

# Department of Energy

## FY 2024

### Budget in Brief



**FY 2024 Congressional Justification**

March 2023





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FY 2024 DOE BUDGET IN BRIEF

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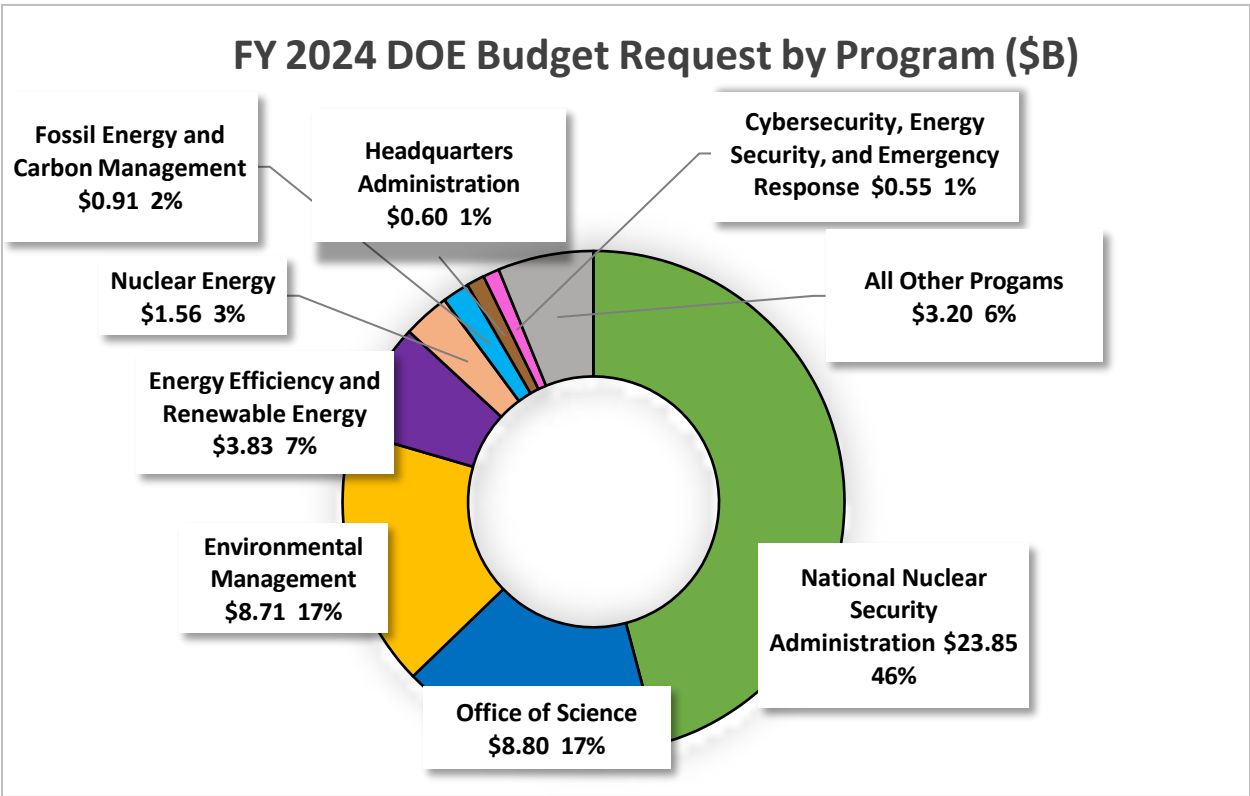
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# FY 2024 PRESIDENT'S BUDGET FOR DOE

DOE BUDGET (\$BILLIONS)	2022 ENACTED	2023 ENACTED*	2024 REQUEST
DEFENSE (050)	\$28.79	\$30.96	\$32.59
NON-DEFENSE (NON-050)	\$15.47	\$16.86	\$19.40
RESCISSION OF PRIOR YEAR BALANCES (NON-050)	\$0	-\$2.05	\$0
<b>TOTAL BUDGET AUTHORITY</b>	<b>\$44.26</b>	<b>\$45.77</b>	<b>\$51.99</b>

\* INCLUDES OPR RESCISSIONS AND SUPPLEMENTAL FUNDING FOR THE OFFICE OF NUCLEAR ENERGY, EXCLUDES SUPPLEMENTAL FUNDING FOR DEFENSE NUCLEAR NONPROLIFERATION TO SUPPORT UKRAINE



**Total = \$51.99 Billion**

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## OVERVIEW

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The President's Fiscal Year (FY) 2024 Budget supports the Nation's prosperity by addressing its energy, environmental, and nuclear security challenges through transformative science and technological solutions.

DOE proposes \$51.99 billion in budget authority for FY 2024, a \$6.2 billion, or 13.6 percent, increase from the FY 2023 Enacted Level. The Budget addresses some of the critical opportunities we face, including advancing clean energy, making historic investments in cutting-edge research at National Laboratories, strengthening the Nation's nuclear security enterprise, creating jobs, advancing environmental justice and equity, reducing health and environmental hazards for at-risk communities, and bolstering the cybersecurity and resilience of the energy sector. DOE is uniquely prepared to continue and expand this urgent work.

### **MAKES HISTORIC INVESTMENTS IN CUTTING-EDGE RESEARCH AT NATIONAL LABORATORIES AND UNIVERSITIES**

The Budget provides a historic investment of \$8.8 billion for the Office of Science, advancing toward the authorized level in the CHIPS and Science Act to support cutting-edge research at DOE's 17 National Laboratories as well as universities, in addition to building and operating world-class scientific user facilities.

Within funding for Science, the Budget provides over \$1 billion to support the goal of achieving fusion on the decadal timescale; provides new computing insight through quantum information science and artificial intelligence that addresses scientific and environmental challenges; expands innovation in the microelectronics ecosystem; leverages data, analytics, and computational infrastructure to strengthen and support U.S. biodefense and pandemic preparedness strategies and plans; furthers the Nation's understanding of climate change; and positions the United States to meet the demand for isotopes. Within EERE, \$35 million is provided to initiate extensive planning for future construction of the 18th National Laboratory. DOE will apply the proposed funding to scale up an existing research facility at a Historically Black College/University (HBCU) or Minority Serving Institution (MSI) or towards construction of an entirely new research facility at an HBCU or MSI creating a pathway to National Laboratory designation.

### **CREATES JOBS BUILDING CLEAN ENERGY INFRASTRUCTURE AND CUTS ENERGY COSTS FOR AMERICAN FAMILIES**

The Budget invests nearly \$2 billion to support clean energy workforce and infrastructure projects across the Nation, including \$425 million to weatherize and retrofit low-income homes, \$83 million to electrify tribal homes and transition tribal colleges and universities to renewable energy, and \$107 million for the Grid Deployment Office to support utilities and State and local governments in building a

grid that is more reliable and resilient and that integrates accelerating levels of renewable energy. The newly established Office of State and Community Energy Programs will launch a new Energy Burden Reduction Pilot with \$50 million to retrofit low-income homes with efficient electrical appliances and systems. These investments, which complement the extraordinary funding in the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) and enable DOE to more fully unleash the benefits of the new programs, will create good-paying jobs while driving progress toward the Administration's goals.

### **ADVANCES CLEAN ENERGY INNOVATION**

To support U.S. preeminence in developing innovative technologies that accelerate the transition to a clean energy economy, the Budget invests \$9.4 billion, an increase of more than 19.7% percent over the 2023 enacted level of \$7.8 billion in DOE clean energy research, development, and demonstration. These investments would improve clean power technologies, strengthen clean energy-enabling transmission and distribution systems, decarbonize transportation, advance carbon management technologies, and improve energy efficiency in industry and buildings. This funding would also leverage the tremendous innovation capacity of the National Laboratories, universities, and entrepreneurs to transform America's power, transportation, buildings, and industrial.

### **ACCELERATES INDUSTRIAL DECARBONIZATION**

Across the more than \$1.2 billion in discretionary DOE industrial decarbonization activities, the Budget reflects the importance of strategically supporting U.S. industrial decarbonization through innovation, targeted investment, and technical assistance. The Budget supports an across-DOE Industrial Technologies joint strategy team to drive adoption of industrial decarbonization solutions including through the Office of Manufacturing and Supply Chains (MESC) and expanded research and development efforts in the Industrial Efficiency and Decarbonization Office. Within the \$1.2 billion described above, the Budget includes \$160 million for the Office of Clean Energy Demonstrations to support at least two large-scale industrial decarbonization projects.

### **STRENGTHENS DOMESTIC AND INTERNATIONAL CLEAN ENERGY SUPPLY CHAINS**

The Budget includes a \$75 million investment to launch a Global Clean Energy Manufacturing effort within MESC that would build resilient supply chains for energy sector components critical to national and energy security through engagement with allies, enabling an effective global response while creating economic opportunities for the United States to support the global clean technology market. In addition, the Administration supports the use of the Defense Production Act at DOE to support rebuilding domestic uranium production and enrichment capacity to establish a secure supply for the Nation's current and future nuclear fleet and also to reduce reliance on foreign supplies of uranium, as well as other clean energy technologies to ensure robust supply chains for electrical transformers and



other critical grid components. The Budget also includes \$75 million in MESC for DOE to carry out the President's recent determinations under the Defense Production Act.

## **REDUCES HEALTH AND ENVIRONMENTAL HAZARDS FOR AT-RISK COMMUNITIES**

The Budget includes \$8.3 billion for the Environmental Management program and reflects this Administration's strong commitment to clean up and protect communities that supported defense production programs and government-sponsored nuclear energy research. As the largest environmental cleanup program in the world, Environmental Management plays a key role in cleaning the environment, contributing to national security priorities, investing in the future and aiding community efforts to build strong economies, growing jobs, and preparing for a clean energy future. This investment will enable the Department of Energy to treat radioactive tank waste, take down contaminated buildings, ship and dispose legacy waste, and clean soil and groundwater across EM sites.

The Budget includes broad support for underserved communities, including \$70 million for Community Capacity Building Initiatives in the Office of Environmental Management and National Nuclear Security Administration, to address areas of persistent poverty around the Department's sites.

The Budget also includes \$196 million for the Office of Legacy Management to protect 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.

## **STRENGTHENS THE CYBERSECURITY AND RESILIENCE OF THE ENERGY SECTOR**

### ***Office of Cybersecurity, Energy Security, and Emergency Response***

The Budget provides \$245 million to enhance the security of energy technologies and the energy supply chain. The Budget also supports increased assistance to States, local governments, Tribes, and Territories for emergency planning and preparation. An additional \$301 million is provided for the Strategic Petroleum Reserve, including \$49.8 million in additional funding for the Major Maintenance Program for required upgrades to the West Hackberry Physical Security Program.

## **STRENGTHENS THE NATION'S NUCLEAR SECURITY ENTERPRISE**

The Budget makes an historic investment of \$23.845 billion in the Nation's nuclear security enterprise to implement the President's National Security Strategy and the Nuclear Posture Review (NPR). The Budget supports a safe, secure, and effective nuclear stockpile. In addition, the Budget continues robust, executable funding for the recapitalization of the National Nuclear Security Administration's physical infrastructure, including essential scientific and production facilities to ensure the deterrent remains viable.

### ***Stockpile Management***

The Budget proposes \$5.2 billion in FY 2024 for Stockpile Management to maintain a safe, secure, reliable, and effective nuclear weapons stockpile through five areas that directly support the Nation's nuclear weapons stockpile: stockpile modernization, stockpile sustainment, weapons dismantlement and disposition, production operations, and nuclear enterprise assurance. The Budget includes \$3.1 billion for five major modernization projects that extend the lifetime of the nation's nuclear stockpile while addressing required updates, replacing aging/obsolete components to ensure continued service life, and enhancing security and safety features.

### ***Production Modernization***

The Budget includes \$5.6 billion for Production Modernization to support modernizing the facilities, infrastructure, and equipment that produce materials and components to meet stockpile requirements and maintain the Nation's nuclear deterrent. The program encompasses five components critical to weapon performance and sustainment of the Nation's nuclear weapons stockpile: primary capability modernization, secondary capability modernization, tritium and domestic uranium enrichment, non-nuclear capability modernization, and capability-based investments. The Budget invests \$2.8 billion in Plutonium Modernization, which works towards reestablishing the Nation's capability to produce 80 plutonium pits per year.

### ***Stockpile Research, Technology, and Engineering***

The Budget incorporates \$3.2 billion for Stockpile Research, Technology, and Engineering to provide the scientific foundation for stockpile decisions and actions, develop the personnel required to support the current and future stockpile, and provide the capabilities, tools, and components needed to support all missions. The funding includes \$1 billion in assessment sciences, which funds experiments focused on design and production requirements and continues the implementation of the Enhanced Capabilities for Subcritical Experiments (ECSE) subprogram, and \$782 million for Advanced Simulation and Computing, which is preparing for NNSA's first exascale high-performance computing capability.

### ***Infrastructure and Operations***

The Budget proposes \$2.8 billion for Infrastructure and Operations to maintain, operate, and modernize the NNSA infrastructure in a safe and secure manner that supports program execution while maximizes return on investment and reduces enterprise risk. The budget includes funding for the initial phase of the Kansas City Non-nuclear Expansion Transformation (KC NExT), a multi-year effort to increase manufacturing capacity to support the nuclear modernization program. The budget also includes \$718 million in Maintenance and Repair for predictive, preventive, and corrective maintenance activities to maintain facilities, property, assets, systems, roads, and vital safety systems.

## **RESTORES AMERICAN LEADERSHIP IN ARMS CONTROL AND NONPROLIFERATION**

The Budget includes \$2.5 billion for Defense Nuclear Nonproliferation to enhance DOE's ability to reduce nuclear risks and counter the global challenge of nuclear proliferation. As called for in the Administration's National Security Strategy, the Budget supports DOE's efforts to secure nuclear and radiological materials and prevent terrorists from acquiring them. The Budget also continues to strengthen the Nation's capability to respond to nuclear incidents at home and abroad. The Budget also

funds the development of more demanding verification technologies as part of an integrated approach to the future of arms control.

## **POWERS THE NUCLEAR NAVY**

The Budget includes \$1.96 billion for DOE's Naval Nuclear Propulsion Program to ensure safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers. The Budget prioritizes investments in research and development to maintain American dominance while continuing to support improvements to the Naval Nuclear Laboratory infrastructure. The Budget also funds the strong technical and engineering foundation that supports the President's Australia – United Kingdom – United States Partnership (AUKUS), which provides Australia with a conventionally-armed, nuclear-powered submarine capability.

## **SUPPORTS OTHER DEFENSE ACTIVITIES**

The Budget provides \$1.1 billion to support defense activities conducted by the Department including Legacy Management (LM), Environment, Health, Safety and Security, Enterprise Assessments, Specialized Security Activities, Hearings and Appeals, and Defense Related Administrative Support (DRAS). DRAS offsets administrative expenses for work supporting defense-oriented activities in Departmental Administration.

## **ADMINISTRATION AND OVERSIGHT**

### ***Energy Information Agency***

The Budget includes \$156.6 million for the Energy Information Agency (EIA) to enable EIA to continue delivering the critical energy information products on which its stakeholders rely, including weekly petroleum and natural gas inventory reports, comprehensive monthly forecasts of energy markets, and long-term outlooks for U.S. and global energy production and consumption.

### ***Office of Technology Transitions***

The Budget includes \$56.6 million to focus on commercialization of promising technologies. This includes funding the Energy Program for Innovation Clusters (EPIC) to encourage growth of regional energy innovation ecosystems, training National Laboratory scientists and engineers on customer outreach and partnership through the private sector through Energy I-Corps, supporting an Energy Tech University prize, supporting market and commercialization analytics, and coordinating tech transfer. Funding is also included within the budget for the Foundation for Energy Security and Innovation to accelerate the commercialization of new and existing energy technologies by raising and investing funds through engagements with the private sector and philanthropic communities.

### ***Departmental Administration***

The Budget includes \$433.5 million for DA to fund management and mission support organizations that have enterprise-wide responsibility. This includes international engagement and promotion of global

market opportunities, administration, accounting, budgeting, contract and project management, human resources, congressional and intergovernmental liaison, energy policy, information management, life-cycle asset management, legal services, workforce diversity and equal employment opportunity, ombudsman services, small business advocacy, sustainability, and public affairs. In FY 2024 the Budget includes new statistical and analytical capabilities within the Office of Policy, with support from the Energy Information Agency.

***Office of the Inspector General***

The DOE Office of the Inspector General (OIG) has been historically underfunded. The Budget includes \$165.2 million in discretionary authority as a significant step in correcting the shortfall. Also, the Administration has proposed \$150 million in additional mandatory funding for under-resourced OIGs, including the DOE OIG, in FY 2024.

