	13,679	15,179	1,500	11%
Defense Environmental Cleanup	6,555	6,116	4,986	-1,569	-24%
Fossil Energy & Carbon Management	163	163	169	6	4%
Legacy Management	72	72	73	1	1%
Strategic Petroleum Reserves	241	240	262	21	9%
Nuclear Energy	5,016	5,016	-	-5,016	-100%
Weapons Activities	61,239	61,239	73,793	12,554	21%
Science	5,660	5,830	5,800	140	2%
Total, Information Security	**93,200**	**92,930**	**100,862**	**7,662**	**8%**

Mission
The Information Security element of field and headquarters S&S ensures that material and documents that may contain sensitive and classified information are accurately and consistently identified, properly reviewed for content, appropriately marked, and protected from unauthorized disclosure, and ultimately destroyed in an approved manner.

Information Security programs provides for plans, policies, procedures, and training to ensure that all employees are aware of the requirements for the identification, review, classification, declassification, marking, protection and proper disposal of sensitive information and classified material. In addition, operational security considerations are used to preclude inadvertent compromise of classified material.

Highlight
- The Weapons Activities increase is associated with mission growth across NNSA's NSE, including support for pit production, UPF preparation efforts, and KCNSC expansion. Reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA.
- For Nuclear Energy (NE), the decrease indicates a shift from direct funding to the cost recovery model.

Cybersecurity
Funding Schedule

Cybersecurity	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Field Cybersecurity	**320,741**	**324,002**	**404,929**	**84,188**	**26%**
Defense Environmental Cleanup	45,695	46,833	59,706	14,011	31%
Energy Efficiency and Renewable Energy	10,500	10,500	11,190	690	7%
Fossil Energy and Carbon Management	4,416	4,416	10,870	6,454	146%
Legacy Management	1,383	1,383	1,452	69	5%
Nuclear Energy	23,916	23,916	23,916	-	0%
Science	81,260	83,697	83,260	2,000	2%
Strategic Petroleum Reserve	4,491	4,177	2,976	-1,515	-34%
Weapons Activities	149,080	149,080	211,559	62,479	42%
Headquarters Cybersecurity	**192,115**	**193,996**	**300,923**	**108,808**	**57%**
Chief Financial Officer	2,450	2,935	3,800	1,350	55%
Chief Information Officer	92,361	92,361	100,097	7,736	8%
Defense Environmental Cleanup	-	-	10,000	10,000	n/a
Energy Information Administration	1,396	2,004	2,104	708	51%
Enterprise Assessments	9,335	10,123	10,123	788	8%
Environment, Health, Safety and Security	5,830	5,830	6,026	196	3%
Title 17: Loan Guarantee Program	443	443	469	26	6%
Weapons Activities	80,300	80,300	168,304	88,004	110%
Total, Cybersecurity	**512,856**	**517,998**	**705,852**	**192,996**	**38%**

Mission

The Cybersecurity element of field and headquarters S&S improves the nation's cybersecurity and protects the federal government networks, in line with Executive Order (EO) 14028, *Improving the Nation's Cybersecurity*, by moving to Zero Trust Architecture. Recent cybersecurity incidents such as SolarWinds, Microsoft Exchange, and the Colonial Pipeline incident are a sobering reminder that U.S. public and private sector entities increasingly face sophisticated malicious cyber activity from both nation-state actors and cyber criminals. These incidents share commonalities, including insufficient cybersecurity defenses that leave public and private sector entities more vulnerable to incidents.

In FY 2025, the Department is making significant contributions toward modernizing cybersecurity defenses by protecting federal networks, improving information-sharing between the U.S. government and the private sector on cyber issues, and strengthening the United States' ability to respond to incidents when they occur. Investments in Cybersecurity at the Department will focus on the following key areas, as identified in EO 14028:

- Remove Barriers to Threat Information Sharing Between Government and the Private Sector. Ensure that Information Technology (IT) Service Providers can share information with the government and require them to share certain breach information. Removing any contractual barriers and requiring providers to share breach information that could impact Government networks is necessary to enable more effective defenses of Federal departments, including DOE, and to improve the Nation's cybersecurity.

- Modernize and Implement Stronger Cybersecurity Standards. Help move DOE enterprise to secure cloud services and a zero-trust architecture (ZTA), and mandate deployment of multifactor authentication and encryption within

a specific time period. Outdated security models and unencrypted data have led to compromises of systems in the public and private sectors. DOE will increase its adoption of security best practices, by accelerating movement to a zero-trust security model and secure cloud services, and consistently deploying foundational security tools such as multifactor authentication and encryption.

- Improve Software Supply Chain Security. Continue to mature and expand the Information and Communication Technology Supply Chain Risk Management Program to improve the security of software and hardware. Too much of our hardware and critical software is shipped with significant vulnerabilities that our adversaries exploit.

- Improve Investigative and Remediation Capabilities. Improve cybersecurity threat hunting and response through improved logging and data analytics. Create cybersecurity event log and data retention requirements for DOE enterprise. Modernized perimeter sensors, improved data storage and search capabilities will improve the organization's ability to detect intrusions, mitigate those in progress, and determine the extent of an incident after the fact.

The amounts given here are program funds and do not include security elements that are within software applications developed for the Department's programmatic or administrative purposes, whether directly or indirectly funded. They do include IT Security and Compliance entries within the IT Investment portfolio. Highlights of cybersecurity activities can be found within the individual program budget requests.

Field Cybersecurity Highlights:

- SC will support investments to strengthen protection at federal and M&O sites in the areas of: Maximum MFA, Maximum Encryption, Cloud Strategy/Security, Improved Logging and Supply Chain Management, Zero Trust Infrastructure, Secure Critical Software, Controlled Unclassified Information (CUI) protections, participate in the DHS Continuous Diagnostics and Monitoring (CDM) program, build out Industrial Control Systems (ICS) protections, and protect Government Furnished Equipment (GFE) on foreign travel. Additionally, the request will support the implementation of the Cyber Security Program Plan and development of a mature, risk-based cyber security program across federal and M&O sites.
- Increase for Weapons Activities reflects investments in ZTA, Endpoint Detection and Response (EDR), operational technology, and other cybersecurity tools and services through the Enterprise Operations subprogram and supports labor rate increases and workforce growth at the laboratories, plants, and sites to address the significant increase in technology use as the NNSA mission has grown through the Site Infrastructure subprogram.

Headquarters (HQ) Cybersecurity Highlights:

- Increase for the CIO reflects dedicated cyber reserve fund for the entire DOE complex to address requirements of EO 14028, *Improving the Nation's Cybersecurity*.
- EIA increases are to maintain capabilities in response to new cybersecurity threats and evolving DOE and Federal requirements and enhance the organization's Enterprise Cybersecurity Program as it transitions to support an expanding cloud presence.

Personnel Security
Funding Schedule

Personnel Security	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	12,289	12,250	10,128	-2,161	-18%
Energy Efficiency and Renewable Energy	240	240	250	10	4%
Environment, Health, Safety and Security	6,192	6,192	6,042	-150	-2%
Fossil Energy & Carbon Management	358	358	382	24	7%
Legacy Management	76	76	91	15	20%
Nuclear Energy	5,593	5,593	-	-5,593	-100%
Science	9,055	9,327	9,000	-55	-1%
Strategic Petroleum Reserves	902	923	947	45	5%
Weapons Activities	52,342	52,342	70,363	18,021	34%
Total, Personnel Security	**87,047**	**87,301**	**97,204**	**10,157**	**12%**

Mission

The Personnel Security element of field and headquarters S&S supports the access authorization program and ensures security sensitivity through security briefings such as the initial refresher and termination briefings, re-orientations, computer-based training, special workshops and classes, publications, closed circuit television programs, signs, posters, and special event days. Support for the access authorization program includes: (1) personnel security assurance program, adjudications, screening, and analysis of personnel security cases for determining eligibility for access authorizations, administrative reviews, and handling of Freedom of Information Act and Privacy Act requests related to security access authorizations; (2) security awareness and education; and (3) activities associated with classified and unclassified visits and assignments by foreign nationals.

Highlights:

- For Weapons Activities, increases are due to mission growth across NNSA's NSE, including support for pit production, UPF preparation efforts, and KCNSC expansion. Reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA.
- The decrease in Nuclear Energy is due to a shift from direct funding to the cost recovery model.

Material Control and Accountability
Funding Schedule

Material Control and Accountability	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	7,055	7,379	5,691	-1,364	-19%
Nuclear Energy	5,825	5,825	6,570	745	13%
Science	2,965	3,054	3,000	35	1%
Weapons Activities	45,125	45,125	55,930	10,805	24%
Total, Material Control and Accountability	**60,970**	**61,383**	**71,190**	**10,220**	**17%**

Mission

The Material Control and Accountability (MC&A) element of field S&S provides assurance that nuclear materials are properly controlled and always accounted for. MC&A provides evidence that all nuclear materials are accounted for appropriately and that theft, diversion, or operational loss has not occurred. MC&A also supports weapons production, nuclear nonproliferation, nuclear materials operations, facility closure, and nuclear critical safety by determining and documenting the amounts of nuclear materials in weapons and packaged items. MC&A administration includes the following: (1) assessing the levels of protection, control and accounting required for the types and quantities of materials at each facility; (2) documenting facility plans for nuclear materials control and accounting; (3) assigning authorities and responsibilities for MC&A functions; (4) ensuring that facility MC&A personnel are trained and qualified to perform their responsibilities; (5) establishing programs to report occurrences such as nuclear material theft, the loss of control or inability to account for nuclear materials, or evidence of malevolent acts; (6) conducting performance testing of required program elements; and (7) establishing facility programs to conduct and document internal assessments of their operations and MC&A programs.

Highlight:

- The Weapons Activities increase is for associated with mission growth across NNSA's NSE, including support for pit production, UPF preparation efforts, and KCNSC expansion. Reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA.
    - The increase in Nuclear Energy will fund nuclear material equipment for special nuclear material identification and quantification.

Program Management
Funding Schedule

Program Management	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	26,758	26,691	26,809	51	0%
Energy Efficiency and Renewable Energy	720	720	750	30	4%
Environment, Health, Safety and Security	7,591	7,591	8,737	1,146	15%
Fossil Energy & Carbon Management	320	320	392	72	23%
Legacy Management	348	348	364	16	5%
Nuclear Energy	8,000	8,000	8,300	300	4%
Science	8,125	8,369	8,000	-125	-2%
Strategic Petroleum Reserves	1,658	1,658	1,752	94	6%
Weapons Activities	80,490	80,490	102,488	21,998	27%
Total, Program Management	**134,010**	**134,187**	**157,592**	**23,582**	**18%**

Mission
The Program Management element of field and headquarters S&S develops the framework for efficient and effective security operations. This includes the development and updating of S&S plans, conducting vulnerability assessments to determine if assets are at risk, modeling to ensure the plans and operations meet mission objectives, identifying assets that need protection, developing local threat assessments and participating in the S&S quality panel process and security education. In addition, these programs ensure that plans are developed and revised in accordance with DOE requirements, professional and technical training is administered, and Departmental S&S goals and objectives are implemented complex wide.

The programs develop S&S plans or other applicable security plans and implement S&S requirements, conduct surveys to determine whether S&S requirements have been implemented, respond to national and local threats, and perform a vulnerability analysis that measures the risk of S&S assets. Program Management includes participation in the quality panel process, which raises issues from the field to the headquarters managers and ensures that the staff is properly educated in security matters.