**DEPARTMENT OF ENERGY**  
**Appropriation Summary**  
**(Dollars in Thousands)**

	FY 2022	FY 2023	FY 2024	FY 2024 President's Budget vs. FY 2023	
	Enacted <sup>(1)</sup>	Enacted <sup>(1), (2), (3)</sup>	President's Budget	Enacted	
				\$	%
<b>Department of Energy Budget by Appropriation</b>					
Energy Efficiency and Renewable Energy	3,200,000	3,460,000	3,826,116	+366,116	+10.6%
Electricity	277,000	350,000	297,475	-52,525	-15.0%
Cybersecurity, Energy Security and Emergency Response	185,804	200,000	245,475	+45,475	+22.7%
Strategic Petroleum Reserve	219,000	207,175	280,969	+73,794	+35.6%
Naval Petroleum and Oil Shale Reserves	13,650	13,004	13,010	+6	+0.0%
SPR Petroleum Account	7,350	-2,051,900	0	+2,051,900	+100.0%
Northeast Home Heating Oil Reserve	6,500	7,000	7,150	+150	+2.1%
<b>Total, Petroleum Reserve Accounts</b>	<b>246,500</b>	<b>-1,824,721</b>	<b>301,129</b>	<b>+2,125,850</b>	<b>+116.5%</b>
<b>Total, Cybersecurity, Energy Security, and Emergency Response</b>	<b>432,304</b>	<b>-1,624,721</b>	<b>546,604</b>	<b>+2,171,325</b>	<b>+133.6%</b>
Nuclear Energy (270) <sup>(1), (2), (3)</sup>	1,505,000	1,623,000	1,384,887	-238,113	-14.7%
Fossil Energy and Carbon Management	825,000	890,000	905,475	+15,475	+1.7%
Uranium Enrichment Decontamination and Decommissioning (UED&D)	860,000	879,052	857,482	-21,570	-2.5%
Energy Information Administration	129,087	135,000	156,550	+21,550	+16.0%
Non-Defense Environmental Cleanup	333,863	358,583	348,700	-9,883	-2.8%
Science <sup>(2)</sup>	7,475,000	8,100,000	8,800,400	+700,400	+8.6%
Office of Technology Transitions	19,470	22,098	56,550	+34,452	+155.9%
Office of Clean Energy Demonstrations	20,000	89,000	215,300	+126,300	+141.9%
Federal Energy Management Program	0	0	82,200	+82,200	N/A
Grid Deployment Office	0	0	106,600	+106,600	N/A
Office of Manufacturing & Energy Supply Chains	0	0	179,490	+179,490	N/A
Office of State and Community Programs	0	0	705,000	+705,000	N/A
Advanced Research Projects Agency - Energy	450,000	470,000	650,200	+180,200	+38.3%
Nuclear Waste Fund Oversight	27,500	10,205	12,040	+1,835	+18.0%
Departmental Administration	240,000	283,000	433,475	+150,475	+53.2%
Indian Energy Policy and Programs	58,000	75,000	110,050	+35,050	+46.7%
Inspector General	78,000	86,000	165,161	+79,161	+92.0%
Title 17 Innovative Technology Loan Guarantee Program	29,000	-136,018	-126,524	+9,494	+7.0%
Advanced Technology Vehicles Manufacturing Loan Program	5,000	9,800	13,000	+3,200	+32.7%
Tribal Energy Loan Guarantee Program	2,000	4,000	6,300	+2,300	+57.5%
<b>Total, Credit Programs</b>	<b>36,000</b>	<b>-122,218</b>	<b>-107,224</b>	<b>+14,994</b>	<b>+12.3%</b>
Energy Projects	0	221,969	0	-221,969	-100.0%
<b>Total, Energy Programs</b>	<b>15,966,224</b>	<b>15,305,968</b>	<b>19,732,531</b>	<b>+4,426,563</b>	<b>+28.9%</b>
Weapons Activities	15,920,000	17,116,119	18,832,947	+1,716,828	+10.0%
Defense Nuclear Nonproliferation	2,354,000	2,490,000	2,508,959	+18,959	+0.8%
Naval Reactors <sup>(1)</sup>	1,918,000	2,081,445	1,964,100	-117,345	-5.6%
Federal Salaries and Expenses	464,000	475,000	538,994	+63,994	+13.5%
National Nuclear Security Administration Rescissions	-288,133	0	0	0	N/A
<b>Total, National Nuclear Security Administration</b>	<b>20,367,867</b>	<b>22,162,564</b>	<b>23,845,000</b>	<b>+1,682,436</b>	<b>+7.6%</b>
Defense Environmental Cleanup	6,710,000	7,025,000	7,073,587	+48,587	+0.7%
Other Defense Activities	985,000	1,035,000	1,075,197	+40,197	+3.9%
Defense Uranium Enrichment D&D	573,333	586,035	427,000	-159,035	-27.1%
<b>Total, Environmental and Other Defense Activities</b>	<b>8,268,333</b>	<b>8,646,035</b>	<b>8,575,784</b>	<b>-70,251</b>	<b>-0.8%</b>
<b>Total, Atomic Energy Defense Activities</b>	<b>28,786,000</b>	<b>30,958,599</b>	<b>32,598,517</b>	<b>+1,639,918</b>	<b>+5.3%</b>
Nuclear Energy (050)	149,800	150,000	177,733	+27,733	+18.5%
Southeastern Power Administration	0	0	0	0	N/A
Southwestern Power Administration	10,400	10,608	11,440	+832	+7.8%
Western Area Power Administration	90,772	98,732	99,872	+1,140	+1.2%
Falcon and Amistad Operating and Maintenance Fund	228	228	228	0	N/A
Colorado River Basins Power Marketing Fund	0	0	0	0	N/A
<b>Total, Power Marketing Administrations</b>	<b>101,400</b>	<b>109,568</b>	<b>111,540</b>	<b>+1,972</b>	<b>+1.8%</b>
Federal Energy Regulatory Commission	0	0	0	0	N/A
<b>Total, Energy and Water Development and Related Agencies</b>	<b>44,853,624</b>	<b>46,374,135</b>	<b>52,442,588</b>	<b>+6,068,453</b>	<b>+13.1%</b>
Excess Fees and Recoveries, FERC	-9,000	-9,000	-9,000	0	N/A
Title XVII Loan Guar. Prog Section 1703 Negative Credit Subsidy Receipt	-10,000	-14,000	-7,000	+7,000	+50.0%
UED&D Fund Offset	-573,333	-586,035	-427,000	+159,035	+27.1%
<b>Discretionary Funding by Appropriation</b>	<b>44,261,291</b>	<b>45,765,100</b>	<b>51,999,588</b>	<b>+6,234,488</b>	<b>+13.6%</b>
<b>DOE Budget Function</b>	<b>44,261,291</b>	<b>45,765,100</b>	<b>51,999,588</b>	<b>+6,234,488</b>	<b>+13.6%</b>
NNSA Defense (050) Total	20,367,867	22,162,564	23,845,000	+1,682,436	+7.6%
Non-NNSA Defense (050) Total	8,418,133	8,796,035	8,753,517	-42,518	-0.5%
<b>Defense (050)</b>	<b>28,786,000</b>	<b>30,958,599</b>	<b>32,598,517</b>	<b>+1,639,918</b>	<b>+5.3%</b>
Science (250)	7,475,000	8,100,000	8,800,400	+700,400	+8.6%
Energy (270)	8,000,291	6,706,501	10,600,671	+3,894,170	+58.1%
<b>Non-Defense (Non-050)</b>	<b>15,475,291</b>	<b>14,806,501</b>	<b>19,401,071</b>	<b>+4,594,570</b>	<b>+31.0%</b>

<sup>(1)</sup> Funding does not reflect the mandated transfer of \$92.75 million in FY 2022 and \$99.75 million in FY 2023 from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor.

<sup>(2)</sup> Funding does not reflect the mandated 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.

<sup>(3)</sup> 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). This funding is a part of the total \$12.5 billion governmentwide originally intended to be base appropriations that was designated as emergency requirements for purposes of the 2023 Omnibus agreement.

**DEPARTMENT OF ENERGY**  
**Appropriation Summary including Outyears<sup>(1)</sup>**  
(dollars in thousands)

	<b>FY 2024 President's Budget</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>
<b>Department of Energy Budget by Appropriation</b>					
Energy Efficiency and Renewable Energy	3,826,116	3,914,000	4,004,000	4,096,000	4,190,000
Electricity	297,475	304,000	311,000	318,000	325,000
Cybersecurity, Energy Security, and Emergency Response	245,475	251,000	256,000	262,000	268,000
Strategic Petroleum Reserves	280,969	287,000	294,000	301,000	308,000
Naval Petroleum & Oil Shale Reserves	13,010	13,000	14,000	14,000	14,000
Northeast Home Heating Oil Reserves	7,150	7,000	7,000	7,000	8,000
<b>Total, Petroleum Reserve Accounts</b>	<b>301,129</b>	<b>307,000</b>	<b>315,000</b>	<b>322,000</b>	<b>330,000</b>
<b>Total, CESER &amp; Petroleum Reserves</b>	<b>546,604</b>	<b>558,000</b>	<b>571,000</b>	<b>584,000</b>	<b>598,000</b>
Grid Deployment Office	106,600	109,000	112,000	115,000	117,000
Federal Energy Management Program	82,200	84,000	86,000	88,000	90,000
Office of Manufacturing & Energy Supply Chains	179,490	183,000	187,000	192,000	196,000
Office of State and Community Energy Programs	705,000	721,000	738,000	755,000	772,000
Nuclear Energy (270)	1,384,887	1,417,000	1,449,000	1,483,000	1,517,000
Fossil Energy and Carbon Management	905,475	926,000	947,000	969,000	991,000
Uranium Enrichment Decontamination and Decommissioning Fund (UED&D)	857,482	877,000	897,000	918,000	939,000
Energy Information Administration	156,550	161,000	164,000	168,000	172,000
Non-Defense Environmental Cleanup	348,700	357,000	365,000	374,000	382,000
Science	8,800,400	9,002,000	9,209,000	9,421,000	9,638,000
Office of Technology Transitions	56,550	58,000	60,000	61,000	62,000
Office of Clean Energy Demonstrations	215,300	220,000	225,000	230,000	236,000
Advanced Research Projects Agency- Energy	650,200	665,000	680,000	696,000	712,000
Nuclear Waste Disposal	12,040	12,000	13,000	13,000	13,000
Departmental Administration	433,475	443,000	453,000	464,000	474,000
Indian Energy Policy & Programs	110,050	113,000	115,000	118,000	120,000
Office of the Inspector General	165,161	169,000	173,000	177,000	181,000
Title 17 Innovative Technology Loan Guarantee Program	-126,524	-219,000	-271,000	57,000	59,000
Advanced Technology Vehicles Manufacturing Loan Program	13,000	13,000	14,000	14,000	14,000
Tribal Energy Loan Guarantee Program	6,300	6,000	6,000	6,000	7,000
<b>Total, Loan Programs</b>	<b>-107,224</b>	<b>-200,000</b>	<b>-251,000</b>	<b>77,000</b>	<b>80,000</b>
<b>Total, Energy Programs</b>	<b>19,732,531</b>	<b>20,093,000</b>	<b>20,508,000</b>	<b>21,317,000</b>	<b>21,805,000</b>
Federal Salaries and Expenses	538,994	560,956	583,940	603,562	616,938
Weapons Activities	18,832,947	19,390,942	19,818,932	20,285,683	20,747,386
Defense Nuclear Nonproliferation	2,508,959	2,660,502	2,785,887	2,887,670	2,926,376
Naval Reactors	1,964,100	2,187,600	2,132,241	2,076,085	2,105,300
<b>Total, National Nuclear Security Administration</b>	<b>23,845,000</b>	<b>24,800,000</b>	<b>25,321,000</b>	<b>25,853,000</b>	<b>26,396,000</b>
Defense Environmental Cleanup	7,073,587	7,237,000	7,403,000	7,573,000	7,626,000
Defense UED&D Fund	427,000	437,000	447,000	457,000	460,000
Other Defense Activities	1,075,197	1,100,000	1,125,000	1,151,000	1,159,000
<b>Total, Environmental and Other Defense Activities</b>	<b>8,575,784</b>	<b>8,774,000</b>	<b>8,975,000</b>	<b>9,181,000</b>	<b>9,245,000</b>
Nuclear Energy (050)	177,733	182,000	186,000	191,000	192,000
<b>Total, Atomic Energy Defense Activities</b>	<b>32,598,517</b>	<b>33,756,000</b>	<b>34,482,000</b>	<b>35,225,000</b>	<b>35,833,000</b>
Southeastern Power Administration	-	-	-	-	-
Southwestern Power Administration	11,440	12,000	12,000	12,000	13,000
Western Area Power Administration	99,872	102,000	105,000	107,000	109,000
Falcon and Amistad Operating and Maintenance Fund	228	-	-	-	-
Colorado River Basins Marketing Fund	-	-	-	-	-
<b>Total, Power Marketing Administrations</b>	<b>111,540</b>	<b>114,000</b>	<b>117,000</b>	<b>119,000</b>	<b>122,000</b>
<b>Total, Energy and Water Development and Related Agencies</b>	<b>111,540</b>	<b>114,000</b>	<b>117,000</b>	<b>119,000</b>	<b>122,000</b>
Excess Fees and Recoveries, FERC	-9,000	-9,000	-9,000	-9,000	-9,000
Title XVII Loan Guar. Prog Section 1703 Negative Credit Subsidy Receipt	-7,000	-	-	-	-
UED&D Fund Discretionary Payments	-427,000	-437,000	-447,000	-457,000	-460,000
<b>Total, Receipts &amp; Offsets</b>	<b>-443,000</b>	<b>-446,000</b>	<b>-456,000</b>	<b>-466,000</b>	<b>-469,000</b>
<b>Discretionary Funding by Appropriation</b>	<b>51,999,588</b>	<b>53,517,000</b>	<b>54,651,000</b>	<b>56,195,000</b>	<b>57,291,000</b>

(1) Additional information about funding highlights can be found in the overview sections for each major account. The Department looks forward to working with the Committees on options to address outyear funding questions as part of a future-years energy program that covers the fiscal year of the budget submission and the four succeeding years

**DEPARTMENT OF ENERGY  
Organization Summary  
(Dollars in Thousands)**

FY 2022 Enacted <sup>(1)</sup>	FY 2023 Enacted <sup>(1), (2), (3)</sup>	FY 2024 President's Budget	FY 2024 President's Budget vs. FY 2023	
			Enacted	
			\$	%

**Department of Energy Budget by Organization**

**Undersecretary for Nuclear Security and National Nuclear Security Administration**

Federal Salaries and Expenses	464,000	475,000	538,994	+63,994	+13.5%
Weapons Activities	15,920,000	17,116,119	18,832,947	+1,716,828	+10.0%
Defense Nuclear Nonproliferation	2,354,000	2,490,000	2,508,959	+18,959	+0.8%
Naval Reactors <sup>(1)</sup>	1,918,000	2,081,445	1,964,100	-117,345	-5.6%
National Nuclear Security Administration Rescissions	-288,133	0	0	0	N/A
<b>Total, Undersecretary for Nuclear Security and National Nuclear Security Administration</b>	<b>20,367,867</b>	<b>22,162,564</b>	<b>23,845,000</b>	<b>+1,682,436</b>	<b>+7.6%</b>

**Undersecretary for Science and Innovation**

Science <sup>(2)</sup>	7,475,000	8,100,000	8,800,400	+700,400	+8.7%
Energy Efficiency and Renewable Energy	3,200,000	3,460,000	3,826,116	+366,116	+10.6%
Fossil Energy and Carbon Management	825,000	890,000	905,475	+15,475	+1.7%
Nuclear Energy <sup>(1), (2), (3)</sup>	1,654,800	1,773,000	1,562,620	-210,380	-11.9%
Nuclear Waste Fund Oversight	27,500	10,205	12,040	+1,835	+18.0%
Electricity	277,000	350,000	297,475	-52,525	-15.0%
Energy Projects	0	221,969	0	-221,969	-100.0%
<b>Total, Undersecretary for Science and Innovation</b>	<b>13,459,300</b>	<b>14,805,174</b>	<b>15,404,126</b>	<b>+598,952</b>	<b>+4.1%</b>

**Undersecretary for Infrastructure (S3)**

Office of Clean Energy Demonstrations	20,000	89,000	215,300	+126,300	+141.9%
<b>CESER and Petroleum Reserves</b>					
Cybersecurity, Energy Security and Emergency Response	185,804	200,000	245,475	+45,475	+22.7%
<b>Petroleum Reserves</b>					
Strategic Petroleum Reserve	219,000	207,175	280,969	+73,794	+35.6%
Naval Petroleum and Oil Shale Reserves	13,650	13,004	13,010	+6	+0.1%
SPR Petroleum Account	7,350	-2,051,900	0	+2,051,900	-100.0%
Northeast Home Heating Oil Reserve	6,500	7,000	7,150	+150	+2.1%
<b>Total, Petroleum Reserves</b>	<b>246,500</b>	<b>-1,824,721</b>	<b>301,129</b>	<b>+1,215,850</b>	<b>-116.5%</b>
<b>Total, CESER and Petroleum Reserves</b>	<b>432,304</b>	<b>-1,624,721</b>	<b>546,604</b>	<b>+2,171,325</b>	<b>-133.6%</b>
Federal Energy Management Program	0	0	82,200	+82,200	N/A
Indian Energy Policy and Programs	58,000	75,000	110,050	+35,050	+46.7%
Grid Deployment Office	0	0	106,600	+106,600	N/A
<b>Loan Program Offices</b>					
Title 17 Innovative Technology Loan Guarantee Program	29,000	-136,018	-126,524	+9,494	-7.0%
Advanced Technology Vehicles Manufacturing Loan Program	5,000	9,800	13,000	+3,200	+32.7%
Tribal Energy Loan Guarantee Program	2,000	4,000	6,300	+2,300	+57.5%
<b>Total, Loan Program Offices</b>	<b>36,000</b>	<b>-122,218</b>	<b>-107,224</b>	<b>+14,994</b>	<b>-12.3%</b>
<b>Power Marketing Administrations (PMAs)</b>					
Southeastern Power Administration	0	0	0	0	N/A
Southwestern Power Administration	10,400	10,608	11,440	+832	+7.8%
Western Area Power Administration	90,772	98,732	99,872	+1,140	+1.2%
Falcon and Amistad Operating and Maintenance Fund	228	228	228	0	N/A
Colorado River Basins Power Marketing Fund	0	0	0	0	N/A
<b>Total, Power Marketing Administrations (PMAs)</b>	<b>101,400</b>	<b>109,568</b>	<b>111,540</b>	<b>+1,972</b>	<b>+1.8%</b>
Office of Manufacturing & Energy Supply Chains	0	0	179,490	+179,490	N/A
Office of State and Community Programs	0	0	705,000	+705,000	N/A
<b>Total, Undersecretary for Infrastructure (S3)</b>	<b>647,704</b>	<b>-1,473,371</b>	<b>1,949,560</b>	<b>+3,422,931</b>	<b>-232.3%</b>

**Direct Reports**

<b>Environmental Management</b>					
Non-Defense Environmental Cleanup	333,863	358,583	348,700	-9,883	-2.8%
Uranium Enrichment Decontamination and Decommissioning (UED&D)	860,000	879,052	857,482	-21,570	-2.5%
Defense Environmental Cleanup	6,710,000	7,025,000	7,073,587	+48,587	+0.7%
Defense Uranium Enrichment D&D	573,333	586,035	427,000	-159,035	-27.1%
<b>Total, Environmental Management</b>	<b>8,477,196</b>	<b>8,848,670</b>	<b>8,706,769</b>	<b>-141,901</b>	<b>-1.6%</b>
Environment, Health, Safety, and Security	206,320	215,539	231,263	+15,724	+7.3%
Office of Enterprise Assessments	83,384	85,427	94,154	+8,727	+10.2%
Specialized Security Activities	328,500	335,000	345,330	+10,330	+3.1%
Legacy Management	178,730	190,909	196,302	+5,393	+2.8%
Defense-Related Administrative Support	183,710	203,648	203,649	+1	0.0%
Office Of Hearings And Appeals	4,356	4,477	4,499	+22	+0.5%
Advanced Research Projects Agency - Energy	450,000	470,000	650,200	+180,200	+38.3%
Energy Information Administration	129,087	135,000	156,550	+21,550	+16.0%
Office of the Secretary	5,582	6,642	6,737	+95	+1.4%
Congressional & Intergovernmental Affairs	6,000	5,000	7,198	+2,198	+44.0%
Office of the Chief Financial Officer	56,591	62,283	67,345	+5,062	+8.1%
Economic Impact & Diversity	20,000	34,140	53,665	+19,525	+57.2%
Office of International Affairs	28,000	32,000	50,142	+18,142	+56.7%
Chief Information Officer	197,000	215,000	245,169	+30,169	+14.0%
Artificial Intelligence and Technology Office	1,000	1,000	0	-1,000	-100.0%
Strategic Partnership Projects	40,000	40,000	40,000	0	N/A
Miscellaneous Revenues	-100,578	-100,578	-100,578	0	N/A
Office of Management	61,400	66,000	103,245	+37,245	+56.4%
Project Management Oversight & Assessments	13,325	13,550	14,953	+1,403	+10.4%
Office of Human Capital Management	28,200	35,300	40,144	+4,844	+13.7%
Office of Small & Disadvantaged Business Utilization	3,800	4,200	5,472	+1,272	+30.3%
General Counsel	38,000	41,725	45,630	+3,905	+9.4%
Office of Policy	19,454	23,950	52,037	+28,087	+117.3%
Public Affairs	5,936	5,936	5,965	+29	+0.5%
Undistributed Other Departmental Administration	0	500	0	-500	-100.0%
Defense Related Administrative Support	-183,710	-203,648	-203,649	-1	0.0%
Office of Technology Transitions (OTT)	19,470	22,098	56,550	+34,452	+155.9%
Inspector General	78,000	86,000	165,161	+79,161	+92.1%
<b>Total, Direct Reports</b>	<b>10,378,753</b>	<b>10,879,768</b>	<b>11,243,902</b>	<b>+364,134</b>	<b>+3.4%</b>
Federal Energy Regulatory Commission	0	0	0	0	N/A

**DEPARTMENT OF ENERGY  
Organization Summary  
(Dollars in Thousands)**

	FY 2022 Enacted <sup>(1)</sup>	FY 2023 Enacted <sup>(1), (2), (3)</sup>	FY 2024 President's Budget	FY 2024 President's Budget vs. FY 2023 Enacted	
				\$	%
<b>Receipts and Offsets</b>					
Receipts and Offsets	-592,333	-609,035	-443,000	+166,035	-27.3%
<b>Total, Receipts and Offsets</b>	<b>-592,333</b>	<b>-609,035</b>	<b>-443,000</b>	<b>+166,035</b>	<b>-27.3%</b>
<b>Total, Funding by Organization</b>	<b>44,261,291</b>	<b>45,765,100</b>	<b>51,999,588</b>	<b>+6,234,488</b>	<b>+13.6%</b>

<sup>(1)</sup> Funding does not reflect the mandated transfer of \$92.75 million in FY 2022 and \$99.75 million in FY 2023 from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor

<sup>(2)</sup> Funding does not reflect the mandated 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.