Highlight:

- For Weapons Activities, increases are associated with mission growth across NNSA's NSE, including support for pit production, UPF preparation efforts, and KCNSC expansion. Reflects escalation and labor wage increases, as well as support for increased resource needs to sustain Core Security requirements. Includes transition of SRS S&S scope to NNSA. Includes the use of anticipated SPP collections.

Security Investigations
Funding Schedule

Security Investigations	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	1,450	1,118	1,744	294	20%
Defense Nuclear Nonproliferation	426	438	450	24	6%
Energy Efficiency and Renewable Energy	190	190	200	10	5%
Environment, Health, Safety and Security	900	900	900	-	0%
NNSA Federal Salaries and Expenses	2,822	1,560	1,874	-948	-34%
Grid Deployment Office	35	-	25	-10	-29%
Naval Reactors	1,441	1,359	1,388	-53	-4%
Office of Electricity	50	25	28	-22	-44%
Title 17: Loan Guarantee Program	140	140	140	-	0%
Weapons Activities	350	750	750	400	114%
Total, Security Investigations	**7,804**	**6,480**	**7,499**	**-305**	**-4%**

Mission

The Security Investigations element of field and headquarters S&S funds background investigations associated with providing access authorizations (security clearances) to DOE Federal and contract personnel who, in the performance of their official duties, require access to classified information or certain quantities of special nuclear material. Background investigations are required by Section 145 of the Atomic Energy Act of 1954, as amended, and EO 12968, *Access to Classified Information*. The investigations are performed, and access authorizations granted based on 10 C.F.R. 710, Criteria and Procedures for Determining Eligibility for Access to Classified Matter or Special Nuclear Material. Funding provides for initial single scope background investigations, periodic reinvestigations, and initial and reinvestigation national agency checks.

Highlight:

- No major changes in Security Investigations funding from FY 2023 Enacted to the FY 2025 Request.

Transportation Security
Funding Schedule

Transportation Security	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	215	215	75	-140	-65%
Weapons Activities	344,437	344,437	371,424	26,987	8%
Total, Transportation Security	**344,652**	**344,652**	**371,499**	**26,847**	**8%**

Mission

Transportation security provides for the secure transport of weapons, weapons components, and nuclear materials to support Stockpile Management and consolidation and disposition of nuclear material within the complex; to meet DOE, Department of Defense (DOD), and other customer requirements. This functional component of S&S is funded primarily within NNSA's Secure Transportation Asset (STA) Program.

STA provides safe and secure shipments for Weapons Activities and other Department elements requiring this capability. The STA program supports Departmental initiatives to convert weapons-grade material for use or disposal. STA supports other DOE programs, including Environmental Management; and others, including the National Aeronautics and Space Administration, and international shipments in cooperation with Canada, the United Kingdom, and France.

Highlight

- For Weapons Activities, the increase supports growth in Mobile Guardian Transporter (MGT) development and Program Direction for Federal Agents and support personnel.

Security Infrastructure/Construction
Funding Schedule

Security Infrastructure/Construction	($K)				
	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Req vs. FY 2023 Enacted	FY 2025 Req vs. FY 2023 Enacted
				$	%
Defense Environmental Cleanup	6,444	3,019	5,464	-980	-15%
Nuclear Energy	950	950	-	-950	-100%
Strategic Petroleum Reserve	-	-	358	358	n/a
Weapons Activities	42,948	42,948	96,875	53,927	126%
Total, Security Infrastructure/Construction	**50,342**	**46,917**	**102,697**	**52,355**	**104%**

Mission

Security Infrastructure provides critical security infrastructure investments and protection enhancements necessary to ensure adequate protection of DOE sites and personnel.

Highlights

- The increase for Weapons Activities reflects SIRP projects to be executed that include sensor, camera, lighting, and communication refreshes, and smaller capital equipment projects, as well as an increase to continue construction of the West-End Protected Area Reduction project at Y-12.
- For NE, the decrease reflects end of preconceptual planning activities for the Materials and Fuels Complex Entry Control Facility Replacement project.

Sector Crosscut Overview
Funding by Appropriation and Sector
($M)

Sector	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request
Agriculture	113	113	97
Buildings	896	896	1,031
Electricity	2,755	2,755	2,857
Transportation	970	970	960
Grand Total*	**4,734**	**4,734**	**4,945**

Agriculture Sector Overview: RDD&D investments to help drive innovations leading to a cleaner, more productive agriculture sector: co-location of clean energy and agriculture; irrigation, water, and aquaculture; climate impacts; geology pertaining to soil carbon sequestration.

Agriculture Sector	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($)
EERE	113	113	97	-16
Grand Total	**113**	**113**	**97**	**-16**

Buildings Sector Overview: Investments that increase the energy efficiency, affordability, and resilience of buildings; accelerate onsite emissions reductions and low-GWP refrigerants; transform electricity management at the grid edge; and accelerate deployment of low-embodied carbon construction.

Buildings Sector	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($)
ARPA-E*	1	TBD	TBD	N/A
EERE	403	403	393	-10
FEMP	0	0	64	64
SCEP	493	493	574	81
Grand Total	**896**	**896**	**1,031**	**135**

E**lectricity Sector Overview:** - Activities and technologies that help decarbonize electricity at the point of generation, improve grid reliability and interconnection, or integrate new resources.

Electricity Sector	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($)
ARPA-E*	135	TBD	TBD	N/A
EERE	924	924	1,038	115
GDO	65	65	102	37
NE	1,237	1,237	1,345	108
OCED	50	50	0	-50
OE	269	277	277	8
IE	75	95	95	20
Grand Total	**2,755**	**2,755**	**2,857**	**238**

Transportation Sector Overview: Investments to implement system-level design solutions, shift travel towards more efficient modes, improve efficiency of vehicles, and deploy low- or zero-carbon fuels and technologies.

Transportation Sector	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($)
ARPA-E*	66	TBD	TBD	N/A
EERE	894	894	932	38
LPO	10	10	28	18
Grand Total	**970**	**970**	**960**	**56**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted but is not included in the FY 2025 vs FY 2023 grand total.

Subsurface Energy Innovations (SEI)
Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($ Change)
Advanced Research Projects Agency - Energy	**20,442**	**TBD**	**TBD**	**N/A**
ARPA-E Projects*	20,442	TBD	TBD	N/A
Energy Efficiency and Renewable Energy	**118,000**	**118,000**	**90,250**	**-27,750**
Geothermal Technologies	118,000	118,000	90,000	-28,000
Strategic Programs	0	0	250	+250
Fossil Energy and Carbon Management	**38,000**	**38,000**	**38,000**	**0**
Carbon Management Technologies	35,000	35,000	35,000	0
Resource Sustainability	3,000	3,000	3,000	0
Science	**36,191**	**36,191**	**34,292**	**-1,899**
Advanced Scientific Computing Research	6,017	6,017	9,578	+3,561
Basic Energy Sciences	30,174	30,174	24,714	-5,460
National Nuclear Security Administration	**97,157**	**97,157**	**110,086**	**+12,929**
Defense Nuclear Nonproliferation R&D	97,157	97,157	110,086	+12,929
Grand Total	**309,790**	**289,348**	**272,628**	**-16,720**

*ARPA-E funding is determined annually based on programs developed through office and stakeholder priorities. Therefore, funding for FY 2024 and FY 2025 is not currently available. ARPA-E funding is included in the total FY 2023 enacted, which affects the FY 2025 vs FY 2023 grand total.

Overview

Subsurface clean energy applications hold massive untapped potential for improving domestic energy security, accessing firm energy resources, strengthening the electrical grid, addressing climate change, and creating quality jobs. However, subsurface resources can be challenging to assess, access, and monitor due to time consuming and often costly drilling, data collection, and data processing and interpretation, as well as limited ability to visualize it at high resolution. The time and cost requirements to assess and access subsurface resources can incur significant investment risk, which has limited progress and growth of these clean energy technologies. Technology performance improvements that could de-risk investment in subsurface resources include: (a) more accurate and higher resolution assessment of subsurface resources; (b) rapid monitoring of reservoir dynamics that can accurately predict impending risks such induced seismicity and/or fluid leakage; and (c) faster and lower cost methods and technologies for accessing and managing subsurface resources. The Subsurface Energy Innovation (SEI) Crosscut includes fundings for research, development, demonstration, and deployment (RDD&D) to improve the accuracy, precision, and speed with which subsurface resources can be assessed, accessed, monitored, and managed, as well as activities in non-energy programs that provide capabilities, including techniques, tools, and expertise, that can be applied to the SEI mission. Such advancements will allow the technologies listed below to become market-competitive, scalable, and permanent clean energy solutions, and create tens of thousands of good-paying jobs:

- Geothermal energy, which requires cost reductions in Enhanced Geothermal System (EGS) capability to increase its footprint beyond 0.5 percent of United States (U.S.) electricity generation;
- Geologic carbon storage, currently happening at 0.1 percent of the rate necessary to meet climate goals;
- Geologic hydrogen storage, currently only feasible in unique and rare geologic features;
- Sustainable critical mineral (CM) extraction, necessary to reduce high American import reliance; and
- Geologic hydrogen extraction, a new and potentially cost-effective, zero-emission source of hydrogen.

In recognition of the potential of EGS to provide plentiful clean, dispatchable electricity, the Department of Energy (DOE) launched its fourth Energy Earthshot™, the Enhanced Geothermal Shot™, in September 2022. This effort is aligned with the recent White House report, *U.S. Innovation to Meet 2050 Climate Goals*, which identified Enhanced Geothermal as a "net-

zero game changer." The Enhanced Geothermal Shot™ aims to reduce the cost of EGS by 90 percent, to $45 per megawatt hour (MWh), by 2035. Investments in EGS could unlock up to 90 gigawatts of affordable clean electricity by 2050 and exponentially increase opportunities for geothermal heating and cooling solutions nationwide, while providing opportunities to leverage the skilled workforce, tools, and best practices from the oil and gas industry to advance clean energy. In recent months, DOE-supported demonstrations in Utah and Nevada have achieved critical technical milestones that show the technical potential of EGS has begun to be realized.

SEI Crosscut activities reduce the uncertainty and cost burden facing these technologies through the production and application of tools, data products, and technological approaches that improve observational, decision-making, and operational capabilities. Such activities require advancements across fundamental science and applied RDD&D. The SEI Crosscut will further leverage the integration of state-of-the-art High-Performance Computing (HPC) resources, Artificial Intelligence (AI), Machine Learning (ML), and simulation capabilities with applied technology workstreams necessary to build subsurface simulation and interpretation visualization, prediction, and decision-making tools.

Coordination Efforts

The Department houses an entire range of technological expertise across the RDD&D chain required for innovation in subsurface energy, including from the Office of Science's (SC) Basic Energy Sciences (BES) and Advanced Scientific Computing Research (ASCR) Offices; Energy Efficiency and Renewable Energy's (EERE) Geothermal Technologies Office (GTO); Advanced Research Projects Agency-Energy (ARPA-E); Fossil Energy and Carbon Management (FECM); and the National Nuclear Security Administration's (NNSA) Office of Defense Nuclear Nonproliferation (DNN). In addition, the Office of Energy Jobs in the Office of Policy will support engagement with workers and labor unions to develop a safe and skilled workforce.

Crosscut priorities include the development of a cross-agency subsurface RDD&D strategy, information sharing, engagement with external stakeholders and technology experts, and consideration of targeted cooperation through leveraging subsurface program activities or joint funding opportunities. Additionally, the SEI Crosscut will prioritize coordination and collaboration with other Federal agencies, such as the Department of Interior (primarily, the United States Geological Survey and the Bureau of Ocean Energy Management), the National Science Foundation, and the National Aeronautics and Space Administration.