<sup>(3)</sup> 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). This funding is a part of the total \$12.5 billion governmentwide originally intended to be base appropriations that was designated as emergency requirements for purposes of the 2023 Omnibus agreement.



# **Program Office Details**

**NATIONAL NUCLEAR SECURITY ADMINISTRATION**

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted	
				\$	%
<b>National Nuclear Security Administration</b>					
Federal Salaries and Expenses	464,000	475,000	538,994	+63,994	+13.5%
Weapons Activities	15,920,000	17,116,119	18,832,947	+1,716,828	+10.0%
Defense Nuclear Nonproliferation	2,354,000	2,490,000	2,508,959	+18,959	+0.8%
Naval Reactors <sup>b</sup>	1,918,000	2,081,445	1,964,100	-117,345	-5.6%
<b>Total, National Nuclear Security Administration</b>	<b>20,656,000</b>	<b>22,162,564</b>	<b>23,845,000</b>	<b>+1,682,436</b>	<b>+7.6%</b>

**Appropriation Overview**

The **National Nuclear Security Administration (NNSA)** FY 2024 Budget Request is \$23,845,000,000 to fund NNSA’s mission to support the security and safety of our Nation. NNSA’s FY 2024 Budget Request pursues five major national security endeavors:

- Maintain a safe, secure, reliable, and effective nuclear weapons stockpile;
- Reduce global nuclear threats and keep materials out of the hands of terrorists;
- Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy;
- Strengthen key science, technology and engineering capabilities to support all missions; and,
- Modernize the Nuclear Security Enterprise.

Key to all these efforts is providing the necessary federal oversight for growing mission requirements.

**Program Highlights**

The **Weapons Activities** FY 2024 Budget Request is \$18,832,947,000, a \$1,716,828,000 (10.0 percent) increase above FY 2023 Enacted.

The **Defense Nuclear Nonproliferation (DNN)** FY 2024 Budget Request is \$2,508,959,000, a \$18,959,000 (0.8 percent) increase from FY 2023 Enacted.

The **NNSA Federal Salaries and Expenses (FSE)** FY 2024 Budget Request is \$538,994,000, a \$63,994,000 (13.5 percent) increase above FY 2023 Enacted.

The **Naval Reactors (NR)** FY 2024 Budget Request is for \$1,964,100,000, a \$117,345,000 (5.6 percent) decrease from FY 2023 Enacted.

**Major Out-year Priorities and Assumptions**

NNSA’s Future Years Nuclear Security (FYNSP) topline for FY 2025– FY 2028 is \$102.4 billion. The Request is fully informed by and supports the 2022 Nuclear Posture Review and National Security Strategy and is also aligned with Department of Defense (DoD) requirements to ensure the U.S. nuclear deterrent continues to be safe, secure, reliable, and effective. The Request continues to modernize America’s nuclear stockpile and infrastructure, and the underlying science that supports strategic decisions and certification of the stockpile, as detailed in the annual *Stockpile Stewardship and Management Plan (SSMP)*. The Request supports the U.S Navy’s nuclear fleet through safe and effective integrated nuclear propulsion systems. The Request also supports the nonproliferation goals outlined in NNSA’s *Prevent, Counter, and Respond—A Strategic Plan to Reduce Global Nuclear Threats (NPCR)*.

<sup>a</sup> FY 2022 Enacted amounts exclude rescission of \$282 million from project 99-D-143, Mixed Oxide Fuel Fabrication Facility, SRS within Defense Nuclear Nonproliferation and \$6 million from completed construction projects within Naval Reactors.

<sup>b</sup> Funding in the table and comparisons in the text do not reflect the mandated transfer of \$92.75 million in FY 2022 and \$99.75 million in FY 2023 to the Office of Nuclear Energy for operation of the Advanced Test Reactor

**FEDERAL SALARIES AND EXPENSES – NNSA**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Federal Salaries and Expenses</b>					
Federal Salaries and Expenses	464,000	491,800	538,994	+47,194	+9.6%
Use of Prior Year Balances	-	(16,800)	-	+16,800	N/A
<b>Total, Federal Salaries and Expenses</b>	<b>464,000</b>	<b>475,000</b>	<b>538,994</b>	<b>+63,994</b>	<b>+13.5%</b>

**Appropriation Overview**

The **National Nuclear Security Administration (NNSA) Federal Salaries and Expenses (FSE)** funds recruiting, training, and retention of federal staff who perform program and project management for Weapons Activities (WA) and Defense Nuclear Nonproliferation (DNN). It does not include funding for the Federal staff supporting the Weapons Activities (WA) Secure Transportation Asset program or the Naval Reactors (NR) account. The growth in the FSE account will support 2,006 Federal Full-time Equivalents (FTEs) which is 90 FTE above the FY 2023 projected. The Request includes 1,980 FTEs paid from FSE and 26 paid through the Working Capital Fund. FSE also provides space and occupancy needs, travel costs, support service contractors, training, and other related expenses. Over eighty percent of FY 2024 FSE funds are for federal salaries and benefits.

The NNSA workforce consists of a diverse team of scientists, engineers, project and program managers, foreign affairs specialists, and support staff that perform program and project management and appropriate oversight of the national security missions related to the WA and DNN accounts.

NNSA federal staff are located throughout the United States, reflecting NNSA’s work across the nuclear security enterprise. NNSA’s federal workforce is in Washington, DC; Germantown, Maryland; Albuquerque, New Mexico; and at eight federal field offices: Kansas City Field Office (Missouri); Lawrence Livermore Field Office (California); Los Alamos Field Office (New Mexico); Nevada Field Office (Nevada); Pantex Field Office (Texas); Y-12 Field Office (Tennessee); Sandia Field Office (New Mexico); and Savannah River Field Office (South Carolina).

NNSA also manages the Department of Energy’s (DOE) Overseas Presence business line in the DOE Working Capital Fund (WCF), including 26 FTEs, 24 DOE FTEs in 21 diplomatic missions and 2 Headquarters FTEs for transition to and from overseas locations. NNSA supervises both federal employees and locally employed staff overseas and reimburses the Department of State for International Cooperative Administrative Support Services and Capital Security Cost Sharing charges.

**Program Highlights**

The \$538,994,000 Request supports 2,006 FTEs and associated support expenses.

The NNSA workforce is critical to the success of the Nation’s nuclear security enterprise. The right number of people, with the right skills, in the right positions is key to the growing mission including modernizing the nuclear deterrent, recapitalizing the aging infrastructure, and continuing to meet the requirements of nonproliferation and counterterrorism programs.

NNSA will use a variety of innovative methods to grow and shape the professional staff including recruitment events and available excepted service hiring authority. The NNSA will also continue to monitor the evolving need for federal oversight in support of the nuclear modernization missions and adjust future staffing plans accordingly. NNSA will also use partnerships with academic alliances to grow the workforce with early identification and recruitment of top science, technology, engineering, and math talent.

**WEAPONS ACTIVITIES – NNSA**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Weapons Activities</b>					
Stockpile Management	4,637,676	4,954,107	5,204,899	+250,792	+5.1%
Production Modernization	4,156,897	5,116,705	5,555,928	+439,223	+8.6%
Stockpile Research, Technology, and Engineering	2,866,121	2,949,996	3,196,644	+246,648	+8.4%
Academic Programs and Community Support	111,912	111,912	152,271	+40,359	+36.1%
Infrastructure and Operations	2,487,354	2,602,580	2,767,126	+164,546	+6.3%
Secure Transportation Asset	330,764	344,437	357,064	+12,627	+3.7%
Defense Nuclear Security	844,090	872,100	1,016,756	+144,656	+16.6%
Information Technology and Cyber Security	406,530	445,654	578,379	+132,725	+29.8%
Legacy Contractor Pensions and Settlement Payments	78,656	114,632	65,452	-49,180	-42.9%
<b>Subtotal, Weapons Activities</b>	<b>15,920,000</b>	<b>17,512,123</b>	<b>18,894,519</b>	<b>+1,382,396</b>	<b>+7.9%</b>
Use of Prior Year Balances	-	(396,004)	(61,572)	+334,432	-84.5%
<b>Total, Weapons Activities</b>	<b>15,920,000</b>	<b>17,116,119</b>	<b>18,832,947</b>	<b>+1,716,828</b>	<b>+10.0%</b>

**Appropriation Overview**

The FY 2024 Request supports the current nuclear stockpile, warhead modernization programs to include life extension programs (LEP) and modifications, production facilities and capabilities modernization efforts, the scientific tools necessary to execute these efforts, and recapitalization of physical infrastructure and essential facilities to ensure the deterrent remains viable. Programs funded within the Weapons Activities appropriation support the Nation's nuclear stockpile and its attendant nationwide infrastructure of science, technology, engineering, and production capabilities. Weapons Activities provides for the maintenance and refurbishment of nuclear weapons to continue sustained confidence in their safety, reliability, and military effectiveness without resuming nuclear explosive testing; continued investment in scientific, engineering, and manufacturing capabilities to enable production and certification of the enduring nuclear weapons stockpile; and manufacture of nuclear weapon components. Weapons Activities also provides for continued maintenance and investment in the National Nuclear Security Administration (NNSA) nuclear complex to be more responsive and resilient.

NNSA’s laboratories, plants, and sites employ approximately 57,000 people across the Nuclear Security Enterprise, primarily at eight geographical sites, to execute these programs managed by a federal workforce composed of civilian staff supplemented with a small number of military assignees. Additional details about these programs will be included in the FY 2024 Stockpile Stewardship and Management Plan (SSMP).

**Program Highlights**

**Stockpile Management**

The Stockpile Management program maintains a safe, secure, reliable, and effective nuclear weapons stockpile. The Stockpile Management program encompasses five areas that directly support the Nation’s nuclear weapons stockpile. **Stockpile Major Modernization** will continue Phase 6.6 (*Full-Scale Production*) activities for the B61-12 LEP and W88 ALT 370; continue Phase 6.4 (*Production Engineering*) activities for the W80-4 LEP; continue Phase 6.3 (*Development Engineering*) activities for the W87-1 Modification Program; and continue Phase 2 (*Feasibility Study and Design Options*) for the W93 Program. **Stockpile Sustainment** will provide activities to include maintenance, limited life component exchanges, minor alterations, surveillance, assessment, surety studies plus capability development, and management activities for each Stockpile System and Multi-Weapon Systems and will continue Phase 6.3 (Development Engineering) activities for the W76-1/2 Mk4B. **Weapons Dismantlement and Disposition (WDD)** will provide safe and secure dismantlement of nuclear weapons and components in accordance with the Nuclear Weapons Stockpile Plan, and **Production Operations (PO)** will sustain production-enabling capabilities and capacities, including process improvements and investments focused on increased efficiency of production performance. **Nuclear Enterprise Assurance (NEA)** will prevent, detect, and mitigate potential consequences of subversion, both to the stockpile and to the associated capabilities to design, produce, and test nuclear weapons.

### **Production Modernization**

The Production Modernization portfolio focuses on the production capabilities for nuclear weapons components critical to weapon performance, including primaries, secondaries, radiation cases, and non-nuclear components. Production Modernization funds the equipment, facilities, and personnel required to reestablish the Nation's capability to produce 80 pits per year (ppy). FY 2024 funding will support process development and qualification activities to produce the first War Reserve (WR) pit at Los Alamos National Laboratory in 2024 and the Plutonium Modernization activities at the Savannah River Site. Production Modernization also supports qualification of explosive, pyrotechnic, and propellant materials for the NNSA's nuclear security enterprise across five sites; implements the program necessary to produce tritium in support of the nuclear weapons stockpile and other national programs; funds modernization of uranium operations, delivery of canned subassemblies and components needed to maintain the stockpile, as well as support to the U.S. nonproliferation and Naval Reactors; supports the restart and modernization of lapsed depleted uranium (DU) alloying and component manufacturing capabilities for meeting short- and long-term mission requirements; maintains production of the Nation's enriched lithium supply; and provides funding to modernize production of non-nuclear components required for both the active stockpile and warhead modernization programs.

### **Stockpile Research, Technology, and Engineering (SRT&E)**

The SRT&E portfolio provides the scientific foundation for science-based stockpile decisions and actions, develops the personnel required to support the current and future stockpile, and includes the capabilities, tools, and components needed to support all missions. Funding requested for FY 2024 supports the continued implementation of the Enhanced Capabilities for Subcritical Experiments (ECSE) and preparations for NNSA's first exascale high-performance computing system. These two capabilities are required to meet W80-4 LEP confirmation experiment and reduce uncertainty in the W87-1 Modification certification. In addition to the procurement and implementation of NNSA's first exascale machine, the funding supports the development and deployment of improved physics and engineering codes needed to support stockpile decisions to operate on this new platform. Funding in this area also supports the development of new materials, technologies, and processes to modernize our nuclear systems and production complex, as well as supporting several experimental testbed capabilities. This is accomplished through warhead component and production technology development and maturation.

### **Academic Programs and Community Support**

Academic Programs and Community Support enables robust and diverse science, technology, engineering, and mathematics (STEM) research for educational communities through a variety of methods (i.e., grants, fellowships, collaborations, user access). Investments in consortia and centers of excellence provide collaborative groups to tackle important questions through multi-disciplinary approaches, and they leverage preeminent scientists in relevant fields. Additionally, NNSA is proposing to establish a Community Capacity Building Program to provide benefits to communities that are affected by activities at NNSA's sites.

### **Infrastructure and Operations (I&O)**

I&O maintains, operates, and modernizes the NNSA infrastructure in a safe and secure manner to support program execution while seeking to maximize return on investment and reduce enterprise risk. The program plans, prioritizes, and constructs state-of-the-art facilities and infrastructure to support all NNSA programs, except for new complex-construction projects, which are funded by the capability sponsor. The FY 2024 Request provides funding for activities to enable plutonium pit production, expand capacity at the Kansas City National Security Campus (KCNSC), and modernize infrastructure throughout the complex. Furthermore, the funding allows NNSA to execute Recapitalization projects to improve the condition and extend the design life of structures, capabilities, and systems to meet program demands; reduce future operating costs by replacing older facilities with new, more efficient facilities; and reduce safety, security, environment, and program risk.

### **Secure Transportation Asset (STA)**

STA supports safe, secure transport of the Nation's nuclear weapons, weapon components, and special nuclear material throughout the National Security Enterprise (NSE). Nuclear weapon life-extension programs, limited-life component exchanges, surveillance, dismantlement, nonproliferation activities, and experimental programs rely on STA activities to ensure safe, secure, and on-schedule transport. The FY 2024 Request supports modernizing and sustaining STA transportation assets, including life extension of the Safeguards Transporter until it is replaced by the Mobile Guardian Transporter; vehicle sustainment; replacement of armored tractors, escort, and support vehicles; upgrades of the Tractor Control Unit to accommodate for communications and security; and continued development and testing of the Mobile Guardian Transporter. The first Mobile Guardian Transporter production unit is planned for completion in FY 2028 and will

begin a phased in approach to replace the current Safeguard Transporter. Program Direction resources in this account support salaries and expenses for the secure transportation workforce, including Federal Agents.

### **Defense Nuclear Security (DNS)**

DNS provides protection for NNSA personnel, facilities, nuclear weapons, and materials from a full spectrum of threats, ranging from minor security threats to acts of terrorism, at its national laboratories, production plants, processing facilities, and the Nevada National Security Site (NNSS). Employing more than 1,700 Protective Force officers, DNS secures more than 5,000 buildings and protects more than 57,000 personnel. The FY 2024 Request includes funding to fill positions in key security program areas required to implement a risk-based, layered protection strategy at the sites. The Request also supports increased security needs associated with known mission growth in weapons programs across the NSE, including Pit Production at Los Alamos National Laboratory. The FY 2024 Request also reflects support for development and implementation of the Caerus security system, Security Infrastructure Revitalization Program (SIRP) projects, the Physical Security Center of Excellence (PSCOE), and the Center for Security Technology, Analysis, Response, and Testing (CSTART), as well as funding for the WEPAR project, which will install a new Perimeter Intrusion Detection and Assessment System (PIDAS) section, thus reducing the Y-12 National Security Complex (Y-12) Protected Area by approximately 50% while integrating with the UPF.

### **Information Technology (IT) and Cybersecurity**

The NNSA Office of the Associate Administrator for Information Management and Chief Information Officer (OCIO) is responsible for information management, information technology (IT), and cybersecurity for the NNSA enterprise. To effectively achieve this, the OCIO has implemented an organizational structure that supports its functions under three organizations: the Office of Information Technology, the Office of Cybersecurity, and the Office of Mission Integration. The OCIO supports IT and cybersecurity services and solutions, which include continuous monitoring, cloud-based technologies, and enterprise security technologies (i.e., identity, credential, and access management). As a mission partner, OCIO ensures and enables the availability of a secure infrastructure for mission activities and information sharing for the NNSA and its mission partners. The office manages the IT portfolio, federal IT investments, services, and projects in alignment with the NNSA and the Department of Energy Office of the Chief Information Officer strategies, as well as other national policy drivers. The FY 2024 Request enables the development and execution of integrated IT initiatives that provide an effective and secure technology infrastructure across the enterprise.