Objectives and Action Areas

- **Objective 1 – Improve Characterization:** Significantly improve understanding of the nation's deep subsurface resources.
  - Action Area: Modernize subsurface data analytics.
    - Develop data management tools to gather, standardize, rescue, and reinterpret legacy data, as well as develop incentive structures to allow for data sharing between the public and private sectors.
- **Objective 2 - Enhance Monitoring:** Develop transformational capability to detect, measure and observe operations below ground in real time to ensure safe, economic operation.
  - Action Area: Design and perform comprehensive value of information calculations for new data and sensors to maximize return on investment in projects and research and development (R&D) programs.
    - Improve continuous data collection with novel sensors that are robust and inexpensive.
    - Identify complex trends related to system response by improving simultaneous analysis of multiple data streams.
- **Objective 3 - Faster and Safer Drilling:** Access the deep subsurface quickly, economically, and responsibly.
  - Action Area: Leverage drilling activities funded in part through IIJA.
    - Engage in iterative drilling research, development, and demonstration (RD&D) on wells funded through IIJA to drive process improvements in drilling speeds, and support tech transfer of drilling workflows across different subsurface technology areas to ensure drilling best practices are adopted across these provisions.
- **Objective 4 - Subsurface Engineering:** Enable safe and effective control of the subsurface.
  - Action Area: Use of pressure, biological, and chemical means to enable controlled and targeted migration and steering of materials into and out of subsurface formations (permeability manipulation).
    - Optimization of existing subsurface manipulation methods.

- Development of novel technologies for subsurface manipulation, to include utilizing AI/ML learning approaches to advance these goals.

Highlights of Program Efforts to Support the Crosscut in FY 2025

1. **Advanced Research Projects Agency-Energy (ARPA-E):** As defined by its authorization under the America COMPETES Act, ARPA-E catalyzes transformational technologies to enhance the economic and energy security of the United States. ARPA-E funds high-potential, high-impact projects that are too risky to attract private sector investment but could significantly advance the ways to generate, store, distribute and use energy. ARPA-E is developing programs for transformational research across a wide range of energy technologies and applications. The assessment process for new programs is now underway and any potential future investments in Subsurface will be determined in FY 2024.

2. **Energy Efficiency & Renewable Energy (EERE):** The primary office in EERE driving innovation in subsurface technologies is the Geothermal Technologies Office (GTO). The Strategic Programs subprogram also provide a small amount of support. In FY 2025, GTO will continue to support SEI Crosscut objectives through RD&D that focuses on exploration, characterization, reservoir monitoring, and drilling-based verification of advanced exploration technologies and methods. FY 2025 Programs that support the four pillars of the Subsurface Energy Initiative include:
    a. The continuation of essential work in novel stimulation techniques in long-reach horizontal wells and perform long-term flow testing, support for new Enhanced Geothermal Systems (EGS) demonstration projects to continue momentum built by FORGE and EGS pilot demonstrations funded through IIJA.
    b. Work to unlock terawatt-scale thermal energy storage by using the Earth as our battery, employment of state-of-the-art machine learning and artificial intelligence techniques to determine if advanced computing can reduce the exploration risk and costs of developing the Nation's 30 GWe of hidden hydrothermal resources,
    c. Addressing non-technical barriers to transitioning oil and gas (O&G) assets for geothermal development; modernizing geothermal drilling; and deploying O&G technologies to bring down geothermal development costs.

3. **Fossil Energy and Carbon Management:** FECM supports the FY 2025 SEI Crosscut objectives through extensive expertise and capability related to the characterization, management, and extraction of subsurface resources, such as critical mineral and materials (CMM) extraction, as well as geologic storage of hydrogen and CO_2. FY 2025 activities related to CMM include novel monitoring technologies, including geochemical and biological approaches, which will help characterize mineral resources.

    FECM activities in FY 2025 will capitalize on and integrate recent advances in geochemical, wellbore integrity, and fluid-structure interaction modeling derived from decades of field experience with underground gas storage in the oil and gas industry to drive greater uptake and acceptance of underground hydrogen storage (UHS). Such activities will allow for UHS operators to both dynamically track and adaptively manage UHS reservoirs to ensure existing barriers, such as induced seismicity and sulfate-reducing bacteria, are mitigated. Extensive outreach to and cooperation with the public and regulatory bodies are central to FECM UHS activities and are key to widespread application of the technology.

    FECM is currently developing and validating new and innovative approaches in carbon storage technologies in the lab and in the field, including advanced data management. In FY 2025, FECM can advance SEI Crosscut objectives 1 and 2 by including focus within on-going initiatives to develop ML-driven tools that gather, standardize, rescue, analyze, and value-assess new and existing subsurface data with cross-cutting applicability.

4. **Science (SC):** SC provides foundational knowledge and state-of-the-art capabilities in support of crosscut objectives, such as novel computational algorithms in material properties and fluid flow data analysis and management, high performance computation (HPC), and subsurface material characterization.
    a. Advanced Scientific Computational Resources (ASCR): ASCR provides state-of-the-art HPC facilities as well as R&D that develops multi-scale simulations and physics-informed deep learning techniques to address long-standing subsurface challenges, including support for the Enhanced Geothermal Energy Earthshot. Specific areas are: Innovative computing techniques that exploit leadership-scale computing resources and/or programming environments, frameworks, and mathematical methods; uncertainty quantification and

verification and validation techniques; processing, reduction, curation, intelligent analysis and integration of massive and heterogeneous data; high-performance edge computing; resilient coordination of distributed sensor networks; large-scale AI and knowledge extraction; adaptive strategies for controlling the real-time behavior of complex systems and for resilience under extreme conditions; and decision-support for planning and risk mitigation including digital twins. Through the Exascale Computing Project (ECP), ASCR invested in the development of a high-resolution reservoir simulator, integrating the complex multiphysics processes occurring from kilometer to micron scales to study and prevent well bore failure for CO_2 sequestration in saline reservoirs, and an end-to-end capability to simulate earthquakes from the initiation of a fault rupture to surface ground motions and ultimately to infrastructure response. These efforts are being transitioned to Energy Earthshot Research Centers. ASCR also supports a Mathematical Multifaceted Integrated Capability Center (MMICC) focused on sparse data structures to support subsurface modeling. Simulations of subsurface challenges are running on ASCR production and leadership computing systems.

b. Basic Energy Sciences (BES): BES supports computational/theoretical and experimental science to understand geomechanical, geochemical, hydrological, and interfacial chemical and materials behavior to provide foundational knowledge to advance subsurface energy technologies, including support for the Enhanced Geothermal Energy Earthshot. Specific areas include:
    i. Mineral dissolution, nucleation, and phase equilibria in confined and interfacial environments, including characterization at the molecular-level.
    ii. Understanding how geophysical signals–such as lab measurements of active and passive emissions and field measurements of seismic signals–arise from geophysical processes, with a goal to develop improved predictions and ultimately control these.
c. Leverage the unique capabilities at SC scientific user facilities, such as x-ray light sources (for high-resolution imaging of the time-dependence of geochemical/mechanical interactions in rock samples) and leadership class computing (for predictive modeling of processes across scales and ML simulations of massive data sets to connect data to the underlying processes).

5. **National Nuclear Security Administration (NNSA):** The Office of Defense Nuclear Nonproliferation Research and Development (DNN R&D) supports the SEI Crosscut objectives by advancing subsurface science and validating capabilities to detect and characterize low-yield and evasively conducted underground nuclear explosions. These capabilities include testbeds that require drilling deep large-diameter boreholes, mining horizontal tunnels and cavities, recovering legacy nuclear test data, characterizing subsurface geologies, and advancing models and algorithms to discriminate between explosions and seismic events and to predict subsurface and atmospheric transport.

Highlights and Major Changes from FY 2023 Enacted

1. **Advanced Research Projects Agency-Energy (ARPA-E):** In FY 2023, ARPA-E selected and/or obligated $20.4 million in funding to projects aligned with the Subsurface crosscut through ARPA-E's Creating Revolutionary Energy and Technology Endeavors (CREATE) Exploratory Topic and Geologic Hydrogen Exploratory Topics programs.
2. **Energy Efficiency & Renewable Energy (EERE):** FY 2025 level eliminates activities related to Analysis as part of the relevant Subsurface Energy Innovation budget.
3. **Fossil Energy and Carbon Management:** There are no changes from the FY 2023 Enacted Budget, as FECM maintains the same level of funding from FY 2023 Enacted in the FY 2025 Request.
4. **Science (SC):** No Major changes in the topical investment in the Office of Science.
5. **National Nuclear Security Administration (NNSA):** Increase supports Source Physics Experiment III, aiming to improve the capability to discriminate underground nuclear explosions from natural earthquakes.

Related Infrastructure Investment and Jobs Act (IIJA) or Inflation Reduction Act (IRA) Programs

In addition to the annual appropriations request, IIJA funding will support the planning and execution of demonstration, scale-up, and deployment of carbon storage and geothermal systems. In addition, expansion of tax credits in IRA have increased incentives in several subsurface technologies.

Advanced Research Projects Agency

- Energy -

Advanced Research Projects Agency – Energy
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
470,000	470,000	450,000	-20,000

Proposed Appropration Languange
For Department of Energy expenses necessary in carrying out the activities authorized by section 5012 of the America COMPETES Act (Public Law 110–69), $450,000,000, to remain available until expended: Provided, that of such amount, $42,000,000 shall be available until September 30, 2026, for program direction.

Mission
The mission of ARPA-E is to enhance the economic and energy security of the U.S. through the development of energy technologies that reduce imports of energy from foreign sources; reduce energy-related emissions, including greenhouse gases; improve the energy efficiency of all economic sectors; provide transformative solutions to improve the management, clean-up, and disposal of radioactive waste and spent nuclear fuel; and improve the resilience, reliability, and security of infrastructure to produce, deliver, and store energy.

Overview
The U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) was established by the America COMPETES Act of 2007 (Public Law 110–69), as amended. ARPA-E will ensure that the U.S. maintains a technological lead in developing and deploying energy technologies. ARPA-E will identify and promote revolutionary advances in energy, translating scientific discoveries and cutting-edge inventions into technological innovations. It will also accelerate transformational technological advances in areas where industry by itself is not likely to invest due to technical and financial uncertainty. ARPA-E focuses on novel early-stage energy research and development (R&D) with technology applications that can be meaningfully advanced with a small investment over a defined period of time. ARPA-E coordinates its work with DOE's basic research and applied programs and other Federal research agencies to ensure work is not duplicated.

Projects that receive ARPA-E support are considered “high risk” and too early for private sector support. They are subject to strict technical and commercialization milestones intended to ensure accountability and transparency that enable rapid reprioritization of Agency funds towards only the most promising technologies. This has resulted in significant commercial interest, investment, and follow-on funding for successful technologies, amplifying the impact of the Agency’s funding decisions and accelerating progress towards achieving the Agency’s mission.

In FY 2025, ARPA-E will support R&D on climate adaptation and resiliency energy innovations as well as support the Administration’s Net Zero Gamechangers Initiative. This will support the target to achieve a net zero emissions economy by 2050 to meet the Administration’s goals to adapt and strengthen resilience to the impacts of climate change. Funding is requested to support the Administration’s energy technology agenda that will drive innovation to tackle the climate crisis while creating good paying jobs, assure the U.S. remains the world’s leader in energy technologies, and increase societal resilience to climate change impacts. ARPA-E will work with partners from across the Federal Government to develop transformative solutions for the climate crisis, including adaptation and resilience, and lay the foundation for future improvements in R&D across the Federal Government.