**DEFENSE NUCLEAR NONPROLIFERATION - NNSA**

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted	
				\$	%
<b>Defense Nuclear Nonproliferation Programs</b>					
Material Management and Minimization	342,946	464,285	446,025	-18,260	-3.9%
Global Material Security	531,441	532,763	524,048	-8,715	-1.6%
Nonproliferation and Arms Control	184,795	230,656	212,358	-18,298	-7.9%
Defense Nuclear Nonproliferation R&D	729,236	767,902	728,187	-39,715	-5.2%
NNSA Bioassurance Program	-	20,000	25,000	+5,000	+25.0%
Nonproliferation Construction	156,000	71,764	77,211	+5,447	+7.6%
<b>Total, Defense Nuclear Nonproliferation Programs</b>	<b>1,944,418</b>	<b>2,087,370</b>	<b>2,012,829</b>	<b>-74,541</b>	<b>-3.6%</b>
Nuclear Counterterrorism and Incident Response Program	370,782	469,970	493,543	+23,573	+5.0%
Legacy Contractor Pensions and Settlement Payments	38,800	55,708	22,587	-33,121	-59.5%
Use of Prior Year Balances	-	(123,048)	(20,000)	+103,048	-83.7%
<b>Total, Defense Nuclear Nonproliferation</b>	<b>2,354,000</b>	<b>2,490,000</b>	<b>2,508,959</b>	<b>+18,959</b>	<b>+0.8%</b>

**Appropriation Overview**

The National Nuclear Security Administration’s (NNSA) nonproliferation, counterproliferation, and counterterrorism activities are critical to implementing the President’s National Security Strategy and demonstrating “renewed arms control and nonproliferation leadership.” NNSA’s programs help reduce the dangers posed by nuclear weapons, including by extending the U.S.’ defenses against nuclear threats far beyond its borders. These programs help prevent adversaries from acquiring nuclear weapons or weapons-usable materials, technology, and expertise; countering efforts to acquire such weapons or materials; and responding to nuclear or radiological incidents and accidents domestically and abroad. NNSA shares knowledge, accrued through the U.S.’ long experience in managing special nuclear materials, with partners around the world to achieve international nonproliferation and nuclear security goals. NNSA uses the unique technical and scientific knowledge that underpins the Stockpile Stewardship Program for a range of nonproliferation missions, from assessing foreign weapons programs and potential terrorist devices to managing the proliferation risks posed by civil nuclear applications. By limiting the number of nuclear-capable states and preventing terrorist access to materials and technology that can threaten the U.S. and allies, NNSA plays a critical role in enhancing global stability and constrains the range of potential threats facing the nation, our allies, and partners. Beginning in FY 2023, this appropriation also began supporting U.S. biodefense and biothreat mitigation strategies and programs through focused investments in the DOE/NNSA complex.

This appropriation funds seven programs that, as part of a whole-of-government approach, provide policy and technical leadership to prevent or limit the spread of weapons of mass destruction (WMD)-related materials, technology, and expertise; develop technologies to detect nuclear proliferation and steward foundational nonproliferation capabilities; secure or eliminate inventories of nuclear weapons-related materials and infrastructure; and sustain technically trained emergency management personnel to respond to nuclear and radiological incidents and accidents domestically and abroad. This appropriation also funds the national security R&D program to anticipate and detect threats and broaden DOE’s role in national biodefense.

DNN’s mission is complementary to Defense Programs’ Stockpile Stewardship Program at NNSA. Together, the programs form the basis of a strong nuclear defense. DNN’s activities are carried out within a dynamic global security environment, as described in NNSA’s annual report *Prevent, Counter, and Respond—A Strategic Plan to Reduce Global Nuclear Threats*<sup>b</sup>.

This environment is characterized by the persistent threat of state and non-state actors seeking to obtain nuclear and radioactive materials, state actors potentially undermining nonproliferation regimes and arms control agreements to which the U.S. is adherent, as well as instability caused by Russia’s continued invasion of Ukraine. There is also an increased risk

<sup>a</sup> FY 2022 Enacted amount excludes rescission of \$282 million from project 99-D-143, Mixed Oxide Fuel Fabrication Facility, SRS.

<sup>b</sup> <https://www.energy.gov/nnsa/articles/prevent-counter-and-respond-strategic-plan-reduce-global-nuclear-threats-npcr>

of the availability of nuclear and radioactive materials as a result of the global expansion of commercial nuclear power and possible spread of fuel cycle technology, increased opportunities for illicit nuclear material trafficking and sophisticated procurement networks, and technology advances (including cyber-related tools) that may shorten nuclear weapon development timelines and complicate nuclear safeguards and security missions.

### **Program Highlights**

- **Material Management and Minimization (M3)**

M3 programs reduce and, when possible, eliminate weapons-usable nuclear material around the world to achieve permanent threat reduction. The FY 2024 Budget Request supports the conversion or shutdown of research reactors and isotope production facilities that use highly enriched uranium (HEU), the continued support of non-HEU-based Molybdenum-99 (Mo-99) production facilities in the U.S., the recovery of limited amounts of high-assay low enriched uranium, the removal and disposal of weapons-usable nuclear material, the removal of plutonium from the state of South Carolina and implementation of the dilute and dispose strategy for plutonium disposition, and costs to downblend HEU.

- **Global Material Security (GMS)**

GMS directly contributes to national security efforts to reduce global nuclear security threats. The FY 2024 Budget Request supports program efforts to prevent terrorists and other actors from obtaining nuclear and radioactive material to use in an improvised nuclear device (IND) or a radiological dispersal device (RDD) by working domestically and with partner countries to improve the security of vulnerable materials and facilities, and to build partners' sustainable capacity to detect, disrupt, and investigate illicit trafficking of these materials through critical pathways. GMS works with countries in bilateral partnerships and with multilateral partners such as the International Atomic Energy Agency (IAEA) and International Criminal Police Organization (INTERPOL). As part of an ongoing strategic analysis process, GMS continues to explore and integrate innovative approaches, technologies, and tools to adapt to emerging threats. GMS is supporting its partners in Ukraine in maintaining and, where possible, rebuilding their capabilities to secure nuclear and radioactive facilities and materials and detect smuggling of these materials within Ukraine. GMS supports national security priorities to reduce global nuclear security threats, and is a key component of NNSA's integrated nonproliferation, counterterrorism, and emergency response strategies.

- **Nonproliferation and Arms Control (NPAC)**

NPAC programs strengthen nonproliferation and arms control regimes through innovative policy development and implementation to prevent proliferation, ensure peaceful nuclear uses, and enable verifiable nuclear reductions. To advance this mission, NPAC builds the capacity of the IAEA and partner countries to implement international safeguards obligations, builds domestic and international capacity to implement export control obligations, supports the negotiation and implementation of agreements and associated monitoring regimes to verifiably reduce nuclear weapons and nuclear programs, and develops approaches and strategies to address emerging nonproliferation and arms control challenges and opportunities. NPAC provides export control and safeguards training to Ukraine to promote safeguards implementation and strengthen its national export control systems to help prevent illicit trafficking in nuclear and WMD-related materials, commodities, and technology.

- **Defense Nuclear Nonproliferation Research and Development (DNN R&D)**

DNN R&D directly contributes to nuclear security as a key component for the innovation of U.S.' technical capabilities to detect nuclear detonations; foreign nuclear weapons programs' activities; and the presence, movement, or diversion of special nuclear materials. The program also sustains and develops foundational nonproliferation technical capabilities that ensure the technical agility needed to support a broad spectrum of U.S. nonproliferation missions and anticipate threats. Finally, the program funds capabilities at the National Laboratories that can support time-critical decisions in the event of a nuclear or radiological incident and assist in determining the origin of interdicted materials or nuclear devices. DNN R&D uses the unique facilities and scientific skills of DOE, academia, and industry to perform research, conduct technology demonstrations, develop prototypes, and produce and deliver sensors for integration into operational systems. The FY 2024 Budget Request supports planned R&D activities for early detection of proliferation and supports production of nuclear detonation detection satellite payloads. The FY 2024 Budget Request also supports efforts to sustain and develop foundational nonproliferation technical capabilities by providing targeted, long-term support for enabling infrastructure, science and technology, and an expert workforce.



- **NNSA Bioassurance Program**

The DOE/NNSA Bioassurance Program advances the U.S. capability to anticipate, detect, assess, and mitigate emerging biothreats and strengthen biodefense. The program develops core capabilities at the U.S. national laboratories, such as high-performance computing for accelerated threat assessment and rapid countermeasure design, surveillance and detection capabilities, safeguards and export controls, and forensics to support attribution. The FY 2024 Budget Request further develops the operating capability and coordinated DOE program in biosciences, including phased science plan implementation with exploratory research, facility upgrades, and minor equipment purchases.

- **Nonproliferation Construction (supports Material Management and Minimization)**

Nonproliferation Construction consolidates construction costs for DNN projects. The FY 2024 Budget Request supports the implementation of the dilute and dispose strategy with the continuation of the Surplus Plutonium Disposition (SPD) project, which will add additional glovebox capacity at the Savannah River Site to accelerate plutonium dilution and aid in the removal of plutonium from the state of South Carolina.

- **Nuclear Counterterrorism and Incident Response Program (NCTIR)**

The NCTIR program sustains the U.S.' nuclear counterterrorism and counterproliferation activities, maintains critical nuclear incident and accident response and technical reachback capabilities, and supports DOE's all-hazards emergency management system. The Counterterrorism and Counterproliferation (CTCP) subprogram provides the nation's technical capability to understand, attribute and defeat nuclear devices, including improvised nuclear devices and lost or stolen foreign nuclear weapons. This knowledge in turn informs U.S. Government policies, regulations, agencies, and key Department of Justice of Defense mission partners on terrorist and proliferant state nuclear threats and related contingency planning. In support of this mission, the FY 2024 Request for NCTIR supports programs to manage and deploy the DOE/NNSA Nuclear Emergency Support Team (NEST), comprised of expert scientific teams, facilities, and equipment to respond rapidly to nuclear or radiological incidents and accidents worldwide; maintain a nuclear forensics capability to attribute the source of nuclear material outside of regulatory control or used in a nuclear attack; and to educate, through training and exercises, domestic and international partners to respond effectively to nuclear or radiological incidents. CTCP also integrates DOE/NNSA policy, planning, and operations on counterproliferation priorities, supporting urgent needs and proactively pursuing opportunities to prevent nuclear threats and develop technologies to apply to the counterterrorism and counterproliferation mission. In addition, CTCP helps Ukraine build its nuclear emergency preparedness and response capabilities to enhance its ability to protect itself during disruptions caused by combat operations, including a radiological or nuclear release.

Additionally, NCTIR operates the DOE/NNSA's Emergency Operations (EO) subprogram. The EO subprogram provides both the structure and processes to ensure a comprehensive and integrated approach to all-hazards emergency management. Thus improving readiness and effectiveness of the DOE Emergency Management System and the Nuclear Security Enterprise (NSE) on a programmatic and performance level regardless of the nature of the emergency impacting the DOE/NNSA enterprise or its equities anywhere in the world. This promotes unity of effort and a culture of continuous improvement to safeguard the health and safety of workers and the public, protect the environment, and enhance the resilience of the Department and the Nation. The EO subprogram coordinates plans and procedures for prevention, protection, mitigation, response to, and recovery from, all hazards emergency accidents, incidents, events, and to support operational emergencies. In addition, the FY 2024 Budget Request supports Continuity of Operations, Continuity of Government, and Enduring Constitutional Government programs to advance the National Continuity Policy and ensure the continued performance and delivery of essential lines of business and services under any circumstances. The FY 2024 Budget Request also provides for 24/7/365 Consolidated Emergency Operations Center communications and coordination support to the DOE/NNSA Emergency Management Enterprise, NSE, and Departmental Senior Leadership.

NAVAL REACTORS – NNSA

	(\$K)				
	FY 2022 Enacted <sup>ab</sup>	FY 2023 Enacted <sup>c</sup>	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Naval Reactors</b>					
Naval Reactors Development	640,684	746,000	838,340	+92,340	+12.4%
Columbia-Class Reactor Systems Development	55,000	53,900	52,900	-1,000	-1.9%
S8G Prototype Refueling	126,000	20,000	-	-20,000	-100%
Naval Reactors Operations and Infrastructure	594,017	668,802	712,036	+43,234	+6.5%
Program Direction - Naval Reactors	55,579	58,525	61,540	+3,015	+5.2%
Construction - Naval Reactors	446,720	534,218	299,284	-234,934	-44.0%
<b>Subtotal, Naval Reactors</b>	<b>1,918,000</b>	<b>2,081,445</b>	<b>1,964,100</b>	<b>-117,345</b>	<b>-5.6%</b>

**Appropriation Overview**

The Naval Reactors (NR) appropriation includes funding for U.S. Navy nuclear propulsion work, beginning with reactor plant technology development and design, continuing through reactor plant operation and maintenance, and ending with final disposition of naval spent nuclear fuel.

**Program Highlights**

Funding for the program supports continued safe and reliable operation of the Navy's nuclear-powered fleet (68 submarines, 11 aircraft carriers, and 5 research, development, and training platforms). The Program's development work consists of refining and improving existing technology to ensure that the U.S. Navy's nuclear propulsion plants are increasingly efficient and effective and will be capable of meeting future threats to national security.

In addition to supporting the existing nuclear fleet, NR has two major DOE initiatives—the *Columbia*-Class Reactor System Development, and the Spent Fuel Handling Recapitalization Project.

NR supports national security with the continued development of the reactor plant system for the *Columbia*-Class submarine and stewardship of naval nuclear infrastructure. Ensuring the continuity of a sea-based strategic deterrent, the President's FY 2024 Budget provides for the research, design, and development of the reactor plant system for the *Columbia*-Class submarine, to include the development of a life-of-ship reactor core. The Budget further provides funding for the Spent Fuel Handling Recapitalization Project, supporting the capability to refuel and defuel aircraft carriers and submarines, which is critical to maintaining the nuclear fleet's operational availability for national security missions.

- **Naval Reactors Operations and Infrastructure**

The FY 2024 Request supports facility and systems maintenance and regulatory requirements across the Program's four DOE sites, environmental remediation, and necessary minor construction projects to recapitalize deteriorating infrastructure and equipment.

- **Naval Reactors Development**

The FY 2024 Request supports the unique technologies used in naval reactors that are crucial to delivering superior navy fleet operations and dominance in the maritime domain.

- ***Columbia*-Class Reactor Systems Development**

The FY 2024 Request is consistent with the planned project profile and supports production, analysis, and testing execution.

<sup>a</sup> FY 2022 Enacted excludes the mandated transfer of \$92.75 million from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor.

<sup>b</sup> FY 2022 Enacted excludes rescission of \$6 million from completed construction projects.

<sup>c</sup> FY 2023 Enacted excludes the mandated transfer of \$99.75 million from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor.

- **Program Direction**

The FY 2024 Request increase supports staffing plans to meet planned FTE levels, personnel and pay related costs, and supports NR executing its mission to provide federal oversight of the program's DOE laboratories.

- **Construction**

The decrease in FY 2024 reflects the funding profile for the Spent Fuel Handling Recapitalization Project that has recently re-baselined, in addition to two new start major construction projects at the Naval Reactors Facility and Knolls sites, and funding to complete an ongoing project at Knolls.

**SCIENCE**

	\$K				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted	
				\$	%
<b>Office of Science</b>					
Advanced Scientific Computing Research	1,035,000	1,068,000	1,125,973	+57,973	+5.43%
Basic Energy Sciences	2,308,000	2,534,000	2,692,858	+158,858	+6.27%
Biological and Environmental Research	815,000	908,685	931,700	+23,015	+2.53%
Fusion Energy Sciences	713,000	763,222	1,010,496	+247,274	+32.40%
High Energy Physics	1,078,000	1,166,000	1,226,334	+60,334	+5.17%
Nuclear Physics	728,000	805,196	811,418	+6,222	+0.77%
Isotope R&D and Production	82,000	109,451	173,051	+63,600	+58.11%
Accelerator R&D and Production	18,000	27,436	34,270	+6,834	+24.91%
Workforce Development for Teachers and Scientists	35,000	42,000	46,100	+4,100	+9.76%
Science Laboratories Infrastructure	291,000	280,700	322,000	+41,300	+14.71%
Safeguards and Security	170,000	184,099	200,000	+15,901	+8.64%
Program Direction	202,000	211,211	226,200	+14,989	+7.10%
<b>Total, Office of Science</b>	<b>7,475,000</b>	<b>8,100,000</b>	<b>8,800,400</b>	<b>+700,400</b>	<b>+8.65%</b>

**Appropriation Overview**

The Office of **Science** (SC) is the nation’s largest Federal supporter of basic research in the physical sciences and funds programs in physics, chemistry, materials science, biology, environmental science, applied mathematics, isotope research and production, accelerator research and production, and computer and computational science. The SC portfolio has two principal thrusts: direct support of scientific research and direct support of the design, development, construction, and operation of unique, open-access scientific user facilities. The SC basic research portfolio includes extramural grants and contracts supporting nearly 32,000 researchers located at over 300 institutions and the 17 DOE national laboratories, spanning all fifty states and the District of Columbia. The portfolio of 28 scientific user facilities serves nearly 37,000 users per year. SC programs invest in foundational science, including basic research for the advancement of clean energy, to transform our understanding of nature and strengthen the connection between advances in fundamental science and technology innovation.

The SC Request increases investments in Administration priorities including basic research on climate change and clean energy, including additional funding for the SC Energy Earthshots and accelerating fusion development in support of the Bold Decadal Vision for Commercial Fusion Energy initiative. The SC Request establishes new Microelectronics Science Research Centers as authorized under the CHIPS and Science Act, focusing on a multi-disciplinary co-design innovation ecosystem in which materials, chemistries, devices, systems, architectures, algorithms, and software are developed in a closely integrated fashion. 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 increases efforts to support underserved communities through the Reaching a New Energy Sciences Workforce (RENEW) and Funding for Accelerated, Inclusive Research (FAIR) initiatives. The Request continues support for the National Quantum Information Science (QIS) Research Centers for basic research and early-stage development to accelerate the advancement of QIS through vertical integration between systems, theory, hardware, and software. Additional quantum-related R&D support will focus on early-stage research associated with the first steps to establish a dedicated Quantum Network as well as research in quantum algorithms, applications, testbeds, and technology development of QIS isotopes of interest. The Request also supports ongoing investments in priority areas including microelectronics, biopreparedness, artificial intelligence (AI) and machine learning (ML), critical materials, exascale computing, fundamental science to transform manufacturing, accelerate innovations in emerging technologies (Accelerate), and accelerator science and technology. These initiatives position SC to address new research opportunities through more collaborative, cross-program efforts.

In FY 2024, the RENEW initiative expands targeted efforts to increase participation and retention of individuals from underrepresented groups in SC research activities. As part of this increase, a RENEW graduate fellowship will increase participation of students in fields aligned with SC programs. The fellowship will focus on students who received their bachelor's degree from non-R1 minority serving institutions or emerging research institutions. The goal is to advance belonging, accessibility, justice, equity, diversity, and inclusion in SC-sponsored research.