FY 2023 Key Accomplishments
Since its inception in 2009 through September 2023, ARPA-E has provided approximately $3.68 billion in funding to over 1,530 projects through focused programs and OPEN funding solicitations. A total of 218 ARPA-E projects have attracted more than $11.8 billion in private-sector follow-on funding, 300 project teams have partnered with other agencies for further development, and 150 companies have been formed from ARPA-E projects. In addition, ARPA-E project teams have generated 7,047 peer-reviewed journal articles and received 1,073 patents from the U.S. Patent and Trademark Office.

In FY 2023, ARPA-E released $400 million in new funding opportunities including:

- $100 million for **SCALEUP 2023** - Seeding Critical Advances for Leading Energy technologies with Untapped Potential

- $235 million for eight focused programs:
    - **GOPHURRS** - Grid Overhaul with Proactive, High-Speed Undergrounding for Reliability, Resilience, and Security
    - **PROPEL-1K** - Pioneering Railroad, Oceanic and Plane ELectrification with 1KWH/KG Energy Storage Systems
    - **ROSIE** - Revolutionizing Ore to Steel to Impact Emissions
    - **SEA CO2** - Sensing Exports of Anthropogenic Carbon Through Ocean Observation
    - **ULTRAFAST** - Unlocking Lasting Transformative Resiliency Advances by Faster Actuation of Power Semiconductor Technologies
    - **SPARKS** - Spurring Projects to Advance energy Research and Knowledge Swiftly
    - **CriticalMAAS** - Critical Mineral Assessments with AI Support
    - **REEACH Phase II** - Range Extenders for Electric Aviation with Low Carbon and High Efficiency
- $65 million for seven Exploratory Topics:
    - **INTERMODAL** - Increasing Transportation Efficiency and Resiliency through MODeling Assets and Logistics
    - **CREATE** - Creating Revolutionary Energy And Technology Endeavors
    - **PRE-TRAILS** - Predictive Real-time Emissions Technologies Reducing Aircraft Induced Lines in the Sky
    - **Algal Mining** - Critical Mineral Extraction from Ocean Macroalgal Biomass
    - **NSTC** - Novel Superconducting Technologies for Conductors
    - **Geological Hydrogen** - Production of Geologic Hydrogen through Stimulated Mineralogical Processes
    - **Geological Hydrogen** - Subsurface Engineering for Hydrogen Reservoir Management

Advanced Research Projects Agency - Energy
($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
ARPA-E Projects	433,000	433,000	408,000	-25,000	-5.8%
Program Direction	37,000	37,000	42,000	+5,000	+13.5%
Total, Advanced Research Projects Agency - Energy	**470,000**	**470,000**	**450,000**	**-20,000**	**-4.3%**

SBIR/STTR ($K):

- FY 2023 Enacted: SBIR: $13,856; STTR $1,949
- FY 2024 Annualized CR: SBIR: $13,856; STTR $1,949
- FY 2025 Request: SBIR: $13,056; STTR: $1,836

Future Years Energy Program (FYEP)
($K)

	FY 2025 Request	FY 2026	FY 2027	FY 2028	FY 2029
Advanced Research Projects Agency – Energy	450,000	460,000	471,000	482,000	493,000

Outyear Priorities and Assumptions

In the FY 2012 Consolidated Appropriations Act (P.L. 112-74), Congress directed the Department to include a future-years energy program (FYEP) in subsequent requests that reflects the proposed appropriations for five years. This FYEP shows outyear funding for each account for FY 2026 - FY 2029. The outyear funding levels use the growth rates in outyear account totals published in the FY 2025 President's Budget for both the 050 and non-050 accounts. Actual future budget request levels will be determined as part of the annual budget process.

Advanced Research Projects Agency - Energy priorities in the outyears include the following: ARPA-E will continue its focus on novel early-stage energy R&D with technology applications that can be meaningfully advanced with a small investment over a defined period of time. Outyear funding will support new focused programs, as well as continued support for OPEN solicitations (every three years), SCALEUP, and Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) programs.

ARPA-E Projects

Overview

ARPA-E identifies and supports revolutionary inventions and transformational energy advances, which requires constant evolution of its programmatic focus. This is accomplished by establishing dynamic technical programs (each lasting about three years) designed to accelerate innovation in high-potential areas. The breadth of the program portfolio that has developed over ARPA-E's lifetime addresses different parts of the energy technology space from year to year.

ARPA-E has demonstrated the efficacy of its model for accelerating high-potential, novel technical approaches to existing and emerging U.S. energy challenges. Program Directors, recruited for their technical expertise, leadership, and experience in energy issues, are given significant autonomy in identifying potential high-impact areas for R&D investment. ARPA-E's Program Directors work to develop their proposals in the context of both private sector and federally funded work in the technical space, and ultimately propose focused programs designed to accelerate research and commercial development in the topic area.

As a complement to its focused technology programs, ARPA-E also supports OPEN solicitations. OPEN solicitations seek the most innovative new ideas in energy technology across the full spectrum of energy applications, allowing the Agency to support the development of important technologies that fall outside the scope of its focused programs. OPEN solicitations are released every three years and were run in 2009, 2012, 2015, 2018, and 2021. Consistent with the triennial release schedule, ARPA-E plans to release another OPEN solicitation in 2024.

One significant component of ARPA-E's mission is accelerating the economic impact of U.S. investments in energy R&D, and advancing the commercialization readiness of successful projects is essential to achieving this goal. As project teams demonstrate success, ARPA-E's Technology-to-Market Advisors and Program Directors work closely with the teams to help identify pathways toward commercial deployment. Many of ARPA-E's alumni projects have been able to obtain follow-on funding from private investors, state agencies, and/or federal programs, and ARPA-E's maturing portfolio is offering increasing opportunities for commercialization of ARPA-E funded technologies.

Despite the level of technology 'de-risking' that projects from focused and OPEN solicitations have achieved, ARPA-E determined that further de-risking is necessary in some areas to validate technologies at a scale pertinent to investment. To this end, ARPA-E released SCALEUP solicitations in 2019, 2021, and 2023. SCALEUP is designed to fund successful technologies that were previously funded by ARPA-E for which the proof-of-concept R&D challenges have been addressed. Success in scaling these projects would enable industry, investors, and partners to justify substantial commitments of financial resources, personnel, production facilities, and materials to develop promising ARPA-E technologies into early commercial products. ARPA-E plans to release an open ended evergreen SCALEUP FOA in FY 2024 to continue the push toward commercialization for previous early-stage ARPA-E funded projects.

In FY 2025, ARPA-E plans to continue funding for SCALEUP and release up to 10 new focused FOAs. Potential technology areas for new focused FOAs in FY 2025 may include:

- Raw materials for the new-energy economy: Extraction and processing
- Low-carbon electricity generation and resilient distribution: Wind, hydro, geothermal, and nuclear, undergrounding
- Electrification of transportation and heat: Aviation, batteries, and thermal storage
- Waste management and resource recovery: Carbon capture, utilization, and storage (CCUS), nuclear, building materials

ARPA-E will also continue its stand-alone SBIR/STTR program to provide additional support to small businesses beyond the significant number of awards to small businesses via ARPA-E's standard non-SBIR/STTR solicitations.

ARPA-E Projects
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
ARPA-E Projects	433,000	433,000	408,000	-25,000	-5.8%
Total, ARPA-E Projects	**433,000**	**433,000**	**408,000**	**-25,000**	**-5.8%**

ARPA-E Projects
Explanation of Changes
($K)

	FY 2025 Request vs FY 2023 Enacted
ARPA-E Projects: The FY 2025 Request is $25 million less than FY 2023 Enacted. At the decreased budget level, ARPA-E will issue approximately one less focused FOA than the FY 2023 Enacted.	**-25,000**
Total, ARPA-E Projects	**-25,000**

Program Direction

Overview

Program Direction enables ARPA-E to maintain and support a world-class Federal workforce that supports its mission. Funding provides resources for program and project management, oversight activities, workforce management, IT support, and Headquarters facilities and infrastructure. Funding also supports ARPA-E summer scholars, which is a cohort of graduate students to support ARPA-E's efforts to develop new programs and commercialization pathways for ARPA-E funded technologies.

Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted	
				$	%
Program Direction					
Salaries and Benefits	12,666	13,170	16,390	+3,724	+29%
Travel	1,000	1,000	1,500	+500	+50%
Support Services	17,048	16,632	17,300	+252	+1%
Other Related Expenses	6,286	6,198	6,810	+524	+8%
Total, Program Direction	**37,000**	**37,000**	**42,000**	**+5,000**	**+14%**
Federal FTEs	**60**	**60**	**80**	**+20**	**+33%**
Support Services					
Technical Support	5,967	5,821	6,055	+88	+1%
Management Support	11,081	10,811	11,245	+164	+1%
Total, Support Services	**17,048**	**16,632**	**17,300**	**+252**	**+1%**
Other Related Expenses					
Working Capital Fund	4,123	4,123	5,061	+938	+23%
Energy Information Technology Services (EITS)	1,588	1,500	1,500	-88	-6%
Other Services	575	575	249	-326	-57%
Total, Other Related Expenses	**6,286**	**6,198**	**6,810**	**+524**	**+8%**

Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Program Direction $37,000,000	**$42,000,000**	**+ $5,000,000**
Salaries and Benefits		
At the FY 2023 Enacted level, ARPA-E supported 60 Federal FTEs.	At the FY 2025 Request Level, ARPA-E anticipates needing up to 80 Federal FTEs. Additional Program Directors, Tech to Market advisers, and Operations staff will be added in FY 2025 to support ARPA-E's portfolio of active projects, which has grown by over 80% since FY 2018.	+$3,724,000: The increase from the FY 2023 Enacted level is due to an increased federal staff to support ARPA-E's growing portfolio. Since ARPA-E is substantially involved in the direction of projects it funds from inception to completion, additional staff is needed to continue to effectively monitor and manage ARPA-E's portfolio, which has grown by over 80% from 291 active projects in FY 2018 to 500+ active projects in FY 2024.
Travel		
At the FY 2023 Enacted level, ARPA-E Program Directors and Technology-to-Market advisers will visit performers regularly as part of ARPA-E's hands-on engagement. The number of site visits will be commensurate with the number of ongoing projects.	At the FY 2025 Request level, ARPA-E Program Directors and Technology-to-Market advisers will increase visits to performers as part of ARPA-E's hands-on engagement. The number of site visits will increase with the number of ongoing projects.	+$500,000: Increase in travel is commensurate with the increase in number of active projects.
Support Services		
At the FY 2023 Enacted level, ARPA-E anticipates continuing the use of support service contractors to support ARPA-E federal staff in the management and oversight of projects and other required functions.	At the FY 2025 Request level, ARPA-E anticipates the continuing use of support service contractors to support ARPA-E federal staff in the management and oversight of projects and other required functions. The level of support is commensurate with the number of active and anticipated projects.	+$252,000: Increase in support services is commensurate with the increase in number of active projects.
Other Related Expenses		
The FY 2023 Enacted level for other related expenses primarily consists of Working Capital Fund and Energy Information Technology Services (EITS) support costs.	The FY 2025 Request level for other related expenses primarily consists of Working Capital Fund and Energy Information Technology Services (EITS) support costs.	+$524,000: Other related expenses are expected to increase slightly from FY 2023.