The SC Energy Earthshots initiative will expand support for small group awards and continue larger center awards through the Energy Earthshot Research Centers (EERCs). The EERCs will support underlying fundamental research to realize the stretch goals for individual Energy Earthshots, bringing multi-investigator, multi-disciplinary teams to address key basic research challenges facing the Energy Earthshots, with relevance to applied research and development activities. In addition, teams of researchers will address research that crosses multiple Energy Earthshots, providing innovation for the scientific challenges that are key to the technology challenges. This initiative fosters collaboration within the team awards involving academic, national laboratory, and industrial researchers by SC with strong coordination with the Energy Technology Offices, establishing a new era of cross-office research cooperation.

The FY 2024 Request includes increase investment to support SC scientific user facilities. The 28 SC scientific user facilities are unique resources stewarded by DOE for the nation and made available to the scientific community free of charge, based on merit review to support the best scientific ideas. Annually, over 38,500 researchers access these cutting-edge tools to push the frontiers of science and technology, with nearly half doing research supported by other funding agencies, from the National Science Foundation, the National Institutes of Health, and the Department of Defense and others, as well as from industry. These facilities have delivered extraordinary breakthroughs, such as powering our nation's response to COVID by supporting rapid development of vaccines and helping usher new battery technologies to the marketplace. Further, these facilities are often the portal through which the next generation of researchers begin their engagement with the DOE and its national laboratories, providing invaluable opportunities for developing the diverse, equitable, and inclusive workforce our country needs to meet the major economic and national security challenges ahead.

## **Program Highlights**

### **▪ Advanced Scientific Computing Research**

Advanced Scientific Computing Research (ASCR) advances science and U.S. competitiveness through investments in computational research, applied mathematics, and computer science, as well as development and operation of multiple, large, high performance and leadership computing user facilities and high performance networking. The efforts prioritize basic research in applied mathematics and computer science with emphasis on the challenges of data intensive science, including AI and ML, and future computing technologies. The Request funds:

- New Microelectronics Science Research Centers as authorized under the CHIPS and Science Act.
- Increased support for ASCR's Computational Partnerships with a focus on developing partnerships with the Applied Energy offices and data intensive applications, and new partnerships that broaden the impact of both exascale and data infrastructure investments.
- Final research and development activities within the Exascale Computing Project (ECP) and full scale runs to deliver project performance targets on the nation's second exascale system, Aurora, which is projected to achieve exascale-capable systems with a five-fold improvement in true application performance over the Summit system at the Oak Ridge Leadership Computing Facility (OLCF). During FY 2024, Aurora will primarily support ECP and early science applications, as well as debugging and system stabilization efforts. Frontier, the OLCF's exascale system will begin operations and support projects selected through the Innovative and Novel Computational Impact on Theory & Experiment (INCITE) and ASCR Leadership Computing Challenge programs.
- Foundational research to improve the robustness, reliability, and transparency of Big Data and AI technologies, uncertainty quantification, and development of software and data visualization tools and continuation of an activity to deploy AI software and technologies to create an integrated computational and data infrastructure across the SC programs, scientific user facilities, and laboratories.
- Core research in applied mathematics and computer science, the Scientific Discovery through Advanced Computing (SciDAC) program, and strategic partnerships aimed at understanding the challenges and opportunities that emerging technologies such as artificial Intelligence, quantum information science, and neuromorphic processors pose to DOE mission applications.
- Support for new data and partnerships with the National Institutes of Health (NIH), as well as engagements with other agencies to improve our ability to assist in times of national emergencies.

- Ongoing activities including the FAIR initiative to expand clean energy research and capabilities at MSIs and Accelerate initiative to support fundamental research that accelerates transition from discovery science to technological innovations. Activities also continue to support the Department's Earthshot initiatives, which includes the Energy Earthshot Research Centers.
- Operate the ASCR's four scientific user facilities and the design of the National Energy Research Scientific Computing Center (NERSC-10) upgrade while planning for the High Performance Data Facility.
- Increase efforts to broaden participation and retention in ASCR's programs and workforce by underrepresented groups, institutions, and regions through RENEW, CSGF, and the DOE Established Program to Stimulate Competitive Research (EPSCoR).

▪ **Basic Energy Sciences**

Basic Energy Sciences (BES) supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels to provide the foundations for new energy technologies, to mitigate the environmental impacts of energy use, and to support DOE missions in energy, environment, and national security. The Request funds:

- New Microelectronics Science Research Centers as authorized under the CHIPS and Science Act.
- Core research activities to support discovery science and Administration Priorities on clean energy (e.g., carbon capture, hydrogen, solar, and batteries); related topics such as manufacturing and critical materials/minerals; and cross-cutting priorities for biopreparedness, QIS, data science including AI/ML and accelerator science and technology.
- Expanded support for national laboratory training opportunities for MSI students as part of the RENEW initiative; and continued support for the FAIR initiative to expand clean energy research and capabilities at underrepresented and emerging research institutions and for universities in underrepresented regions through the EPSCoR program. Managed by BES, the funding for the EPSCoR program is distributed among the six major research programs within the Office of Science per direction from the FY 2023 appropriation.
- Continued support for the Accelerate initiative, focused on fundamental research that accelerates the transition of science to technologies and expands support for the SC Energy Earthshots initiative and Energy Earthshot Research Centers, in partnership with other SC programs and the DOE technology offices.
- Continued support for the Energy Frontier Research Centers, the Batteries and Energy Storage and the Fuels from Sunlight Energy Innovation Hub programs, and the computational materials and chemical sciences programs.
- Continued operation of BES scientific user facilities: five x-ray light sources, two neutron scattering sources, and five research centers for nanoscale science. At 90 percent of the optimal funding levels, the support in the FY 2024 Request will balance high priority activities required for safe and reliable user facility operations while maintaining a strong user community.
- Continued support for the Biopreparedness Research Virtual Environment (BRaVE) initiative to provide the tools and expertise for response to future pandemics and other national emergencies.
- Three ongoing construction projects: the Linac Coherent Light Source-II High Energy (LCLS-II-HE), the Second Target Station (STS), and the Cryomodule Repair and Maintenance Facility (CRMF).
- Final funding for two construction projects: the Advanced Light Source Upgrade (ALS-U) and the Proton Power Upgrade (PPU).
- Initial construction support for two line-item construction projects: the NSLS-II Experimental Tools-III (NEXT-III) and the High Flux Isotope Reactor Pressure Vessel Replacement (HFIR-PVR) projects.
- Final funding for two Major Item of Equipment (MIE) projects: the NSLS-II Experimental Tools-II (NEXT-II) for beamlines at NSLS-II, and the Nanoscale Science Research Centers Recapitalization project. Initiates planning for two new MIEs for beamlines at the ALS and Advanced Photon Source.

▪ **Biological and Environmental Research**

Biological and Environmental Research (BER) supports fundamental research to understand complex biological, biogeochemical, and physical principles of natural systems at scales extending from the genome of microbes and plants to the environmental, climate, and human processes at the scale of the planet Earth. BER's support of basic research will contribute to a future of stable, reliable, and resilient energy sources and infrastructure, that will lead to climate solutions, strengthen economic prosperity, and assure environmental justice. The Request funds:

- Core research in biological systems science using genome-enabled approaches in addition to proteomics, metabolomics, structural biology, and high-resolution imaging and characterization to achieve a fundamental understanding of the biology of plants and microorganisms for a variety of DOE clean energy mission needs.

- Enhanced Bioenergy Research Centers provide new research through individual efforts and inter-BRC shared-theme research underpinning production of clean energy and chemicals from sustainable biomass.
- FAIR expands clean energy research and capabilities at Minority Serving Institutions (MSIs) across BER.
- RENEW expands with targeted efforts to broaden participation and belonging, accessibility, justice, equity, diversity, and inclusion across BER activities.
- EPSCoR broadens support for universities in underrepresented regions.
- Expand efforts within the Energy EarthShot Research Centers portfolio and related research to remove barriers to implementation of basic science innovations into potential solutions to technological challenges.
- Enhanced biotechnology innovations will be pursued to assist development of advanced manufacturing techniques.
- Expand the scope of BRaVE to include Low Dose Radiation research.
- Core research in Earth and environmental systems science, with activities focused on scientific analysis and modeling of the sensitivity and uncertainty of Earth system predictions to atmospheric, cryospheric, oceanic, and biogeochemical processes, with continued support of the Energy Exascale Earth System Model (E3SM).
- Continue the Integrated Artificial Intelligence for Earth System Predictability (AI4ESP) to add AI/unsupervised learning approaches to modeling capabilities, including E3SM version 2.
- Expand Urban Integrated Field Laboratories (Urban IFLs) and the network of climate resilience centers, affiliated with Historically Black Colleges and Universities (HBCUs) and other MSIs.
- The National Virtual Climate Laboratory will continue to provide information to underserved academic institutions and external stakeholders concerning climate research capabilities across the DOE national laboratories.
- Joint Genome Institute (JGI) will explore new capabilities in plant transformation capability to accelerate the ability to understand and design new beneficial functions into plants.
- Atmospheric Radiation Measurement Research Facility (ARM) will initiate full operations of its long-term mobile facility deployment in Alabama, and a cloud chamber research effort will be initiated to complement ARM's field observations of cloud-aerosol interactions.
- Environmental Molecular Sciences Laboratory (EMSL) will focus on biological and environmental molecular science and new technologies for molecular microbial phenotyping.
- Construction: EMSL will initiate the Molecular Microbial Phenotyping Capability (M2PC) project.

#### ▪ **Fusion Energy Sciences**

Fusion Energy Sciences (FES) supports research to understand matter at very high temperatures and densities and to build the scientific foundation needed to develop a fusion energy source. The Request is aligned with the recommendations of the recent Long-Range Plan (LRP) developed by the Fusion Energy Sciences Advisory Committee and the Administration's Bold Decadal Vision for commercial fusion development, and funds:

- New Microelectronics Science Research Centers as authorized under the CHIPS and Science Act.
- Partnerships with the private fusion sector through the Fusion Development Milestone Program and INFUSE.
- The development of four new integrated Fusion Energy R&D Centers in the areas of enabling technologies, fusion blanket/fuel cycle, advanced simulations, and structural/plasma facing materials.
- Research and facility operations at the DIII-D national fusion facility at 90 percent of the optimal run time.
- Recovery of the National Spherical Torus Experiment-Upgrade (NSTX-U) as well as machine assembly and hardware commissioning.
- Collaborations by U.S. scientists at international facilities with unique capabilities.
- Continued support for fusion-relevant QIS and AI/ML initiatives.
- Research activities in materials, fusion nuclear science, advanced manufacturing, and enabling R&D.
- Research activities in theory and Scientific Discovery through Advanced Computing (SciDAC) in partnership with ASCR, and the Advanced Computing initiative.
- Research in High-Energy-Density Laboratory Plasma science including LaserNetUS, and General Plasma Science including low-temperature plasmas.
- U.S. Contributions to ITER project focusing on the design, fabrication, and delivery of in-kind hardware components; construction cash contributions to support the ITER Organization assembly and installation of the hardware contributions from all the ITER Members; and an ITER Research program to prepare the U.S. to take full advantage of ITER Operations.
- Matter in Extreme Conditions Petawatt upgrade project at the Linac Coherent Light Source.
- Materials-Plasma Exposure eXperiment MIE project.

- Research on inertial fusion energy addressing the priority research opportunities identified in the recent Basic Research Needs workshop.
- Increased support for the RENEW and FAIR initiatives and continued participation in the Accelerate initiative and EPSCoR program.

▪ **High Energy Physics**

High Energy Physics (HEP) supports research to understand how the universe works at its most fundamental level, enabling the discovery of the most elementary constituents of matter and energy, the probing of the interactions among them, and the exploration of the basic nature of space and time. The Request provides support to foster a diverse, highly skilled, American workforce, to build R&D capacity, to spur technology innovation, and to conduct world-leading R&D. The Request funds:

- Core research activities, with emphasis on the physics of the Higgs boson, neutrinos, dark matter, and dark energy; exploring the unknown; and enabling early and visible scientific results from HEP project investments.
- RENEW to expand targeted efforts, including a graduate fellowship, to broaden participation and advance belonging, accessibility, justice, equity, diversity, and inclusion in SC-sponsored research.
- FAIR to improve the capability of MSIs to propose and perform competitive research; and build beneficial relationships between MSIs and DOE national laboratories and facilities.
- EPSCoR to support universities in underrepresented regions.
- Accelerate initiative to promote scientific research to accelerate the transition of science advances to energy technologies.
- QIS co-development of quantum information, theory, and technology with the science drivers and exploring new capabilities in networking, sensing, and computing and will continue support of the Superconducting Quantum Materials and Systems Center.
- AI/ML to tackle the challenges of extracting signals of signature particle physics from HEP experimental and simulated data with increasingly high volumes and complexity; seek solutions for operating accelerators and detectors in real-time and extremely high data rate environments; and address cross-cutting challenges in coordination with DOE investments in AI/ML efforts.
- Accelerator Science and Technology Initiative support for mid- to long-term R&D to maintain a leading position in key accelerator technologies that define SC's competitive advantage.
- Microelectronics to accelerate the advancement of sensor materials, devices, and front-end electronics.
- Advanced Computing to ensure broad access to exascale computing resources.
- The Fermilab Accelerator Complex and the Facility for Advanced Accelerator Experimental Tests II (FACET-II) to operate 5,200 and 3,300 hours, respectively, while addressing critical upgrades, improvements, and deferred maintenance.
- Continuing support for the Fermi National Accelerator Laboratory (FNAL)-hosted line-item construction projects: Long Baseline Neutrino Facility/Deep Underground Neutrino Experiment (LBNF/DUNE) and Proton Improvement Plan II (PIP-II); and four Major Item of Equipment (MIE) projects: Accelerator Controls Operations Research Network (ACORN), Cosmic Microwave Background Stage 4 (CMB-S4), and the High Luminosity Large Hadron Collider ATLAS and CMS Detector Upgrade Projects.

▪ **Nuclear Physics**

Nuclear Physics (NP) supports research to discover, explore, and understand all forms of nuclear matter. The Request funds:

- High priority world-class nuclear physics research and core competencies in quantum chromodynamics, nuclei and nuclear structure and astrophysics, and fundamental symmetries at universities and laboratories.
- Operations of all NP user facilities at nearly 90 percent optimal funding including: the Relativistic Heavy Ion Collider; the 12 GeV Continuous Electron Beam Accelerator Facility (CEBAF); the Argonne Tandem Linac Accelerator System; and the newly constructed Facility for Rare Isotope Beams (FRIB).
- Support for QIS research efforts to enable precision NP measurements, development of quantum sensors based on atomic-nuclear interactions, and development of quantum computing algorithms, in support of the National Quantum Initiative.
- Expanded support of the RENEW initiative to attract and retain a future nuclear physics workforce that is creative, innovative, and capable of meeting the nation's needs via proactive stewardship of talent with diverse ideas and backgrounds.
- Initiatives in microelectronics and AI/ML to achieve groundbreaking advances in these fields related to nuclear



physics.

- Continued participation in two initiatives to broaden participation in NP research: FAIR to expand nuclear physics research and capabilities at MSIs, and Accelerate to research how imaging advances within nuclear physics can apply to other fields.
- Continued support for R&D and design activities for the Electron-Ion Collider, which will be America's only collider for scientific research and will play a critical role in maintaining U.S. leadership in nuclear science and accelerator R&D.
- Continued support for fabrication of new NP scientific equipment: the High Resolution Spectrometer (HRS) to study fast neutron beams at FRIB and the Ton-scale Neutrinoless Double Beta Decay MIE to determine whether the neutrino is its own antiparticle.

#### ▪ **Isotope R&D and Production**

Isotope R&D and Production (DOE IP) produces high priority radioactive and stable isotopes in short supply for the nation that no domestic entity has the capability to meet market demand; a priority is to reduce U.S. dependence on foreign isotope supply chains. Isotopes are high-priority and enabling commodities of strategic importance for the nation and essential in medical diagnosis and treatment, discovery science, national security, advanced manufacturing, space exploration, communications, biology, QIS, clean energy, and other fields. The Request funds:

- Continued focus on mitigating disruptions in isotope supply chains to promote U.S. economic resilience, prosperity, and competitiveness. Mission readiness of facilities to produce isotopes in short supply or otherwise not available increases to approximately 92 percent.
- High impact core and competitive R&D activities at universities and national laboratories to develop innovative, cutting-edge isotope production, processing and enrichment technologies.
- Two additional university sites with unique isotope production capabilities as partners in the University Isotope Network. The implementation of isotope harvesting capabilities at FRIB nears completion.
- RENEW to promote diversity, equity, and inclusion in SC-sponsored research, and FAIR provides opportunities for research, bolstered with investments in equipment and infrastructure at minority serving institutions. Continued support for HIPPO, the DOE IP traineeship.
- Start of DOE Isotope Initiative to reduce the nation's dependence on foreign isotope supply chains. These dependences threaten the nation's technical and scientific strength and add risk to the nation's prosperity. This initiative supports R&D to develop new and or increased domestic supply chains of key isotopes.
- Continued support in the QIS initiative to develop production approaches for isotopes for quantum computing; Advanced Manufacturing to promote the translation of cutting edge developments in target manufacturing, materials preparation, robotics and automation; Accelerate to advance key aspects of industrially relevant research and technology in isotope production; BRaVE to promote bio-preparedness with increased availability of isotopes for medicine and bio-technology and reductions of single point failures in reactor isotope supply chains.
- Research in the Microelectronics initiative to develop separations technology and chemistry for producing isotopes needed for semi-conductor manufacturing.
- Design and construction for the Stable Isotope Production and Research Center to develop domestic capabilities for the enrichment of stable isotopes for discovery research and applications, mitigating U.S. dependence on foreign sources.
- Engineering design for the Radioisotope Processing Facility (RPF) at ORNL for increased chemical separation infrastructure for reactor-irradiated targets to chemically process and make available critical radioisotopes.
- Engineering design and long-lead procurement of the Clinical Alpha Radionuclide Producer (CARP) at BNL to address disruptions in global isotope supply chains and produce isotopes to diagnose and treat cancer.
- Increased support for National Isotope Development Center activities to interface with the fast-growing stakeholder community.

#### ▪ **Accelerator R&D and Production**

Accelerator R&D and Production (ARDAP) supports cross-cutting basic R&D in accelerator science and technology, access to unique SC accelerator R&D infrastructure, workforce development, and public-private partnerships to advance new technologies for use in SC's scientific facilities and in commercial products. The FY 2024 Request supports:

- Innovative research, development, and deployment of accelerator technology, the implementation of the first consortium-based approach to accelerator R&D, and workforce development;
- Public-private partnerships to develop technologies that include advanced superconducting wire and cable, superconducting accelerators, and advanced radiofrequency power sources for accelerators.

- An increase in the FAIR initiative which will provide focused investment on enhancing research on clean energy, climate, and related topics at minority serving institutions, including attention to underserved and environmental justice regions;
- An increase in the RENEW initiative, which will expand targeted efforts, including a RENEW graduate fellowship, to broaden participation and advance belonging, accessibility, justice, equity, diversity, and inclusion in SC-sponsored research; and
- Operation of the Brookhaven National Laboratory (BNL) Accelerator Test Facility (ATF) for 2,100 hours (the maximum possible in FY 2024), and provides funding to address significant remedial maintenance and deferred maintenance items, resulting in increased facility reliability and availability.