Advanced Research Projects Agency - Energy
Research and Development ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
Basic	0	0	0	0
Applied	235,000	235,000	225,000	-10,000
Development	235,000	235,000	225,000	-10,000
Subtotal, R&D	470,000	470,000	450,000	-20,000
Equipment	0	0	0	0
Construction	0	0	0	0
Total, R&D	**470,000**	**470,000**	**450,000**	**-20,000**

DEPARTMENT OF ENERGY

Funding by Site

TAS_0337 - Advanced Research Projects Agency - Energy - FY 2025

(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Washington Headquarters			
ARPA-E Projects	433,000	433,000	408,000
Program Direction - ARPA-E	37,000	37,000	42,000
Total Washington Headquarters	**470,000**	**470,000**	**450,000**
Total Funding by Site for TAS_0337 - Advanced Research Projects Agency - Energy	**470,000**	**470,000**	**450,000**

Energy Information Administration

U.S. Energy Information Administration
Congressional Control: National Energy Information System (NEIS)
($K)

FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 Request vs FY 2023 Enacted
135,000	135,000	141,653	+6,653

Proposed Appropriation Language

For necessary expenses in carrying out the activities of the U.S. Energy Information Administration, $141,653,000 to remain available until expended.

Mission

The U.S. Energy Information Administration (EIA) is the statistical and analytical agency within the U.S. Department of Energy (DOE). EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. EIA is the nation's premier source of energy information, and, by law, its data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. government.

Overview

EIA conducts a wide range of data collection, analysis, forecasting, and dissemination activities to ensure that its customers, including Congress, federal and state governments, the private sector, the public, and the media, have ready access to timely, reliable, and relevant energy information. EIA's data and analysis inform important energy-related decisions, such as policy development; the availability of energy sources; and government, business, and personal investment decisions.

To accomplish its mission, EIA delivers a comprehensive range of energy data and analysis. Examples of key information products on which EIA stakeholders rely include:

- Weekly petroleum and natural gas inventory reports.
- Monthly short-term forecasts of energy markets.
- Long-term outlooks for U.S. and global energy production and consumption.
- Residential, commercial, and manufacturing energy consumption trends and characteristics.

FY 2025 funding will enable EIA to begin work on the 2026 *Commercial Buildings Energy Consumption Survey* (CBECS), a complex, multi-year survey that provides the only comprehensive, statistically reliable source of information on energy consumption, expenditures, and end uses in U.S. commercial buildings. Funding also enables EIA, working in conjunction with other federal agencies, to conduct research on a potential statistical methodology and resources needed to fully develop and maintain a set of natural capital accounts related to U.S. energy reserves. In FY 2025, EIA will also continue efforts to develop a next generation energy modeling system to better represent key aspects of the energy transition in its outlooks and to improve the transparency and accessibility of data and analysis to stakeholders.

FY 2023 Key Accomplishments

EIA delivers timely, relevant, policy-neutral information that has increased public understanding of a dynamic energy landscape. Noteworthy recent accomplishments include:

- Released new household energy consumption and expenditure data, including data for all 50 states for the first time, and a new interactive dashboard to display select state-level consumption data.
- Published the *Annual Energy Outlook 2023*, presenting an assessment of the long-term outlook for U.S. energy markets through 2050 and providing timely new insights, such as energy-related impacts of the Inflation Reduction Act.
- Implemented a new methodology for converting electric power generation data from noncombustible renewable sources in key EIA publications, an approach more consistent with international energy statistics standards.
- Released an expanded report on direct federal financial interventions and subsidies in energy markets covering the years 2016–2022.
- Added electric vehicle (EV) data to the *Monthly Energy Review*, including information about charging infrastructure and data on registered battery, plug-in hybrid, and fuel cell EVs.
- Published national and regional estimates of hourly carbon dioxide emissions from electricity generation to augment grid operations data in the *Hourly Electric Grid Monitor*.
- Improved crude oil balance reporting by introducing new data to the national and regional volumetric balance tables for petroleum and biofuels in EIA's weekly and monthly inventory reports.
- Introduced new supplements and data series in the *Short-Term Energy Outlook* to provide additional context and in-depth analysis of timely energy topics.
- Completed significant upgrades to EIA's technological infrastructure to enable the agency to better and more reliably deliver energy information to stakeholders for many years to come.

Energy Data Program

EIA's comprehensive energy data program conducts surveys of energy suppliers and consumers and then processes the data to produce a full range of publicly available reports. EIA provides this high-quality, relevant, and timely data in a range of formats and structures to serve the various analytical needs of its customers. Where appropriate, EIA uses administrative and third-party data to cost-effectively close energy information gaps and minimize respondent burden. EIA is working to improve information access to key stakeholders; for example, through participation in the Census Federal Statistical Research Data Center and facilitating EIA's use of the Standard Application Portal, which will increase researchers' access to high-value EIA data. EIA also monitors the evolving energy landscape to address key emerging trends and issues, such as exploring new data collections to assess the energy demands associated with crypto mining operations. The energy data program also provides the basis for EIA's energy analysis and forecasting activities, including key inputs for its short- and long-term energy models.

Energy Supply Surveys

The energy supply survey program represents EIA's largest operational area. Information from these surveys is published in more than 300 reports each year across weekly, monthly, quarterly, and annual product lines. EIA also collects and disseminates hourly electricity demand data from the nation's balancing authorities, which provides timely insights into grid operations. The energy supply survey program collects comprehensive data that illustrate the complex flows of energy production, conversion, distribution, and end uses across the nation, including oil and natural gas, refined products, renewables, nuclear power, coal, biofuels, and electric power. The program is staffed with a broad range of technical expertise to ensure the quality of EIA's data and the integrity of its underlying statistical processes. Producers, consumers, investors, traders, and analysts use EIA energy statistics in their day-to-day activities. For example, the *Weekly Petroleum Status Report* and *Weekly Natural Gas Storage Report* typically spur price formation activity to balance energy markets.

Energy Consumption and Efficiency Surveys

EIA collects and publishes national end-use consumption data for commercial buildings, residential buildings, and manufacturing through three large-scale, multi-year surveys. The CBECS provides the only comprehensive, statistically reliable source of information on energy consumption, expenditures, and end uses in U.S. commercial buildings. The *Residential Energy Consumption Survey* (RECS) collects information from a national sample of housing units, including data on energy characteristics of homes, usage patterns, and household demographics. The *Manufacturing Energy Consumption Survey* (MECS), which is linked to production and employment data from Census Bureau economic surveys, provides

information on energy throughput and economic and operational characteristics of U.S. manufacturers. These surveys are critical to understanding changes in U.S. energy use and are the basis for developing projections of future U.S. energy scenarios. Because of the scale and complexity of these surveys, EIA is exploring innovative methods for collecting valid, timely data at lower costs.

Energy Analysis Program

EIA conducts a robust energy analysis program to increase understanding of a dynamic and transitional energy marketplace. The program maintains and operates the National Energy Modeling System (NEMS), the nation's leading tool for developing long-term projections of U.S. energy production, consumption, prices, and technology usage; the *World Energy Projection System*, used for developing long-term projections of international energy markets; and the *Short-Term Integrated Forecasting System*, used to develop short-term domestic energy market forecasts. EIA's energy models support the production of its flagship publications: the *Annual Energy Outlook* (AEO), the *Short-Term Energy Outlook* (STEO), and the *International Energy Outlook* (IEO), as well as other special and periodic topical analyses.

EIA also produces many recurring reports that provide context for dynamic energy markets, such as *Today in Energy*, a concise, highly accessible overview of a topical energy issue. The *Drilling Productivity Report, This Week in Petroleum*, and *Natural Gas Weekly Update* are additional examples of relevant analysis products that serve EIA's broad stakeholder community. In addition, EIA provides periodic reports and ad hoc analyses of important energy issues, including, for example, factors affecting natural gas prices, battery storage for the U.S. electric grid, financial subsidies in energy markets, and modeled projections of a broad range of future energy scenarios. The program is staffed with experts in all areas of the energy sector, including oil, gas, coal, nuclear, renewables, electricity, transportation, emissions, and energy consumption and efficiency.

EIA also provides context and analysis on global energy issues by responding to official government requests for international energy analysis. EIA coordinates these responses with other DOE programs while maintaining its mission-mandated independence and impartiality. For example, EIA analyzed the energy implications and contingencies related to Russia's full-scale invasion of Ukraine. EIA also publishes updated reports that focus on the energy sectors in specific countries and regions, as well as country-level energy statistics and rankings for major fuels and activities.

Resources and Technology Management

This function provides overall business management, analysis, and mission support to EIA and responds to requests from other DOE offices and programs. Activities include workforce development and administration, financial and budget management, acquisition of support services, project management, program evaluation, and communications activities. The program also manages EIA's information technology (IT) enterprise to ensure a stable, operable IT infrastructure that meets data confidentiality and cybersecurity requirements.

EIA maintains a dynamic stakeholder outreach and communications program that interacts with a diverse external customer base and manages the public website (www.eia.gov), press and media relations, marketing and outreach services, and the employee intranet. EIA's website features state-of-the-art tools such as customizable dashboards and data browsers; interactive state, national, and North American energy infrastructure maps; open data initiatives such as Application Programming Interfaces; and highly visited online resources such as *Energy Kids* and *Energy Explained* that have increased information accessibility to EIA's customers.

Cybersecurity

EIA allocates funding for cybersecurity to maintain capabilities in response to new threats and evolving DOE and federal requirements, and to enhance the organization's Enterprise Cybersecurity Program as it transitions to support EIA's expanding cloud presence.

Information Technology Modernization

EIA continues to upgrade its IT infrastructure to mitigate critical operational risks to mission delivery. This includes efforts to modernize EIA's data management systems and processes, and collaborative tools to support a hybrid workplace.

Using Administrative Data for Statistical Purposes

EIA engages with other federal agencies in sharing and using administrative data sets for statistical purposes where appropriate. Using administrative and third-party data sets is a key strategy for EIA to close energy information gaps while minimizing the costs and respondent burden of survey data collection. EIA currently uses more than 60 administrative data sets and has negotiated successfully to obtain movements of commodities (crude oil, ethanol, coal) by rail using data from the Surface Transportation Board; and weekly petroleum export data from the U.S. Department of Homeland Security's Customs and Border Protection. EIA maintains strict measures to safeguard the privacy and confidentiality of the businesses, individuals, and institutions providing the data.

Explanation of Changes ($K)

	FY 2025 Request vs FY 2023 Enacted
Salaries and Benefits:	
Projected increase for 5 full-time equivalents (FTE) and cost-of-living adjustments (COLA) of 5.2% for FY 2024 and 2% for FY 2025.	+5,328
Support Services:	
Decrease in Energy Supply Surveys.	-2,850
Increase in Consumption and Efficiency Surveys.	+5,450
Decrease in Energy Modeling and Analysis.	-2,978
Increase in Resources and Technology Management.	+1,703
Total, Program Direction	**+6,653**

Outyear Funding

	($K)				
	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
U.S. Energy Information Administration	141,653	144,000	148,000	151,000	154,000

Outyear funding levels would enable EIA to deliver its core data and analysis to stakeholders while also supporting critical multi-year program updates:

- Accelerate development of an open source, next generation energy system model that better captures key aspects of the energy system transition and enables a wider range of future scenario analysis, including energy system shocks, technological innovation, and deep decarbonization pathways.
- Develop new data on electric grid operations, emissions, and EV integration with the grid.
- Begin re-tooling the energy consumption data program to provide more timely, granular information on energy usage and efficiency, along with new community-level insights.
- Deploy state-of-the-art dashboard tools that offer exciting opportunities for users to access, customize, view, and retrieve data.