▪ **Workforce Development for Teachers and Scientists**

Workforce Development for Teachers and Scientists (WDTS) helps ensure that DOE has a sustained and diverse pipeline of science, technology, engineering, and mathematics (STEM) workforce. Accomplishing this goal depends on continued support for discovery learning and hands-on research experiences at DOE national laboratories and intentional efforts for diversifying the STEM pipeline. The Request funds:

- Sustained growth for undergraduate internships on DOE science and technology, graduate thesis research in SC mission areas, and visiting faculty appointments for research collaboration at DOE national laboratories.
- Signature pre-college STEM programs to engage K-12 students and teachers nationwide in DOE and SC mission, including National Science Bowl and Albert Einstein Distinguished Educator Fellowship program.
- WDTS RENEW pathway programs for students and educators from underrepresented and underserved groups and communities, as part of the SC RENEW initiative.
- Critical infrastructure to sustain all the WDTS programs and activities, including IT modernization, intelligent data management, and comprehensive evaluation portfolio, aligned with OMB's evidence-based management practice.
- Amplified outreach and engagement efforts with inclusive approaches to enable equitable access to WDTS programs and DOE/SC training opportunities by those from underrepresented and underserved groups and communities, including targeted outreach to attract and recruit more diverse applicant pools.

▪ **Science Laboratories Infrastructure**

Science Laboratories Infrastructure (SLI) supports scientific and technological innovation at the SC laboratories by sustaining and modernizing general purpose infrastructure and fostering safe, efficient, reliable, resilient, and environmentally responsible operations. The SLI Program is focused on both replacing obsolete and failing core infrastructure at the SC national laboratories in support of the Science Mission, and upgrading core infrastructure that supports the critical needs of future science initiatives and world class user facilities. A principal element of the SLI Program is to provide for a renewal of utilities at all SC national laboratories to address the extraordinary challenges to SC laboratory operations and to enable emerging scientific breakthroughs. The SLI utility projects address climate resilience in three important ways: (1) improvements in operational efficiency that will significantly reduce the energy usage of the laboratory operations; (2) reduction of the release of greenhouse gases; and (3) direct investments needed to support the success of the science initiatives that will help the country address the challenges of climate change. The Request funds:

- Ten ongoing construction projects: the (1) Princeton Plasma Innovation Center and (2) Critical Infrastructure Recovery & Renewal project at Princeton Plasma Physics Laboratory (PPPL) (3) the Ames Infrastructure Modernization at Ames National Laboratory (Ames); (4) the Seismic and Safety Modernization project, the (5) Linear Assets Modernization Project, and the (6) Biological and Environmental Program Integration Center (BioEPIC) at Lawrence Berkeley National Laboratory (LBNL); the (7) CEBAF Renovation and Expansion at Thomas Jefferson National Accelerator Facility (TJNAF); the (8) Argonne Utilities Upgrade at Argonne National Laboratory (ANL); (9) Critical Utilities Infrastructure Revitalization project at SLAC National Accelerator Laboratory (SLAC); and the (10) Utilities Infrastructure Project and the Integrated Engineering Research Center at Fermi National Accelerator Laboratory (FNAL).
- Two early stage projects are being paused as SLI focuses on supporting the large number of ongoing projects: the Critical Infrastructure Modernization Project at Oak Ridge National Laboratory (ORNL) and the Thomas Jefferson Infrastructure Improvements project at TJNAF. These projects will resume in future years.
- New Laboratory Operations Apprentice Program;
- General purpose infrastructure projects that will upgrade critical core infrastructure and utility needs; and
- Payment in Lieu of Taxes, nuclear facilities at ORNL, and landlord responsibilities at the Oak Ridge Reservation.

▪ **Safeguards and Security**

Safeguards and Security (S&S) program maintains security measures to protect personnel and assets in an environment of open scientific research. The Request funds:

- Increased funding for implementation of the Department’s Design Based Threat to address modernization of physical access control systems at site entry points, buildings, and select internal facility locations.
- Continued security operations for all remaining S&S elements.

▪ **Program Direction**

Program Direction (PD) supports the skilled and motivated Federal workforce that plans, develops, and oversees SC investments in world-leading basic research and scientific user facilities, and provides critical oversight to ten of DOE’s national laboratories. The Request funds Salaries and Benefits, Travel, Support Services, Other Related Expenses, and Working Capital Fund requirements.

**ENERGY EFFICIENCY AND RENEWABLE ENERGY**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Energy Efficiency and Renewable Energy</b>					
<b>Sustainable Transportation</b>					
Vehicle Technologies	420,000	455,000	526,942	+71,942	+15.8%
Bioenergy Technologies	262,000	280,000	323,000	+43,000	+15.4%
Hydrogen and Fuel Cell Technologies	157,500	170,000	163,075	-6,925	-4.1%
<b>Renewable Power</b>					
Renewable Energy Grid Integration	40,000	45,000	59,066	+14,066	+31.3%
Solar Energy	290,000	318,000	378,908	+60,908	+19.2%
Wind Energy	114,000	132,000	385,000	+253,000	+191.7%
Water Power	155,300	179,000	229,769	+50,769	+28.4%
Geothermal Technologies	109,500	118,000	216,000	+98,000	+83.1%
<b>Buildings &amp; Industry</b>					
Advanced Manufacturing	403,000	-	-	-	N/A
Advanced Materials & Manufacturing Technologies	-	183,500	241,497	+57,997	+31.6%
Industrial Efficiency & Decarbonization	-	266,500	394,245	+127,745	+47.9%
Building Technologies	307,500	332,000	347,841	+15,841	+4.8%
<b>Corporate Support</b>					
Program Direction	172,184	186,000	225,623	+39,623	+21.3%
Strategic Programs	20,000	21,000	57,759	+36,759	+175.0%
Facilities and Infrastructure	148,000	205,000	277,391	+72,391	+35.3%
<i>Operations and Maintenance</i>	93,590	102,370	118,865	+16,495	+16.1%
<i>Facility Management</i>	46,410	57,630	66,526	+8,896	+15.4%
<i>Establish DOE 18th National Laboratory</i>	-	-	35,000	+35,000	N/A
<i>21-EE-001-Energy Materials and Processing at Scale</i>	8,000	45,000	57,000	+12,000	+26.7%
<b>Subtotal, EERE</b>	<b>2,598,984</b>	<b>2,891,000</b>	<b>3,826,116</b>	<b>+935,116</b>	<b>+32.3%</b>
Congressionally Directed Spending	77,047	-	-	-	N/A
<b>Subtotal, EERE Organization</b>	<b>2,676,031</b>	<b>2,891,000</b>	<b>3,826,116</b>	<b>+935,116</b>	<b>+32.3%</b>
Undersecretary for Infrastructure (EERE Appropriated funding)					
State and Community Energy Program	453,973	493,000	-	-493,000	-100.0%
Manufacturing and Energy Supply Chains	15,999	19,000	-	-19,000	-100.0%
Federal Energy Management Program	53,997	57,000	-	-57,000	-100.0%
<b>Total, EERE Appropriation</b>	<b>3,200,000</b>	<b>3,460,000</b>	<b>3,826,116</b>	<b>+366,116</b>	<b>+10.6%</b>

**Appropriation Overview**

The Office of **Energy Efficiency and Renewable Energy (EERE)**'s mission is to accelerate 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, and ensure the clean energy economy benefits all Americans, creating good paying jobs for the American people—especially workers and communities impacted by the energy transition and those historically underserved by the energy system and overburdened by pollution.

EERE's work will be driven by four crosscutting principles:

- Building the clean energy economy in a way that benefits all Americans. The Budget helps address environmental injustices that disproportionately affect communities of color, low-income communities, and indigenous communities.
- Fostering a diverse STEM workforce. We need to increase awareness of clean energy job opportunities at minority-serving institutions and ensure that organizations receiving EERE funding are thinking through diversity and equity in their own work.

- Developing more robust workforce training opportunities to build a pipeline for permanent, good-paying jobs for the clean energy workforce.
- Working closely with and learning from state and local governments.

## Program Highlights

**Sustainable Transportation & Fuels** supports RDD&D to increase access to domestic, clean transportation fuels and improve the energy efficiency, convenience, and affordability of transporting people and goods.

**Vehicle Technologies** supports research, development, and demonstration (RD&D) of efficient and sustainable transportation technologies that will improve energy efficiency, fuel the economy, and enable America to use less petroleum. This Request prioritizes expanding demonstration and deployment projects to accelerate the nationwide adoption and deployment of electric vehicles and charging infrastructure, especially to benefit underserved communities. Increased funding in the Request continues research for next generation lithium-ion batteries, develops new recycling processing technologies, scales up lithium battery recycling, and addresses decarbonizing non-road sectors.

**Bioenergy Technologies** advances technologies that convert domestic biomass and other waste resources into affordable, low-carbon biofuels and bioproducts. This Request increases support for Sustainable Aviation Fuel (SAF) RDD&D, including funds to construct and operate integrated biorefineries at demonstration scale that are capable of producing SAFs, and identify alternative pathways and feedstocks.

**Hydrogen and Fuel Cell Technologies** supports efforts to enable widespread adoption of hydrogen and fuel cell technologies. The Request focuses on RD&D to enable more affordable and durable fuel cell systems for vehicle and stationary markets. The Request increases RD&D of clean hydrogen production, delivery, and storage, including materials development, and integration with diverse net-zero emissions generation sources to support the Hydrogen Energy EarthShot and the H2@Scale initiative. This includes increased funding to demonstrate the use of low greenhouse gas (GHG) hydrogen as a feedstock or direct reducing agent to decarbonize ammonia and steel production.

**Renewable Energy** supports RDD&D to reduce the costs and accelerate the integration and utilization of renewable energy technologies as part of a reliable, secure, and resilient, fully decarbonized electricity system by 2035 and a net zero energy system by 2050.

**Renewable Energy Grid Integration** supports system-wide planning and operation of grids with high levels of variable renewable energy and includes improved technologies, tools, data, and operational practices as well as system-level simulations and demonstrations to validate the safety, reliability, and affordability of power systems.

**Solar Energy Technologies** accelerates the development and deployment of solar technologies – creating many thousands of good-paying jobs in the process – while supporting the reliability, resilience, and security of the U.S. electric grid. The Request increases funding for demonstration of technologies to operate and control a power system with increasing levels of solar energy.

**Wind Energy Technologies** supports an updated and expanded portfolio of research and innovation designed to accelerate the advancement and deployment of offshore, land-based, and distributed wind energy technologies and their integration with the electric grid. The Request prioritizes (1) Near-term Offshore Wind (NOW) initiative, which is focused on accelerating near-term fixed-bottom offshore wind development through R&D and (2) the Floating Offshore Wind Accelerated Research and Development (FORWARD) program, a major body of R&D supporting the DOE Floating Offshore Wind EarthShot.

**Water Power Technologies** supports a broad portfolio of research activities to strengthen the body of scientific and engineering knowledge and support industry efforts to develop, maintain, and deploy hydropower and marine energy technologies at all scales. The Request focuses primarily on increasing hydropower flexibility for the grid. It increases funding for early-stage demonstrations in irrigation modernization and technologies to expand demonstrations and technical assistance for new, low-impact hydropower by investing in demonstration of technologies to power nonpowered dams or infrastructure. This includes the launch of up to five Regional Energy-Water Testing and Validation Facilities to focus on validating and testing technologies and solutions to scale water and energy management solutions.

**Geothermal Technologies** supports the deployment of geothermal energy in both the electric and non-electric sectors to help reach a carbon pollution-free electricity sector by 2035 and a net-zero economy by 2050. The Request prioritizes increased funding for the Enhanced Geothermal EarthShot as well as a new portfolio focused on advanced materials and high temperature components to enable downhole development in Enhanced Geothermal Systems (EGS) environments. Efforts will increase focus on the R&D and validation of new drilling and zonal isolation techniques that are required to reduce costs and achieve the DOE target.

**Buildings & Industry** supports RDD&D of high impact technologies to increase energy efficiency, transform the grid edge to support all sector decarbonization goals, and reduce on-site emissions from our nation’s homes, buildings, and industrial facilities while also strengthening U.S. manufacturing competitiveness and producing thousands of good-paying jobs.

**Industrial Efficiency and Decarbonization** accelerates the innovation and adoption of cost-effective technologies to increase energy efficiency and reduce GHG emissions in the U.S. industrial sector. This Request increases investment in industry-specific decarbonization RD&D with initiatives focusing on energy and emission-intensive industries. It also increases investments in priority cross-sector technologies for decarbonization based on the DOE Industrial Decarbonization Roadmap, including support of the Industrial Heat EarthShot. The Request supports technical assistance to increase the adoption of decarbonization technologies, including an expanded Onsite Energy program and an increased focus on energy-intensive sectors in the Better Plants and Better Climate Challenges.

**Advanced Manufacturing and Materials Technologies** invests in the next-generation energy-related materials and manufacturing technologies needed to drive U.S. industrial competitiveness and enable economy-wide decarbonization by 2050. The Request includes an increase for advanced manufacturing and materials research to develop technologies to improve the availability of critical materials and increase the resilience of materials supply chains. The Request also increases circular economy-related research supporting design for recyclability, recycling, and remanufacturing processes for multiple material classes. In addition, the Request supports advances in additive manufacturing and smart manufacturing, as well as manufacturing advances for high performance materials, emerging battery technologies, and power electronics.

**Building Technologies** Building Technologies invests in high-impact RDD&D, adoption acceleration, and regulatory mechanisms that reduces energy intensity of and emissions from buildings to achieve a decarbonized building sector by 2050 and to enable the low carbon grid through better integration of buildings. The Request increases RD&D to lower equipment and installation cost, and to accelerate adoption of low emissions heating and cooling technologies, reducing energy bills for businesses and households. The Request enables the low carbon grid through increased RD&D on buildings as the point of grid edge transformation through efforts such as Connected Communities. The Request expands engagement and support of local communities to rapidly scale equitable building retrofits through the Buildings Upgrade Prize and expanded Better Buildings and Better Climate Challenges.

**Corporate Support Programs** include a range of activities to continuously improve EERE organizational efficiency, effectiveness, and responsiveness, with a focus on human capital, systems and tools, program and project management, and laboratory facilities and infrastructure as part of EERE’s stewardship of the National Renewable Energy Laboratory (NREL) in Golden, Colorado. This investment also includes support for crosscutting strategic programs that advance the EERE mission.

**Facilities and Infrastructure** ensures that EERE fulfills its role as the steward of NREL by maintaining and upgrading key research and support infrastructure to not only enable the development of innovative technology solutions but also attract world-class research scientists. The Request prioritizes:

- Increased investments in the Advanced Research in Integrated Energy Systems (ARIES) initiative, focused on solving the complex problem of controlling interactions between millions of distributed assets.
- Increased investments in the Energy Materials and Processing at Scale (EMAPS) line-item construction project, a planned design and construction of a multi-disciplinary research capability in process integration.
- Conduct extensive planning for future construction of the 18th National Laboratory facility. DOE will apply the proposed funding to scale up an existing research facility at an Historically Black College or University (HBCU) or Minority-Serving Institution (MSI) or towards construction of an entirely new research facility at an HBCU, MSI, or consortium of such institutions, creating a pathway to National Laboratory designation.

**Program Direction** enables EERE to maintain and support a world-class Federal workforce. The Request provides additional resources for program and project management, oversight activities, contract administration, workforce management, data management, IT and systems support, and Headquarters and field site non-laboratory facilities and infrastructure.

**Office of Strategic Programs** supports high-impact, crosscutting, integrative activities most efficiently executed by a single crosscutting organization in coordination with EERE technology programs and other DOE offices. This includes support for crosscutting strategic analysis, activities that inform key audiences and stakeholders about EERE work to enable a clean energy economy, and funding to address high energy costs, reliability, and inadequate infrastructure challenges faced by islands and remote communities as part of the Energy Transitions Initiative, in partnership with other EERE Technology Offices and other DOE offices. The Request also includes funding to expand international collaboration and coordination.

### **Support for Infrastructure Investment and Jobs Act (IIJA) Programs**

In FY 2024, DOE will continue to execute IIJA programs according to the implementation plan, specifically:

- Battery Technology and Manufacturing
- Buildings, Training, and Workforce Programs
- Clean Hydrogen Manufacturing Recycling RD&D
- Energy Efficiency Programs
- Marine, Hydropower, and Hydroelectric Technology
- Solar Energy Technology and Manufacturing
- Wind Energy Technology

Certain functional areas of these programs will be coordinated and managed by the offices established and/or realigned to the Office of the Under Secretary for Infrastructure (S3), to include Clean Energy Demonstrations, State and Community Energy Programs (SCEP), Manufacturing and Energy Supply Chains (MESCC), and Federal Emergency Management Program (FEMP).

**FOSSIL ENERGY AND CARBON MANAGEMENT**

	<b>FY 2022 Enacted</b>	<b>FY 2023 Enacted</b>	<b>FY 2024 Request</b>	<b>FY 2024 Request vs FY 2023 Enacted (\$)</b>	<b>FY 2024 Request vs FY 2023 Enacted (%)</b>
<b>Carbon Management Technologies</b>					
Hydrogen with Carbon Management	101,000	95,000	85,000	(10,000)	-10.5%
Carbon Transport and Storage	97,000	110,000	110,000	0	0.0%
Carbon Dioxide Removal	49,000	70,000	70,000	0	0.0%
Carbon Dioxide Conversion	29,000	50,000	50,000	0	0.0%
Point-Source Carbon Capture	99,000	135,000	144,000	9,000	6.7%
Carbon Management – Policy, Analysis, and Engagement	2,400	0	5,000	5,000	N/A
Supercritical Transformational Electric Power (STEP)	15,000	0	0	0	N/A
<b>Subtotal, Carbon Management Technologies</b>	<b>393,400</b>	<b>460,000</b>	<b>464,000</b>	<b>4,000</b>	<b>-0.9%</b>
<b>Resource Sustainability</b>					
Advanced Remediation Technologies	55,600	55,000	13,000	(42,000)	-76.4%
Methane Mitigation Technologies	39,000	60,000	100,000	40,000	66.7%
Natural Gas Decarbonization and Hydrogen Technologies	20,000	26,000	20,000	(6,000)	-23.1%
Mineral Sustainability	53,000	54,000	45,000	(9,000)	-16.7%
Resource Sustainability – Analysis and Engagement	0	0	1,000	1,000	N/A
<b>Subtotal, Resource Sustainability</b>	<b>53,000</b>	<b>195,000</b>	<b>179,000</b>	<b>(16,000)</b>	<b>-8.2%</b>
<b>Energy Asset Transformation</b>	<b>5,000</b>	<b>6,000</b>	<b>6,000</b>	<b>0</b>	<b>0%</b>
<b>University Training and Research</b>	<b>13,000</b>	<b>13,000</b>	<b>19,000</b>	<b>6,000</b>	<b>46.2%</b>
<b>Special Recruitment</b>	<b>1,001</b>	<b>1,000</b>	<b>1,000</b>	<b>0</b>	<b>0.0%</b>
<b>Program Direction</b>	<b>66,800</b>	<b>70,000</b>	<b>92,000</b>	<b>22,000</b>	<b>31.4%</b>
<b>NETL Infrastructure</b>	<b>75,000</b>	<b>55,000</b>	<b>55,000</b>	<b>0</b>	<b>0%</b>
<b>NETL Research and Operations</b>	<b>83,000</b>	<b>87,000</b>	<b>89,475</b>	<b>2,475</b>	<b>2.8%</b>
<b>Interagency Working Group</b>	<b>0</b>	<b>3,000</b>	<b>0</b>	<b>(3,000)</b>	<b>-100.0%</b>
<b>Congressionally Directed Projects</b>	<b>20,199</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>N/A</b>
<b>Total, Fossil Energy and Carbon Management</b>	<b>825,000</b>	<b>890,000</b>	<b>905,475</b>	<b>+15,475</b>	<b>+1.7%</b>

**Appropriation Overview**

The **Fossil Energy and Carbon Management (FECM)** office conducts research and development (R&D) that focuses on technologies to reduce carbon emissions and other environmental impacts from fossil fuel production and use and from key industrial processes, particularly the hardest-to-decarbonize applications in the electricity and industrial sectors. Further, the program advances technologies on carbon dioxide (CO<sub>2</sub>) removal (CDR) to remove accumulated emissions of CO<sub>2</sub> from the atmosphere, and technologies that convert and store carbon into value-added products.