Program Direction ($K)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 Request	FY 2025 vs FY 2023 ($)	FY 2025 vs FY 2023 (%)
Salaries and Benefits	60,754	64,786	66,082	5,328	9%
Travel	306	306	306	0	0%
Support Services	56,442	52,410	57,767	1,325	2%
Other Related Expenses	17,498	17,498	17,498	0	0%
Total, Program Direction	**135,000**	**135,000**	**141,653**	**6,653**	**5%**
Federal FTEs	**366**	**371**	**371**	**5**	**1%**
Support Services					
Technical Support					
Administrative Support Services	9	9	9	0	0%
Human Resources Support Services	4	4	4	0	0%
E-Government Support Services	1	1	1	0	0%
Scientific/Technical and IT Training	40	40	40	0	0%
Data Center (Application Hosting/Housing)	180	180	180	0	0%
IT Management Services	5,508	5,508	5,508	0	0%
Other Advisory and Assistance Services	49,270	45,238	50,595	1,325	3%
Total, Technical Support	**55,012**	**50,980**	**56,337**	**1,325**	**2%**
Management Support					
Program Management	1,430	1,430	1,430	0	0%
Total, Management Support	1,430	1,430	1,430	0	0%
Total, Support Services	**56,442**	**52,410**	**57,767**	**1,325**	**2%**
Other Related Expenses					
Communications, utilities, and misc. charges	4,257	4,257	4,257	0	0%
Training	466	466	466	0	0%
Other goods and services from Federal sources	345	345	345	0	0%
Working Capital Fund	6,694	6,694	6,694	0	0%
O&M of IT systems or equipment	1,144	1,144	1,144	0	0%
Printing, supplies and materials	1,300	1,300	1,300	0	0%
Equipment	2,967	2,967	2,967	0	0%
Grants, subsidies, and contributions	325	325	325	0	0%
Total, Other Related Expenses	**17,498**	**17,498**	**17,498**	**0**	**0%**

Activities and Explanation of Changes

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Salaries and Benefits $60,754,000	**Salaries and Benefits $66,082,000**	**+$5,328,000**
Provide salaries and benefits for 366 FTEs.	Provide salaries and benefits for 371 FTEs	Increase for 5 FTEs and COLA of 5.2% for FY 2024 and 2% for FY 2025.
Travel $306,000	**Travel $306,000**	**$0**
Provide essential travel for EIA stakeholder engagement—for representing EIA in public forums and engaging with industry experts.	Provide essential travel for EIA stakeholder engagement—for representing EIA in public forums and engaging with industry experts.	Maintain travel costs at FY 2023 level.
Support Services $56,442,000	**Support Services $57,767,000**	**+$1,325,000**
Energy Supply Surveys $17,406,000 Continue to operate the core energy supply data collection program. Includes efforts to standardize the processes, systems, and methods used to efficiently collect and process survey data.	Energy Supply Surveys $14,556,000 Continue to operate the core energy supply data collection program. Includes efforts to standardize the processes, systems, and methods used to efficiently collect and process survey data.	*Energy Supply Surveys* -$2,850,000 Decrease reflects savings related to operationalizing new utility shutoff survey and prior suspension of two petroleum marketing surveys.
Energy Consumption and Efficiency Surveys $12,781,000 Conduct commercial, residential, and manufacturing energy consumption surveys.	*Energy Consumption and Efficiency Surveys $18,231,000* Conduct commercial, residential, and manufacturing energy consumption surveys.	*Energy Consumption and Efficiency Surveys +$5,450,000* Increase to begin work on the 2026 CBECS.
Energy Modeling and Analysis $9,121,000 Deliver core analysis, forecasts, and projections (for example, AEO, IEO, and STEO).	*Energy Modeling and Analysis $6,143,000* Deliver core analysis, forecasts, and projections (for example, AEO, IEO, and STEO).	*Energy Modeling and Analysis -$2,978,000* Funding supports research and potential development of U.S. natural capital accounting methodologies (+$1 million). Decrease reflects shifting of funds to Resources and Technology Management to leverage enterprise IT tools for modeling and analysis work.
Resources and Technology Management $17,134,000 Continue providing business management, IT and network services, and administrative support to EIA staff. Maintain communication activities and invest in flexible web platforms to enhance data delivery. Maintain scope of energy mapping system and continue to integrate mapping with relevant EIA data.	*Resources and Technology Management $18,837,000* Continue providing business management, IT and network services, and administrative support to EIA staff. Maintain communication activities and invest in flexible web platforms to enhance data delivery. Maintain scope of energy mapping system and continue to integrate mapping with relevant EIA data.	*Resources and Technology Management +$1,703,000* Increase for enterprise IT tools to support data, modeling, and analysis work.

FY 2023 Enacted	FY 2025 Request	Explanation of Changes FY 2025 Request vs FY 2023 Enacted
Other Related Expenses $17,498,000	**Other Related Expenses $17,498,000**	**$0**
Pay rent and shared services through the DOE Working Capital Fund (WCF) and provide IT equipment and licenses, subscriptions and data purchases, and employee training among other activities.	Pay rent and shared services through the DOE WCF and provide IT equipment and licenses, subscriptions and data purchases, and employee training among other activities.	Maintain Other Related Expenses.

DEPARTMENT OF ENERGY

Funding by Site

TAS_0216 - Energy Information Administration - FY 2025

(Dollars in Thousands)

	FY 2023 Enacted	FY 2024 Annualized CR	FY 2025 President's Budget
Washington Headquarters			
Energy Information Administration (EIA)	135,000	135,000	141,653
Total Washington Headquarters	**135,000**	**135,000**	**141,653**
Total Funding by Site for TAS_0216 – Energy Information Administration	**135,000**	**135,000**	**141,653**

GAO/IG Act Required Reporting

U.S. Department of Energy
Fiscal Year 2025 Budget Justification
GAO-IG Act Required Reporting

Summary

The information in this report responds to requirements in The Good Accounting Obligation in Government Act (PL 115-414). The Act requires disclosure of certain information regarding the status of audit recommendations of the Department of Energy Office of Inspector General (OIG) and the Government Accountability Office (GAO) in the annual budget justification submitted to Congress, as required by section 1105 of Title 31, United States Code.

Table 1: GAO and OIG Audit Reports Issued During FY 2023

AUDIT REPORTS	NUMBER OF IG REPORTS	NUMBER OF GAO REPORTS
Final Reports Issued in FY 2023	38	60
Final Reports Issued in FY 2023 Requiring Corrective Actions	26	17
Final Reports Issued in FY 2023 Not Requiring Corrective Actions	12	43
Final Reports That Remain Open for Further Follow-Up Actions as of 9/30/2023	42	52

This report provides a listing of the GAO and OIG reports issued during Fiscal Year 2023 that contain recommendations considered by DOE to be open for further follow-up actions. Table 2 lists the relevant GAO reports and Table 3 lists the relevant OIG reports. Detailed information about the specific actions taken and planned in response to GAO and OIG recommendations is maintained by the Department and is available to Congress upon request.

Table 2: GAO Reports considered by DOE to be open for further follow-up actions as of October 1, 2023.

Field Name	Field Description
DOE Lead Office	Office of Science
Report Number	GAO-14-499
Report Title	Fusion Energy: Actions Needed to Finalize Cost and Schedule Estimates for U.S. Contributions to an International Experimental Reactor
Final Report Date	6/5/2014

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-15-216
Report Title	National Nuclear Security Administration: Actions Needed to Clarify Use of Contractor Assurance Systems for Oversight and Performance Evaluation
Final Report Date	6/10/2015

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-18-126
Report Title	Nuclear Weapons: NNSA Should Clarify Long-Term Uranium Enrichment Mission Needs and Improve Technology Cost Estimates
Final Report Date	2/16/2018

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-18-129
Report Title	Nuclear Weapons: NNSA Should Adopt Additional Best Practices to Better Manage Risk for Life Extension Programs
Final Report Date	1/30/2018

Field Name	Field Description
DOE Lead Office	Hanford Site Office
Report Number	GAO-18-241
Report Title	HANFORD WASTE TREATMENT PLANT: DOE Needs to Take Further Actions to Address Weaknesses in Its Quality Assurance Program
Final Report Date	4/24/2018

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-18-246R
Report Title	Management Report: Actions Needed to Improve National Nuclear Security Administration Contract Document Management
Final Report Date	8/1/2018

Field Name	Field Description
DOE Lead Office	Strategic Petroleum Reserve
Report Number	GAO-18-477
Report Title	Strategic Petroleum Reserve: DOE Needs to Strengthen Its Approach to Planning the Future of the Emergency Stockpile
Final Report Date	6/28/2018

Field Name	Field Description
DOE Lead Office	Office of Indian Energy
Report Number	GAO-19-22
Report Title	Tribal Consultation: Additional Federal Actions Needed for Infrastructure Projects
Final Report Date	4/19/2019

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-19-49
Report Title	Information Technology: Departments Need to Improve Chief Information Officers' Review and Approval of IT Budgets
Final Report Date	11/13/2018

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-19-101
Report Title	National Nuclear Security Administration: Additional Actions Needed to Collect Common Financial Data
Final Report Date	1/31/2019

Field Name	Field Description
DOE Lead Office	Under Secretary for Science and Innovation
Report Number	GAO-19-265
Report Title	Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research
Final Report Date	4/4/2019

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-19-494
Report Title	Nuclear Waste: DOE Faces Project Management and Disposal Challenges with High-Level Waste at Idaho National Laboratory
Final Report Date	9/19/2019

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-19-608
Report Title	Support Service Contracts: NNSA Could Better Manage Potential Risks of Contractors Performing Inherently Government Functions
Final Report Date	9/26/2019

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-20-63
Report Title	Nuclear Cleanup: Actions Needed to Improve Cleanup Efforts at DOE's Three Former Gaseous Diffusion Plants
Final Report Date	12/17/2019

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-20-180
Report Title	National Nuclear Security Administration: Additional Verification Checks Could Improve the Accuracy and Consistency of Reported Financial Data
Final Report Date	1/16/2020

Field Name	Field Description
DOE Lead Office	Office of Energy Justice and Equity
Report Number	GAO-20-187
Report Title	SEXUAL HARASSMENT IN STEM RESEARCH: Agencies Have Taken Actions, but Need Complaint Procedures, Overall Plans, and Better Collaboration
Final Report Date	3/19/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-20-357
Report Title	Nuclear Weapons: NNSA Needs to Establish Stronger Management Controls Over Its Microelectronics Activities
Final Report Date	6/9/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-20-409
Report Title	Nuclear Weapons: Action Needed to Address the W80-4 Warhead Program's Schedule Constraints
Final Report Date	7/24/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-20-451
Report Title	National Nuclear Security Administration: Analyzing Cost Savings Program Could Result in Wider Use and Additional Contractor Efficiencies
Final Report Date	6/24/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-20-703
Report Title	Nuclear Weapons: NNSA Should Further Develop Cost, Schedule, and Risk Information for the W87-1 Warhead Program
Final Report Date	9/23/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-21-28
Report Title	Uranium Management: Actions to Mitigate Risks to Domestic Supply Chain Could be Better Planned and Coordinated
Final Report Date	12/10/2020

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-21-73
Report Title	HANFORD CLEANUP DOE's Efforts to Close Tank Farms Would Benefit from Clearer Legal Authorities and Communication
Final Report Date	1/7/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-21-194
Report Title	High-Performance Computing: NNSA Could Improve Program Management Processes for System Acquisitions
Final Report Date	4/29/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-21-244
Report Title	Nuclear Weapons: Actions Needed to Improve Management of NNSA's Lithium Activities
Final Report Date	8/12/2021

Field Name	Field Description
DOE Lead Office	Office of Cybersecurity, Energy Security, and Emergency Response
Report Number	GAO-21-274
Report Title	Electricity Grid: Opportunities Exist for DOE to Better Support Utilities in Improving Resilience to Hurricanes
Final Report Date	3/5/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-21-307
Report Title	NNSA Guard Force Sexual Harassment: NNSA Could Improve Prevention and Response Efforts in Its Nuclear Security Forces
Final Report Date	4/19/2021

Field Name	Field Description
DOE Lead Office	Under Secretary for Science and Innovation
Report Number	GAO-21-346
Report Title	ELECTRICITY GRID RESILIENCE: Climate Change Is Expected to Have Far-reaching Effects and DOE and FERC Should Take Actions
Final Report Date	3/10/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-21-398
Report Title	Nuclear Security Enterprise: NNSA Should Use Portfolio Management Leading Practices to Support Modernization
Final Report Date	6/9/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-22-103948
Report Title	Department of Energy Contracting: NNSA Has Taken Steps to Improve Its Work Authorization Process, but Challenges Remain
Final Report Date	10/27/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-22-104061
Report Title	NUCLEAR ENTERPRISE: DOD and NNSA Could Further Enhance How They Manage Risk and Prioritize Efforts
Final Report Date	1/20/2022

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-22-104195
Report Title	Nuclear Weapons Cybersecurity: NNSA Should Fully Implement Foundational Cybersecurity Risk Management Practices
Final Report Date	9/22/22

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-22-104490
Report Title	Nuclear Waste Cleanup: DOE Needs to Better Coordinate and Prioritize Its Research and Development Efforts
Final Report Date	10/28/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-22-104506
Report Title	Nuclear Security Enterprise: NNSA Could Enhance Its Evaluation of Manufacturing-Related R&D Performance
Final Report Date	5/20/2022

Field Name	Field Description
DOE Lead Office	Office of the Chief Financial Officer
Report Number	GAO-22-104541
Report Title	Financial Management: DOE and NNSA Have Opportunities to Improve Management of Carryover Balances
Final Report Date	7/25/2022

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-22-104810
Report Title	National Nuclear Security Administration: Actions Needed to Improve Usefulness of Common Financial Data
Final Report Date	2/17/2022

Field Name	Field Description
DOE Lead Office	Office of the Chief Information Officer
Report Number	GAO-22-105065
Report Title	Privacy: Dedicated Leadership Can Improve Programs and Address Challenges
Final Report Date	9/22/2022

Field Name	Field Description
DOE Lead Office	Office of Clean Energy Demonstrations
Report Number	GAO-22-105111
Report Title	Carbon Capture and Storage: Actions Needed to Improve DOE Management of Demonstration Projects
Final Report Date	12/20/2021

Field Name	Field Description
DOE Lead Office	Office of Nuclear Energy
Report Number	GAO-22-105394
Report Title	Nuclear Energy Projects: DOE Should Institutionalize Oversight Plans for Demonstration of New Reactor Types
Final Report Date	9/13/2022

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-22-105636
Report Title	Nuclear Waste: DOE Needs to Improve Transparency in Planning for Disposal of Certain Low-Level Waste
Final Report Date	9/29/2022

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-23-104661
Report Title	NUCLEAR WEAPONS: NNSA Does Not Have a Comprehensive Schedule or Cost Estimate for Pit Production Capability
Final Report Date	1/12/2023

Field Name	Field Description
DOE Lead Office	Office of Management
Report Number	GAO-23-105209
Report Title	Department of Energy Contracting: Additional Actions Could Further Strengthen Competition
Final Report Date	1/24/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-23-105299
Report Title	National Nuclear Security Administration: Fully Incorporating Key Practices for Agency Reform Would Benefit Any Future Organizational Changes
Final Report Date	3/27/2023

Field Name	Field Description
DOE Lead Office	Office of Cybersecurity, Energy Security, and Emergency Response
Report Number	GAO-23-105327
Report Title	Critical Infrastructure: Actions Needed to Better Secure Internet-Connected Devices
Final Report Date	12/1/2022

Field Name	Field Description
DOE Lead Office	Office of Environment, Health, Safety and Security
Report Number	GAO-23-105576
Report Title	Nuclear Security: DOE Should Take Actions to Fully Implement Insider Threat Program
Final Report Date	5/24/2023

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-23-105665
Report Title	Nuclear Waste Cleanup: DOE Needs to Address Weaknesses in Program and Contractor Management at Los Alamos
Final Report Date	7/19/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-23-105714
Report Title	Nuclear Weapons: Program Management Improvements Would Benefit U.S. Efforts to Build New Experimental Capabilities
Final Report Date	8/30/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	GAO-23-106069
Report Title	National Nuclear Security Administration: Additional Actions Could Improve Efficiency of Common Financial Reporting
Final Report Date	6/20/2023

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-23-106081
Report Title	DOE Nuclear Cleanup: Clear Guidance on Categorizing Activities and an Assessment of Contract Cost Effectiveness Needed
Final Report Date	9/28/2023

Field Name	Field Description
DOE Lead Office	Office of River Protection
Report Number	GAO-23-106093
Report Title	Hanford Cleanup: DOE Should Validate Its Analysis of High-Level Waste Treatment Alternatives
Final Report Date	5/24/2023

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	GAO-23-106151
Report Title	Hanford Cleanup: DOE Should Consider Including Expedited Nuclear Waste Treatment Alternatives in Upcoming Analysis
Final Report Date	7/26/2023

Field Name	Field Description
DOE Lead Office	Office of Electricity
Report Number	GAO-23-106180
Report Title	Electricity Grid: DOE Could Better Support Industry Efforts to Ensure Adequate Transformer Reserves
Final Report Date	8/2/2023

Field Name	Field Description
DOE Lead Office	Power Marketing Liaison Office
Report Number	GAO-23-106224
Report Title	Power Marketing Administrations: Additional Steps Are Needed to Better Manage Climate-Related Risks
Final Report Date	3/30/2023

Table 3: OIG Reports considered by DOE to be open for further follow-up actions as of October 1, 2023.

Field Name	Field Description
DOE Lead Office	Office of Environment, Health, Safety and Security
Report Number	IG-0783
Report Title	Beryllium Surface Contamination at the Y-12 National Security Complex
Final Report Date	12/17/2007

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	OAS-M-13-04
Report Title	Mitigation of Natural Disasters at Los Alamos National Laboratory
Final Report Date	6/24/2013

Field Name	Field Description
DOE Lead Office	Office of Technology Transfer
Report Number	OAS-M-14-02
Report Title	The Technology Transfer and Commercialization Efforts at the Department of Energy's National Laboratories
Final Report Date	2/14/2014

Field Name	Field Description
DOE Lead Office	Office of Technology Transfer
Report Number	OAS-M-15-04
Report Title	The Department of Energy's Implementation of the Pilot Program for Agreements for Commercializing Technology
Final Report Date	6/22/2015

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	OAS-M-15-05
Report Title	The National Nuclear Security Administration's Management of Support Service Contracts
Final Report Date	7/10/2015

Field Name	Field Description
DOE Lead Office	Office of Environmental Management
Report Number	DOE-OIG-17-05
Report Title	Department of Energy's West Valley Demonstration Project
Final Report Date	4/26/2017

Field Name	Field Description
DOE Lead Office	Office of the Chief Financial Officer

Report Number	DOE-OIG-19-03
Report Title	The Department of Energy's Funds Distribution System 2.0
Final Report Date	10/31/2018

Field Name	**Field Description**
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-20-18
Report Title	Audit Coverage of Cost Allowability for Honeywell Federal Manufacturing & Technologies, LLC During Fiscal Years 2015 through 2017 Under Department of Energy Contract Nos. DE-NA0000622 and DE-NA0002839
Final Report Date	12/19/2019

Field Name	**Field Description**
DOE Lead Office	Strategic Petroleum Reserve
Report Number	DOE-OIG-20-43
Report Title	The Strategic Petroleum Reserve's Modernization Program
Final Report Date	6/1/2020

Field Name	**Field Description**
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-20-48
Report Title	Audit Coverage of Cost Allowability for Sandia Corporation, Under the Department of Energy Contract DE-AC04-94AL85000, for Fiscal Years 2016 through April 30, 2017
Final Report Date	7/13/2020

Field Name	**Field Description**
DOE Lead Office	Carlsbad Field Office
Report Number	DOE-OIG-20-49
Report Title	Audit Coverage of Cost Allowability for Nuclear Waste Partnership, LLC from October 1, 2014, to September 30, 2017, Under the Department of Energy Contract No. DE-EM0001971
Final Report Date	7/13/2020

Field Name	**Field Description**
DOE Lead Office	Carlsbad Field Office
Report Number	DOE-OIG-20-51
Report Title	Small Business Subcontracting Requirements for Prime Contractors at the Hanford Site
Final Report Date	7/20/2020

Field Name	**Field Description**
DOE Lead Office	Hanford Site Office
Report Number	DOE-OIG-20-57
Report Title	Tank Waste Management at the Hanford Site
Final Report Date	9/30/2020

Field Name	**Field Description**
DOE Lead Office	Richland Site Office
Report Number	DOE-OIG-21-08
Report Title	Contingency Planning Efforts for Information Technology Mission Support Systems at Selected Department of Energy Locations
Final Report Date	12/14/2020

Field Name	Field Description
DOE Lead Office	Richland Site Office
Report Number	DOE-OIG-21-08
Report Title	Contingency Planning Efforts for Information Technology Mission Support Systems at Selected Department of Energy Locations
Final Report Date	12/14/2020

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-21-13
Report Title	The Department of Energy's Wildland Fire Prevention Efforts at the Los Alamos National Laboratory
Final Report Date	2/1/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-21-33
Report Title	Protective Force Program at the Pantex Plant
Final Report Date	7/22/2021

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-OIG-22-05
Report Title	Management of the Cybersecurity Program at the SLAC National Accelerator Laboratory
Final Report Date	11/10/2021

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-22-15
Report Title	Subcontract Administration at the Kansas City National Security Campus
Final Report Date	12/21/2021

Field Name	Field Description
DOE Lead Office	Oak Ridge National Laboratory
Report Number	DOE-OIG-22-43
Report Title	The Management of Emergency Communications Systems at the Oak Ridge Reservation
Final Report Date	9/21/2022

Field Name	Field Description
DOE Lead Office	Office of the Chief Information Officer
Report Number	DOE-OIG-22-44
Report Title	Follow-up on the Department of Energy's Implementation of the Geospatial Data Act of 2018
Final Report Date	9/27/2022

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-272-OIG
Report Title	The Trustees of Princeton University FY2020 Incurred Cost Audit
Final Report Date	10/24/22

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-271-OIG
Report Title	Incurred cost audit of Ames Laboratory for Fiscal Year 2020
Final Report Date	10/27/2022

Field Name	Field Description
DOE Lead Office	Portsmouth/Paducah Project Office
Report Number	DOE-OIG-23-04
Report Title	Depleted Uranium Hexafluoride Conversion Operation
Final Report Date	11/1/2022

Field Name	Field Description
DOE Lead Office	Idaho Field Office
Report Number	DOE-OIG-23-10
Report Title	Performance Management Process at the Idaho National Laboratory
Final Report Date	11/28/2022

Field Name	Field Description
DOE Lead Office	Office of the Chief Financial Office
Report Number	DOE-OIG-23-13
Report Title	Management Letter on The Department of Energy's Fiscal Year 2022 Consolidated Financial Statements
Final Report Date	2/1/2023

Field Name	Field Description
DOE Lead Office	Office of Science
Report Number	DOE-OIG-23-14
Report Title	Audit Coverage in Office of Science Grants
Final Report Date	3/6/2023