To meet these challenges, the Budget focuses funding on technology priority areas of point-source carbon capture, carbon transport and storage, carbon conversion, hydrogen with carbon management, methane emissions reduction, critical mineral production, and carbon dioxide removal. FECM recognizes that broad decarbonization is essential to meeting climate goals -- 100% carbon pollution free electricity by 2035 and net-zero greenhouse gas emissions economy-wide by 2050 -- and works to engage with international colleagues to leverage expertise in these areas. FECM is also committed to improving the economic and environmental conditions of Energy Communities<sup>1</sup>, retaining and creating good-paying jobs and supporting domestic energy and industrial production and manufacturing across our nation.

<sup>1</sup> <https://energycommunities.gov/>



FECM prioritizes the meaningful engagement and participation of communities, with special focus on disadvantaged communities; a just distribution of benefits; and emphasis on remediating legacy harms while also mitigating new impacts. These priorities are at the center of funding decisions and partnership development.

The FY 2024 Budget Request for FECM will extend the impact of the Department of Energy's (DOE) R&D activities by leveraging creative funding mechanisms—such as prizes, competitions, technical assistance, and programs targeted to small businesses. The goal is to enable the commercialization of climate and clean energy innovations that will reduce costs, accelerate deployment, and spur job creation and do so across a more geographically diverse and impactful R&D portfolio. This Request also includes funding for the basic operating costs of FECM and investment at the National Energy Technology Laboratory (NETL).

FECM's FY 2024 priorities follow:

- **Facilitate the Future Deployment of Point Source Carbon Capture:** R&D for point-source carbon capture and storage (CCS) in the power and industrial sectors to enable wider, strategic commercial deployment to meet net-zero emissions goals by 2050.
- **Reduce Methane Emissions:** Develop technologies and regional initiatives to quantify, monitor and reduce methane emissions from fossil fuel infrastructure including coal, oil, and gas.
- **Advance Carbon Dioxide Removal (CDR) and Carbon Dioxide Conversion:** Advance direct air capture, biomass with carbon removal and storage, and mineral carbonation technologies and develop novel approaches to recycle captured carbon emissions.
- **Advance Critical Minerals, Rare Earth Elements (REE), and Mine Remediation:** Improving REE separation/recovery technologies to manufacture products from CO<sub>2</sub> and carbon ores and to address current market and process economics. Advancing R&D to address abandoned mines.
- **Increase Efficient Use of Big Data and Artificial Intelligence (AI):** Use AI, machine learning, and data analysis to create learning algorithms within large dataset to help discover new materials, optimize processes, and run autonomous systems.
- **Accelerate Carbon-Neutral Hydrogen:** Develop technologies that leverage the natural gas infrastructure for hydrogen production, transport, storage, and use, coupled to carbon management.
- **Invest in Thoughtful Transition Strategies:** Invest in technologies and approaches and deploy regional initiatives that provide economic and environmental benefits to affected communities and invest in American workers as we transition to a net-zero carbon economy.

## Program Highlights

### Carbon Management Technologies

The Office of Carbon Management (OCM) supports R&D aimed at achieving a net-zero carbon economy by focusing on the entire carbon management value chain of capture, removal, conversion, transport, and geologic storage. OCM addresses emissions associated with the power and industrial sectors, as well as the accumulated emissions in the atmosphere, and seeks to permanently store CO<sub>2</sub> in geologic formations and/or convert CO<sub>2</sub> to reduce negative climate impacts.

Descriptions of major funding and programmatic changes and highlights within the Carbon Management Technologies program for the FY 2024 Budget Request are as follows:

#### **Hydrogen with Carbon Management**

The Hydrogen with Carbon Management subprogram invests in R&D to evaluate carbon-based clean hydrogen (i.e., coupled to CCS) as a fuel and support development of technologies to use clean hydrogen from any source. The subprogram's efforts are an integral part of DOE's recently launched Hydrogen Shot, with a goal of reducing the cost of clean hydrogen to \$1/kg within one decade (1-1-1) while expanding employment of the U.S. energy workforce. Seeking a cost-competitive decarbonized alternative to unabated fossil fuels, the subprogram has an R&D portfolio consisting of a new generation of carbon neutral or net-negative greenhouse gas (GHG) emissions technologies. Gasification, reversible solid oxide fuel cells, technologies in H<sub>2</sub> turbines, and advanced materials, sensors and controls all support this goal.

The \$85 million FY 2024 Budget Request for Hydrogen with Carbon Management will provide research, development, and a platform for developing the advanced systems of the future, while reducing emissions. In FY 2024, the subprogram will not fund R&D specific to traditional fossil power generation, but rather, will narrow the focus to work on hydrogen-fueled turbines, fuel cells, CCS-relevant technologies, and production of clean hydrogen through gasification. Improvements to these technologies are also applicable to other energy systems. These improvements to new and existing plants will also make them less carbon intensive and allow these assets to provide continued low-cost baseload power and resilient flexible grid services. This subprogram aligns with the Administration's priority to reduce the environmental impact of the power sector, especially regarding disadvantaged communities.

### **Carbon Transport and Storage**

The Carbon Transport and Storage (CTS) subprogram is uniquely positioned to support the U.S. as it helps the carbon transport and storage industry achieve the scale necessary to decarbonize the economy while considering associated economic, environmental, and social benefits and impacts. This subprogram is making key investments in advanced technology R&D and large-scale transport scenario analysis will facilitate the deployment of commercial-scale storage facilities and regional transport and storage hubs that achieve economies of scale reducing costs and enabling deeper emissions reductions. Critical components that will help catalyze deployment at-scale include, but are not limited to, strategies to develop the infrastructure for carbon storage, R&D to improve technology performance and reduce costs, educational partnerships to grow the workforce, technology transfer, and technical assistance to stakeholders.

The FY 2024 Budget Request provides \$110 million for the Carbon Transport and Storage subprogram activities that address the performance challenges of operating and monitoring commercial scale CO<sub>2</sub> storage sites. The activities supported by the Carbon Transport and Storage subprogram will aim to improve storage and operational efficiency, improve understanding of overall costs and advance de-risking strategies to reduce those costs. Achieving each of these elements through site characterization and developing advanced monitoring and modeling tools is critical for enabling a carbon capture, utilization and storage (CCS) industry that is safe, economically viable, and environmentally benign.

### **Carbon Dioxide Removal and Carbon Dioxide Conversion**

The CDR subprogram advances a diverse set of technology pathways in service of facilitating gigatonne-scale removal by mid-century. It emphasizes rigorous analysis of life cycle impacts and consideration of project design to ensure clear benefits to affected communities. The subprogram R&D of CDR technologies, such as direct air capture and direct ocean capture with permanent storage; biomass with carbon removal and storage; and mineralization to remove accumulated emissions from the atmosphere to counterbalance emissions from hard-to-abate sectors to achieve net-zero GHG emissions by mid-century.

The Carbon Dioxide Conversion (CDC) subprogram invests in R&D to advance technologies that recycle CO<sub>2</sub> into value-added products, such as building materials, fuels, and chemicals, through mineralization, catalytic conversion, and biological approaches. Through these investments, the CDC subprogram can help the U.S. achieve the goals of a net-zero carbon economy by 2050, while simultaneously developing technologies that help traditional industries build new business models for the future, while creating high-wage jobs and reducing GHG and other emissions in communities dependent on and impacted by energy and industrial production.

In FY 2024, the Budget Request provides \$70 million for CDR and \$50 million in the CDC subprograms. CDR funding will support continued activities to advance novel direct air capture and direct ocean capture materials and processes to help optimize and reduce the cost, front-end engineering and design (FEED) studies for biomass with carbon removal and storage, and novel approaches that can leverage industrial waste minerals and naturally occurring minerals to capture atmospheric CO<sub>2</sub>.

Carbon conversion technologies have the potential to develop additional markets for carbon-based products. Areas of research include, but are not limited to, new projects focused on the catalytic conversion of carbon waste streams to higher value products such as fuels, chemicals, polymers, and nutraceuticals; mineralization to building products; generation of solid carbon products; and algal systems designed to integrate captured CO<sub>2</sub>. Specific focus on catalysts made from low-cost materials and improved reactor designs will be pursued to lower the energy penalty and capital cost of the conversion process.

### **Point-Source Carbon Capture**

The Point-Source Carbon Capture R&D subprogram focuses on committed emissions associated with infrastructure that are expected to persist through mid-century. Natural gas power generation and CO<sub>2</sub>-emitting industrial sectors, such as cement, steel, pulp and paper, and hydrogen production are particular priorities. The FY 2024 Budget Request provides \$144 million in the Point-Source Carbon Capture subprogram for pre- and post-combustion capture R&D on transformational gas separation technologies that can help achieve decarbonization goals. This includes technologies such as non-aqueous solvents, sorbents, membranes, and

cryogenic processes. R&D activities will investigate approaches that can be flexible in operation and result in higher rates of CO<sub>2</sub> capture.

Additionally, the Point-Source Carbon Capture subprogram will leverage its extensive experience on carbon capture technology development for power sector applications to increase focus on hard to decarbonize industrial applications, specifically, cement, steel, pulp and paper, and hydrogen production. In FY 2024, R&D will focus on optimization of technologies for these applications to reduce cost and improve performance. Funding will also maintain progress on R&D to decarbonize power generation.

### **Carbon Management – Policy, Analysis, and Engagement**

The Office of Carbon Management conducts systems, economic, and environmental analysis that is primarily focused on: cost and performance for carbon management technologies; the role of carbon management in energy markets; life cycle analysis; energy markets assessments; integration of carbon management technologies with the U.S. Power Grid; and effects of carbon management deployment in local communities.

A variety of analysis methodologies are used in combination to provide a robust understanding of the cost, performance, and barriers to the deployment of carbon management technologies. Through a system of coordinated efforts and thoughtful engagement with stakeholders, realistic carbon management deployment scenarios can be crafted using market and technology-based information. This subprogram also supports social science and socioeconomic research to understand impacts of carbon management on communities and interagency engagement with key federal partners. Activities will aid in proactive, place-based community engagement and planning that include consideration of CCS and CDR development, in the context of broader energy options, to both ensure that carbon management projects work for communities and to increase siting certainty for future development. The FY 2024 Budget Request for Policy, Analysis, and Engagement is \$5 million.

### **Resource Sustainability**

The Resource Sustainability Office addresses critical issues associated with reducing the environmental impacts of fossil energy production and use. This includes conducting R&D that reduces the environmental impact from the extraction, development, transportation, distribution, and storage of fossil fuel and reducing emissions throughout the supply chain. Descriptions of major programmatic changes and highlights within the Resource Sustainability program for the FY 2024 Budget Request, which totals \$179 million, are as follows:

#### **Advanced Remediation Technologies**

The Advanced Remediation Technologies program will conduct R&D of novel technologies and approaches to address wellbore integrity, induced seismicity, produced water treatment, and offshore safety and spill prevention. A redesigned field program will focus on conducting research to minimize the environmental impacts associated with unconventional oil and gas production, and exploration of pathways that would result in a positive impact on climate, such as coupling production with CO<sub>2</sub> storage.

#### **Methane Mitigation Technologies**

The Methane Mitigation Technologies program will conduct R&D to advance methane sensor technologies to detect and quantify methane emissions from production fields, pipelines, infrastructure equipment, storage facilities, and abandoned wells; pipeline materials, pipeline sensors, and pipeline data management and computational tools; and advanced modular natural gas conversion technologies for the purpose of beneficially utilizing otherwise flared or stranded natural gas. The program will collect, analyze, and distribute methane emissions data, information, and knowledge to inform efforts on methane mitigation technology development and support the Environmental Protection Agency's (EPA) Greenhouse Gas Inventory. The program will expand field research on methane measurement technologies and analysis methods for quantifying emissions at basin-level assessments. The program will implement a strategy to reconcile methane emissions estimates from surface-based measurements (bottom-up) and atmospheric measurements (top-down) that will minimize and resolve the difference between these two segments on a large-scale.

#### **Natural Gas Decarbonization and Hydrogen Technologies**

The Natural Gas Decarbonization and Hydrogen Technologies (NGDHT) subprogram will support R&D to advance clean hydrogen production and infrastructure for natural gas decarbonization; hydrogen production from produced water; technologies for enabling safe and efficient transportation within the U.S. natural gas pipeline system; and fundamental research to enable subsurface hydrogen storage. Programmatic activities will be conducted in support and coordination with the Hydrogen and Carbon Management Division within FECM and with the Hydrogen and the Fuel Cell Technologies Office (HFTO) within the Office of Energy Efficiency and Renewable Energy (EERE).

## **Mineral Sustainability**

The Mineral Sustainability Program will advance technologies to support domestic supply chain networks required for the economically, environmentally, and geopolitically sustainable production and processing of critical minerals (CM). This mission will be accomplished by prioritizing the use of unconventional resources such as coal waste and by-products from industry feedstocks for domestic CM, rare earth elements and carbon ore to products production. The program will also focus on utilizing materials to be recovered from currently mined and previously mined resources outside of traditional thermal and metallurgical markets that can support high-wage employment and value-added production in communities and regions dependent on traditional mining.

## **Resource Sustainability – Analysis and Engagement**

Analysis and Engagement will focus on analysis and studies that support the environmentally prudent production, transport storage, and use of domestic fossil fuels with an understanding of their role as a strategic asset for the U.S. and its allies for global energy security and provides evidence-based, portfolio-wide analysis for decision-makers. This includes economic and environmental analysis, modeling, market analysis, analysis of markets during volatility, studies that provide support to the overall Resource Sustainability Program, and data driven assessments of the impacts of different tools and levers that can be used to provide reliable and affordable fossil energy supplies to the domestic market. The program will inform research priorities, engagement with domestic and international governments and organizations, and provide market and industry analysis to inform the Department on fossil energy resources.

## **Other FECM Program Activities**

### **Energy Asset Transformation**

The Energy Asset Transformation program will help leverage and transform decommissioned and retiring energy assets, including coal power plants, coal mines, and abandoned oil and gas wells, by repurposing them for clean energy and manufacturing. This is one of the best ways to unite industry, environmental and community interests in places where employment and opportunity is on the decline. Many existing energy assets offer private sector actors a skilled workforce with knowledge of industrial operations; community relationships; access to rail lines, ports, and waterways; highway transportation, transmission and distribution infrastructure; electrical interconnect equipment and direct grid connections; industrial land, facilities; and potentially even site and permitting licenses among, other benefits. As innovative clean energy and manufacturing companies fan out across the country, it increasingly makes sense for them to choose to locate in energy communities to leverage existing infrastructure. In some instances, repurposing can ensure that historic energy communities have a path forward and can benefit from both short-term and permanent employment, opportunities for worker retraining programs, access to local work that does not require relocation, and opportunities to work in cutting-edge technology sectors. Importantly, repurposing allows communities to become active participants in crafting their own economic future.

The FY 2024 Budget Request of \$6 million will support fossil asset transformation efforts across the U.S., through both direct assistance and paper case studies. It will also continue to support place-based interagency efforts related to energy transition and fossil asset transformation, including by contributing to DOE's funding of the Rapid Response Teams associated with the Interagency Working Group on Coal and Power Plant Communities. The program will fund concept development through prizes or a competitive solicitation to repurpose the existing fossil asset, with the intent of supporting transformation efforts in seeking additional support for FEED studies and other work. The program will support research and case studies focused on safety and reliability challenges for assets reaching end of life in the near and medium term, particularly given dynamic operational constraints.

### **University Training and Research**

The Request of \$13 million provides funding for University Training and Research (UTR), which comprises funding for University Carbon Research (UCR), Historically Black Colleges and Universities (HBCU) and other Minority Serving Institutions (MSI).

## **National Energy Technology Laboratory**

**NETL and HQ Program Direction and Special Recruitment Programs** The Request of \$92 million for NETL/HQ Program Direction and \$1 million for Special Recruitment provides for the FECM organization's headquarters federal workforce and contractor support including salaries and benefits, support service contracts, travel, training, the working capital fund, and other employee costs. These staff are responsible for the oversight and administration.

of the FECM Programs and natural gas regulatory activities. In addition, funding for NETL federal technical staff and contractor support that provide Acquisition, Finance and Legal functions is supported.

**NETL Infrastructure**

The FY 2024 Budget Request of \$55 million supports the fixed costs of maintaining NETL’s lab footprint in three geographic locations: Morgantown, WV; Pittsburgh, PA; and Albany, OR. The footprint of these sites is approximately 240 acres, including 165 research laboratories. The Request provides funding for general plant projects to maintain research capabilities and combat deferred maintenance, the lease of NETL’s high performance computer and for information technology development, modernization, and enhancement.

**NETL Research and Operations**

The Request of \$89.475 million supports the salaries, benefits, travel, and other employee costs for the NETL staff of scientists, engineers and technical professionals who conduct onsite research and project management activities for FECM programs. The Request also funds partnership, technology transfer, and other collaborative research activities and supports the variable operating costs of NETL’s research sites.

**NUCLEAR ENERGY**

	(\$K)				
	FY 2022 Enacted <sup>1</sup>	FY 2023 Enacted <sup>2,3,4</sup>	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Nuclear Energy</b>					
NEUP, SBIR/STTR and TCF	121,000	130,276	146,710	+16,434	+12.6%
Reactor Concepts RD&D	257,000	259,000	98,200	-160,800	-62.1%
Fuel Cycle Research and Development	320,150	422,000	423,275	+1,275	+0.3%
Nuclear Energy Enabling Technologies	117,000	95,500	96,278	+778	+0.8%
Advanced Reactor Demonstration Program	250,000	285,000	203,000	-82,000	-28.8%
Infrastructure	356,850	346,224	318,924	-27,300	-7.9%
Idaho Sitewide Safeguards and Security	149,800	150,000	177,733	+27,733	+18.5%
International Nuclear Energy Cooperation	3,000	-	13,500	+13,500	N/A
Program Direction	80,000	85,000	85,000	-	+0.0%
<b>Total, Nuclear Energy</b>	<b>1,654,800</b>	<b>1,773,000</b>	<b>1,562,620</b>	<b>-210,380</b>	<b>-11.9%</b>

**Appropriation Overview**

**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, to assist in unleashing the clean energy transition through strategic, innovative research, development, demonstration, and deployment.