Field Name	Field Description
DOE Lead Office	Office of Environment, Health, Safety and Security
Report Number	DOE-OIG-23-15
Report Title	Inspection of the Department's Insider Threat Analysis and Referral Center's Processing of Insider Threat Referrals
Final Report Date	3/6/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-23-16
Report Title	Audit Report on Sandia National Laboratories' Verification of Certificates of Conformance for Nuclear Weapon and Weapon-Related Products
Final Report Date	3/10/23

Field Name	Field Description
DOE Lead Office	Office of the Chief Information Officer
Report Number	DOE-OIG-23-17
Report Title	Management Letter on The Department of Energy's Unclassified Cybersecurity Program for Fiscal Year 2022
Final Report Date	3/20/2023

Field Name	Field Description
DOE Lead Office	Under Secretary of Science and Innovation
Report Number	DOE-OIG-23-18
Report Title	Security over Cloud Computing Technologies at Select Department of Energy Locations
Final Report Date	3/30/2023

Field Name	Field Description
DOE Lead Office	Office of the Chief Financial Officer
Report Number	DOE-OIG-23-22
Report Title	The Department of Energy's Payment Integrity Reporting in the Fiscal Year 2022 Agency Financial Report
Final Report Date	5/17/2023

Field Name	Field Description
DOE Lead Office	Office of Intelligence and Counterintelligence
Report Number	DOE-OIG-23-23
Report Title	Access of Executive Branch Personnel Records
Final Report Date	6/1/2023

Field Name	Field Description
DOE Lead Office	Bonneville Power Administration
Report Number	DOE-OIG-23-25
Report Title	Management of the Bonneville Power Administration's Cybersecurity Program
Final Report Date	6/13/2023

Field Name	Field Description
DOE Lead Office	Southwestern Power Administration
Report Number	DOE-OIG-23-26
Report Title	The Southwestern Federal Power System's Fiscal Year 2022 Combined Financial Statements
Final Report Date	7/13/2023

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-273-OIG
Report Title	Performance Audit of Brookhaven Science Associates, LLC's Statement of Costs Incurred and Claimed (SCIC) Submission Fiscal Year Ended September 30, 2020
Final Report Date	7/31/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-23-28
Report Title	Management of the Los Alamos National Laboratory's Unclassified Cybersecurity Program
Final Report Date	8/11/2023

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-OIG-23-29
Report Title	Fermi Research Alliance, LLC Costs Claimed Under Department of Energy Contract No. DE-AC02-07CH11359 for Fiscal Year 2018
Final Report Date	8/28/2023

Field Name	Field Description
DOE Lead Office	National Nuclear Security Administration
Report Number	DOE-OIG-23-32
Report Title	Contract and Security Concerns at the National Nuclear Security Administration's W88 Alteration 370 Federal Program Office
Final Report Date	9/19/2023

Field Name	Field Description
DOE Lead Office	Western Area Power Administration
Report Number	DOE-OIG-23-33
Report Title	Audit of The Western Federal Power System's Fiscal Year 2022 Combined Financial Statements
Final Report Date	9/19/2023

Field Name	Field Description
DOE Lead Office	Office of River Protection
Report Number	DOE-OIG-23-34
Report Title	Bechtel National, Inc.'s Cost Proposal Estimates for Baseline Change Proposal 02 and Its Contract Modification 384 Counterpart for the Waste Treatment and Immobilization Plant
Final Report Date	9/28/2023

Field Name	Field Description
DOE Lead Office	Science Consolidated Service Center
Report Number	DOE-OIG-23-35
Report Title	Sensitive and High-Risk Property Management at the Brookhaven National Laboratory
Final Report Date	9/29/2023

Field Name	Field Description
DOE Lead Office	Office of Environment, Health, Safety and Security
Report Number	DOE-OIG-23-36
Report Title	Department Oversight of the Employee Concerns Program
Final Report Date	9/29/2023

Field Name	Field Description
DOE Lead Office	Office of Environment, Health, Safety and Security
Report Number	DOE-OIG-23-36
Report Title	Department Oversight of the Employee Concerns Program
Final Report Date	9/29/2023

Field Name	Field Description
DOE Lead Office	Oak Ridge National Lab Site Office
Report Number	DOE-OIG-23-37
Report Title	UT-Battelle LLC Costs Claimed under Department of Energy Contract No. DE-AC05-00OR22725 for Fiscal Year 2017
Final Report Date	9/29/2023

General Provisions

Sec. 301.

(a) No appropriation, funds, or authority made available by this title for the Department of Energy shall be used to initiate or resume any program, project, or activity or to prepare or initiate Requests For Proposals or similar arrangements (including Requests for Quotations, Requests for Information, and Funding Opportunity Announcements) for a program, project, or activity if the program, project, or activity has not been funded by Congress.

(b)

(1) Unless the Secretary of Energy notifies the Committees on Appropriations of both Houses of Congress at least 3 full business days in advance, none of the funds made available in this title may be used to—

(A) make a grant allocation or discretionary grant award totaling $1,000,000 or more;

(B) make a discretionary contract award or Other Transaction Agreement totaling $1,000,000 or more, including a contract covered by the Federal Acquisition Regulation;

(C) issue a letter of intent to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B); or

(D) announce publicly the intention to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B).

(2) The Secretary of Energy shall submit to the Committees on Appropriations of both Houses of Congress within 15 days of the conclusion of each quarter a report detailing each grant allocation or discretionary grant award totaling less than $1,000,000 provided during the previous quarter.

(3) The notification required by paragraph (1) and the report required by paragraph (2) shall include the recipient of the award, the amount of the award, the fiscal year for which the funds for the award were appropriated, the account and program, project, or activity from which the funds are being drawn, the title of the award, and a brief description of the activity for which the award is made.

(c) The Department of Energy may not, with respect to any program, project, or activity that uses budget authority made available in this title under the heading "Department of Energy--Energy Programs", enter into a multiyear contract, award a multiyear grant, or enter into a multiyear cooperative agreement unless—

(1) the contract, grant, or cooperative agreement is funded for the full period of performance as anticipated at the time of award; or

(2) the contract, grant, or cooperative agreement includes a clause conditioning the Federal Government's obligation on the availability of future year budget authority and the Secretary notifies the Committees on Appropriations of both Houses of Congress at least 3 days in advance.

(d) Except as provided in subsections (e), (f), and (g), the amounts made available by this title shall be expended as authorized by law for the programs, projects, and activities specified in the "Final Bill" column in the "Department of Energy" table included under the heading "Title III--Department of Energy" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act).

(e) The amounts made available by this title may be reprogrammed for any program, project, or activity, and the Department shall notify the Committees on Appropriations of both Houses of Congress at least 30 days prior to the use of any proposed reprogramming that would cause any program, project, or activity funding level to increase or decrease by more than $5,000,000 or 10 percent, whichever is less, during the time period covered by this Act.

(f) None of the funds provided in this title shall be available for obligation or expenditure through a reprogramming of funds that—

(1) creates, initiates, or eliminates a program, project, or activity;

(2) increases funds or personnel for any program, project, or activity for which funds are denied or restricted by this Act; or

(3) reduces funds that are directed to be used for a specific program, project, or activity by this Act.

(g)

(1) The Secretary of Energy may waive any requirement or restriction in this section that applies to the use of funds made available for the Department of Energy if compliance with such requirement or restriction would pose a substantial risk to human health, the environment, welfare, or national security.

(2) The Secretary of Energy shall notify the Committees on Appropriations of both Houses of Congress of any waiver under paragraph (1) as soon as practicable, but not later than 3 days after the date of the activity to which a requirement or restriction would otherwise have applied. Such notice shall include an explanation of the substantial risk under paragraph (1) that permitted such waiver.

(h) The unexpended balances of prior appropriations provided for activities in this Act may be available to the same appropriation accounts for such activities established pursuant to this title. Available balances may be merged with funds in the applicable established accounts and thereafter may be accounted for as one fund for the same time period as originally enacted.

(i) Subsections (d), (e), and (f) shall not apply to funds made available in this Act for applied energy research, development, demonstration, and commercial application that are utilized pursuant to section 1001 of the Energy Policy Act of 2005 (42 U.S.C. 16391). Administration and selection of awards pursuant to such section will be in coordination with the offices that oversee the appropriations accounts to which the relevant funding was originally appropriated.

Sec. 302. Funds appropriated by this or any other Act, or made available by the transfer of funds in this Act, for intelligence activities are deemed to be specifically authorized by the Congress for purposes of

section 504 of the National Security Act of 1947 (50 U.S.C. 3094) during fiscal year 2024 until the enactment of the Intelligence Authorization Act for fiscal year 2023.

Sec. 303. None of the funds made available in this title shall be used for the construction of facilities classified as high-hazard nuclear facilities under 10 CFR Part 830 unless independent oversight is conducted by the Office of Enterprise Assessments to ensure the project is in compliance with nuclear safety requirements.

Sec. 304. None of the funds made available in this title may be used to approve critical decision-2 or critical decision-3 under Department of Energy Order 413.3B, or any successive departmental guidance, for construction projects where the total project cost exceeds $100,000,000, until a separate independent cost estimate has been developed for the project for that critical decision.

Sec. 305. Notwithstanding section 161 of the Energy Policy and Conservation Act (42 U.S.C. 6241), upon a determination by the President in this fiscal year that a regional supply shortage of refined petroleum product of significant scope and duration exists, that a severe increase in the price of refined petroleum product will likely result from such shortage, and that a draw down and sale of refined petroleum product would assist directly and significantly in reducing the adverse impact of such shortage, the Secretary of Energy may draw down and sell refined petroleum product from the Strategic Petroleum Reserve. Proceeds from a sale under this section shall be deposited into the SPR Petroleum Account established in section 167 of the Energy Policy and Conservation Act (42 U.S.C. 6247), and such amounts shall be available for obligation, without fiscal year limitation, consistent with that section.

Sec. 306. No funds shall be transferred directly from "Department of Energy--Power Marketing Administration--Colorado River Basins Power Marketing Fund, Western Area Power Administration" to the general fund of the Treasury in the current fiscal year.

Sec. 307. None of the funds made available in this title may be used to support a grant allocation award, discretionary grant award, or cooperative agreement that exceeds $100,000,000 in Federal funding unless the project is carried out through internal independent project management procedures.

Sec. 308. From the unobligated balances of amounts made available to the Department of Energy to carry out activities to improve the resilience of the Puerto Rican electric grid under Public Law 117-328, thirty-five hundredths of one percent of the amounts made available under that section shall be transferred no later than September 30, 2025, to the Office of Inspector General of the Department of Energy to carry out the provisions of the Inspector General Act of 1978, to remain available until expended: Provided, That any amounts so transferred that were previously designated by the Congress as an emergency requirement pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985 or a concurrent resolution on the budget are designated by the Congress as an emergency requirement pursuant to section 251(b)(2)(A)(i) of the Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That such amounts shall be available only if the President designates such amount as an emergency requirement pursuant to section 251(b)(2)(A)(i).

TITLE V—GENERAL PROVISIONS

SEC. 501. None of the funds appropriated by this Act may be used in any way, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913. SEC.

502. None of the funds made available by this Act may be used in contravention of Executive Order No. 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations).

SEC. 503. (a) None of the funds made available in this Act may be used to maintain or establish a computer network unless such network blocks the viewing, down loading, and exchanging of pornography.

(b) Nothing in subsection (a) shall limit the use of funds necessary for any Federal, State, Tribal, or local law enforcement agency or any other entity carrying out criminal investigations, prosecution, or adjudication activities.