**Program Highlights**

- **NEUP, SBIR/STTR and TCF**  
 The Request provides for Nuclear Energy University Programs including university-led competitive research and development; university infrastructure support; scholarships, fellowships and faculty awards; and university research reactor fuel services. This program also provides NE’s full legally required participation in the Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR), and the Technology Commercialization Fund, as well as university-led research and development to the maximum extent practicable.
- **Reactor Concepts Research, Development and Demonstration**  
 Activities include cost-shared research under Advanced Small Modular Reactor Research, Development and Demonstration including support for the Carbon Free Power Project’s commercial demonstration of the NuScale technology; support for Light Water Reactor Sustainability through cost-shared efforts to extend the life and improve the economic competitiveness of the existing commercial nuclear reactor fleet through research in the areas of materials aging and degradation, safety margin characterization, safety technologies, and instrumentation and controls; and 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 as a resource capable of meeting the Nation's energy, environmental and energy security goals.

<sup>1</sup> Funding does not reflect the mandatory transfer of \$92.75 million from Naval Reactors for operation of the Advanced Test Reactor.

<sup>2</sup> Funding does not reflect the mandatory transfer of \$99.75 million from Naval Reactors for operation of the Advanced Test Reactor.

<sup>3</sup> Does not reflect the mandatory transfer of \$20.0 million to the Office of Science for ORNL Nuclear Facilities O&M.

<sup>4</sup> FY 2023 Enacted levels for base funding include \$300 million for the Office of Nuclear Energy: Advanced Nuclear Fuel Availability (\$100 million), National Reactor Innovation Center (\$20 million), Risk Reduction for Future Demonstration (\$120 million), and ARDP Demonstration Reactors (\$60 million) that was enacted in Division M, Additional Ukraine Supplemental Appropriations, of the Consolidated Appropriations Act, 2023 (P.L. 117-328). This funding is a part of the total \$12.5 billion government-wide originally intended to be base appropriations that was designated as emergency requirements for purposes of the 2023 Omnibus agreement.

- **Fuel Cycle Research and Development**

The Request supports R&D on advanced fuel cycle technologies that have the potential to accelerate progress on managing and disposing of the nation's spent fuel and high-level waste including efforts to establish an interim storage option for commercial spent fuel, improve resource utilization and energy generation, reduce waste generation, and limit proliferation risk. Advancements in fuel cycle technologies support the enhanced availability, economics, and security of nuclear-generated electricity in the United States (U.S.), further enhancing U.S. energy independence and economic competitiveness. This program also contributes to the Department's policies and programs for ensuring a reliable and economic nuclear fuel supply including the availability of High-Assay Low-Enriched Uranium (HALEU).

- **Nuclear Energy Enabling Technologies**

The Request supports R&D and strategic investments in research capabilities to develop innovative and crosscutting nuclear energy technologies essential for nuclear energy to contribute to our nation's net-zero energy transition. This program funds high-priority R&D on advanced manufacturing methods, fabrication, and instrumentation technologies that includes strong investments in modeling and simulation tools and provides access to unique nuclear energy research capabilities through its Nuclear Science User Facilities. Collectively, Nuclear Energy Enabling Technologies-sponsored activities support the goals, objectives, and activities of the Gateway for Accelerated Innovation in Nuclear (GAIN) initiative to make these technology advancements accessible to U.S. industry through private-public partnerships.

- **Advanced Reactor Demonstration Program**

The Advanced Reactor Demonstration Program focuses Departmental and non-federal resources on the development of commercial reactor technologies that may be ready for demonstration and deployment in the mid-term. The program partners with U.S. based teams to address technical, operational, and regulatory challenges to enable commercialization of a diverse set of advanced nuclear reactor designs.

- **Infrastructure and Idaho National Laboratory Sitewide Safeguards and Security**

The Request supports the secure and effective availability of Idaho National Laboratory to support nuclear energy as well as other DOE and U.S. government research requirements. The Idaho National Laboratory Facilities Operations and Management subprogram continues investments at the Advanced Test Reactor (ATR) and Advanced Test Reactor Critical Facility (ATRC) to improve reliability and availability of the ATR and continue operations at the Transient Reactor Test Facility (TREAT), unique capabilities that fulfill the acute needs of our existing, future, and naval reactor fleets. The Idaho Sitewide Safeguards and Security program will increase the workforce and focus on continued implementation of infrastructure investments, capital improvements, emerging technology investments, and enhanced cybersecurity program capabilities to adequately secure site assets.

**NUCLEAR WASTE FUND OVERSIGHT**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Nuclear Waste Fund Oversight</b>					
Nuclear Waste Fund Oversight	7,500	10,205	12,040	+1,835	+18.0%
Interim Storage	20,000	-	-	-	0.0%
<b>Total, Nuclear Waste Fund Oversight</b>	<b>27,500</b>	<b>10,205</b>	<b>12,040</b>	<b>+1,835</b>	<b>+18.0%</b>

**Appropriation Overview**

The **Nuclear Waste Fund Oversight** program supports the Department’s responsibilities for managing the Nuclear Waste Fund (NWF), administering the Standard Contract, and maintaining the security of the Yucca Mountain site.

**Program Highlights**

The Nuclear Waste Fund Oversight program’s FY 2024 Budget Request activities include:

- Implementation of an appropriate investment strategy and prudent management of the NWF investment portfolio;
- Administration of the Standard Contract for the disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW) between contract holders and the government;
- Provision of legal services for activities related to nuclear waste disposal, including but not limited to interim storage;
- Management of the physical security requirements for the Yucca Mountain site under DOE Order 473.3A as well as site maintenance and fulfillment of environmental requirements;
- Execution of the annual agency financial report and audit; and
- Operation and maintenance costs for Yucca Mountain legacy licensing and data management system.

These funds are inclusive of program direction activities and management and technical costs necessary to carry out the program’s mission.

The Interim Storage program’s FY 2023 appropriation and FY 2024 Budget Request is included in Nuclear Energy Research and Development.



## ELECTRICITY

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted <sup>a</sup>	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted	
				\$	%
Electricity					
Grid Controls and Communications					
Transmission Reliability and Resilience	24,941	31,587	42,500	+10,913	+34.5%
Energy Delivery Grid Operations Technology	12,791	30,614	30,000	-614	-2.0%
Resilient Distribution Systems	53,500	53,548	47,300	-6,248	-11.7%
Cyber Resilient and Secure Utility Communications Networks (SecureNet)	20,372	14,591	15,000	+409	+2.8%
Total, Grid Controls and Communications	111,604	130,340	134,800	+4,460	+3.4%
Grid Hardware, Components, and Systems					
Energy Storage					
Research	70,684	88,965	78,600	-10,365	-11.7%
20-OE-100 Grid Storage Launchpad construction	47,000	0	0	0	N/A
Total, Energy Storage	117,684	88,965	78,600	-10,365	-11.7%
Transformer Resilience and Advanced Components	10,636	26,615	21,700	-4,915	-18.5%
Applied Grid Transformation Solutions	0	9,873	29,700	+19,827	+200.8%
Total, Grid Hardware, Components, and Systems	128,320	125,453	130,000	+4,547	+3.6%
Electricity Innovation and Transition	6,226	11,707	14,000	+2,293	+19.6%
Congressionally Directed Spending	2,850	0	0	0	N/A
Program Direction	17,000	17,793	18,675	+882	+5.0%
<b>Total, Electricity</b>	<b>266,000</b>	<b>285,293</b>	<b>297,475</b>	<b>+12,182</b>	<b>+4.3%</b>

### Appropriation Overview

The ability to move abundant clean electricity from where it is produced to where and when it is needed is the cornerstone of a reliable electric grid. The electricity delivery system must be capable of supporting all types of generation resources and loads, and ensure reliable, resilient grid operations under all conditions. The Office of **Electricity** (OE) leads the Department's efforts in developing new technologies to strengthen, transform, and improve electricity delivery infrastructure so new generation and loads can be fully integrated into the energy ecosystem and consumers have access to resilient, secure, and clean sources of electricity. OE provides solutions to technical, market, institutional, and operational failures that go beyond any one utility's ability to solve<sup>b</sup>. To accomplish this critical mission, OE engages stakeholders throughout the sector on a variety of innovative technology solutions to modernize the electric grid.

### Program Highlights

- **Transmission Reliability and Resilience (TRR)** is focused on ensuring the reliability and resilience of the U.S. electric grid through research and development (R&D) on system observability and control capabilities. TRR also develops and validates models to characterize evolving system needs, identifies pathways to achieve an equitable transition to decarbonization and electrification, addresses ongoing industry challenges related to relay misoperations and

<sup>a</sup> The FY 2024 Budget Request to Congress proposes to split the Electricity appropriation account into two accounts: Electricity and Grid Deployment. FY 2022 and FY 2023 appropriations for Grid Deployment Office (GDO) activities are shown under the Grid Deployment account rather than the Electricity account. Additionally, within the Electricity account, the FY 2023 appropriation moved DarkNet funding from Energy Delivery Grid Operations Technology to SecureNet and the FY 2024 Request consolidates all Small Business Innovation Research (SBIR), Technology Commercialization Fund (TCF), and workforce development activities under a new Electricity Innovation and Transition (EIT) program. To allow an apples-to-apples comparison across all years, in addition to showing FY 2022 and FY 2023 GDO funding in the Grid Deployment account, FY 2022 DarkNet funding is shown under SecureNet, and all FY 2022 and FY 2023 SBIR, TCF, and workforce development funding is shown under EIT. Details on these funding shifts are shown in the Comparability Matrix sections at the end of the OE Overview and OE program narratives.

<sup>b</sup> Examples include wide-area visibility, identified from the 2003 Northeast blackout, and faster modeling and analysis, identified in the 2011 Southwest blackout.

identification and isolation of faults and mitigates risks across integrated energy systems through data fusion and tool development.

- **Energy Delivery Grid Operations Technology (EDGOT)** enhances the analytical capability needed to ensure reliable and resilient energy delivery and provides the architecture and process for identifying a range of scalable mitigation solutions to changing climate conditions and other emerging threats. The core of the EDGOT portfolio is the North American Energy Resilience Model (NAERM), a hybrid data/model platform for the quantitative assessment of the significant interdependencies that have evolved within the energy sector and that could affect reliability. NAERM will provide for enhanced planning and analysis capabilities that can be leveraged to facilitate grid investments to address these threats.
- **Resilient Distribution Systems (RDS)** develops transformative technologies, tools, and techniques that enable industry to keep pace with emerging and evolving conditions that necessitate modernization of the distribution network to ensure continued reliability and resilience. RDS pursues strategic investments in innovative technologies and practices that improve reliability, increase resilience, support vehicle electrification, integrate clean distributed energy resources, and provide consumers with more choices for managing their energy consumption.
- **Cyber Resilient and Secure Utility Communications Networks (SecureNet)** develops solutions to strengthen the 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. Our Nation's energy system is heavily dependent on data communications and cyber-physical controls for operational reliability and resilience. More integration of distributed assets on the grid increases this dependency and presents a broader attack surface for increasingly sophisticated adversaries to exploit. The program's R&D efforts to design security into the future grid is essential to extend the Department's focus beyond today's challenges and ensure the efficient, reliable, and resilient operation of the electric power system in tomorrow's even more complex and dynamic risk landscape.
- **Energy Storage** accelerates bi-directional electrical energy storage technologies as a key component of a reliable, resilient, and affordable future-ready grid. OE Storage research, development, demonstration, and deployment efforts accelerate the development of long duration grid storage technologies through increasing amounts of stored energy and operational durations, reducing technology costs, de-risking technologies to ensure safe long-term reliability, developing analytic models to uncover technical and economic benefits, and demonstrating how storage can provide clean and equitable energy access for consumers and communities.
- **Transformer Resilience and Advanced Components (TRAC)** develops innovations to carry, control, convert, and condition electricity, equipping the future-ready grid to achieve decarbonization goals while enhancing its reliability and resilience. The TRAC scope encompasses materials research, exploratory concepts, and modeling and analysis to address the range of challenges associated with transformers and other grid components. Program activities, developed in close coordination with industry, aim to fill fundamental R&D gaps and encourage the adoption of new technologies and approaches.
- **Applied Grid Transformation Solutions (AGTS)** addresses the pressing need for rapidly assessing new grid systems and subsystems (including energy storage, transmission, distribution, and power control and conversion hardware and associated software) by testing integrated technology suites in pilot environments prior to the hardware and software being deployed by industry in operational environments. These assessments provide utilities with the information they need to quantify and validate functionality, performance, and economic benefits before deploying new technologies. The results of pilot demonstrations will validate the techno-socio-economic performance of the systems and accelerate the adoption of new technology by the industry.
- **Electricity Innovation and Transition (EIT)** is a new program in FY 2024 consolidating all OE funding for Small Business Innovation Research, Technology Commercialization Fund, and workforce development activities. The reorganization of these efforts provides a more flexible, streamlined, and transparent approach for OE to support innovators, small businesses, and researchers moving grid technologies forward.

OFFICE OF CLEAN ENERGY DEMONSTRATIONS

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Office of Clean Energy Demonstrations</b>					
Clean Energy Demonstrations	12,000	64,000	170,000	+106,000	+165.6%
Program Direction	8,000	25,000	45,300	+20,300	+81.2%
<b>Total, Office of Clean Energy Demonstrations</b>	<b>20,000</b>	<b>89,000</b>	<b>215,300</b>	<b>+126,300</b>	<b>+141.9%</b>

**Appropriation Overview**

The mission of the **Office of Clean Energy Demonstrations** (OCED) is to deliver commercial-scale energy demonstration projects in partnership with the private sector to accelerate market adoption, deployment, and the equitable transition to a modernized and competitive clean energy economy. The Request in FY 2024 will complement OCED’s current demonstration projects to fill gaps and continue to pursue cutting-edge strategies to help advance the goals of carbon-free electricity and a net-zero carbon emission economy.

Through resources appropriated by the Infrastructure Investment and Jobs Act and Inflation Reduction Act, OCED currently funds demonstration projects in clean hydrogen, carbon management, advanced nuclear reactors, long-duration energy storage, industrial decarbonization, and renewables, including in rural areas, and on current and former mine lands. The FY 2024 Budget builds the base annual appropriations so OCED can continue to drive commercialization and unlock private investment, to set the Nation on a course to a modernized and upgraded energy system that leads the world in an advanced clean energy infrastructure.

OCED programs demonstrate clean energy solutions at or near full- and commercial-scale, in real-world operational environments, and in partnership with the private sector and local communities. The primary goal of these demonstrations is to enable market liftoff and resolve critical risks to commercialization and adoption of clean energy solutions across all sectors to ensure bankability, marketability, and replicability. OCED programs and funding are focused predominantly on these demonstration-to-deployment objectives, as differentiated from research and development. The majority of OCED’s demonstrations are intended to transition into sustained, long-term operations following the project period of performance, building confidence among investors, financiers, industry, customers, and communities in the value, viability, and overall performance of the solution.

OCED also serves as a project management oversight center of excellence for other DOE offices overseeing large-scale demonstration projects, applying lessons learned from past DOE demonstrations, and adopting best practices for project management.

**Program Highlights**

**Clean Energy Demonstrations (\$170,000,000):** FY 2024 planned investments include the following:

- **Energy Demonstrations (\$160,000,000):** OCED will fund up to five demonstration projects to reduce carbon and other emissions in the industrial sector while maximizing benefits to underserved and overburdened host communities. OCED will prioritize projects that decarbonize existing industrial facilities or processes, and/or enable the production of low-carbon products such as steel, cement, glass, and fuels. This effort will complement demonstrations funded under Section 41008 of the Infrastructure Investment and Jobs Act and Section 50161 of the Inflation Reduction Act. The industrial sector is complex and presents unique challenges for decarbonization due to many diverse subsectors, low rates of infrastructure turnover, and energy-intensive processes. This effort builds on existing industrial decarbonization programs in coordination with the DOE Industrial Decarbonization Joint Strategy team to make additional progress.
- **Demonstration Planning and Analysis (\$10,000,000):** Funding will support oversight of OCED demonstration projects, such as an independent engineering contract that will assist OCED oversight of project engineering, construction, and

operations; as well as project management data systems and analysis tools necessary to track cost, schedule, and other performance information.

**Program Direction (\$45,300,000):** Program Direction funds federal salaries and benefits, including training, travel, performance awards, Working Capital Fund expenses, associated support services contracts, and administrative expenses.

**CYBERSECURITY, ENERGY SECURITY, AND EMERGENCY RESPONSE**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Cybersecurity, Energy Security, and Emergency Response</b>					
Risk Management Technology and Tools	129,804	125,000	135,000	+10,000	+8.0%
Response and Restoration	18,000	23,000	39,000	+16,000	+69.6%
Preparedness, Policy, and Risk Analysis	19,000	26,857	39,000	+12,143	+45.2%
Program Direction	16,000	25,143	32,475	+7,332	+29.2%
Congressionally Directed Spending	3,000	-	-	-	N/A
<b>Total, Cybersecurity, Energy Security, and Emergency Response</b>	<b>185,804</b>	<b>200,000</b>	<b>245,475</b>	<b>+45,475</b>	<b>+22.7%</b>

**Appropriation Overview**

The Office of **Cybersecurity, Energy Security, and Emergency Response (CESER)** leads the Department’s efforts to secure U.S. energy infrastructure against all hazards, reduce the risks of and impacts from cyber and other disruptive events, and leads response and restoration activities. CESER is the designated head Office for DOE’s responsibilities as lead agency for Emergency Support Function #12 (Energy), or ESF #12, under the National Response Framework. CESER is also the Sector Risk Management Agency (SRMA) for national efforts to enhance preparedness, resiliency, and recovery of the U.S. energy infrastructure. The U.S. energy sector powers and fuels the economy, national security, and the daily lives of Americans. With critical energy infrastructure facing evolving threats and hazards, especially from significant climate-related incidents and rapidly evolving cyber threats, CESER divisions and programs coordinate with electricity and oil and natural gas infrastructure owners and operators; State, Local, Tribal, and Territory (SLTT) governments; and federal agencies to understand and mitigate risk, develop guidance and tools to mitigate risk and enhance resilience and security, and respond when incidents do occur. CESER leads, coordinates, and provides technical expertise across DOE in implementing its cybersecurity-by-design strategy, in which cybersecurity considerations are incorporated into new clean energy technologies as they are developed by the applied energy offices.

**Program Highlights**

**Preparedness, Policy, and Risk Analysis (PPRA)** replaces **Information Sharing Partnerships and Exercises** and leads identification, analysis, and prioritization of risks to the energy sector from all hazards. PPRA accomplishes this objective by leading CESER’s efforts across the risk management framework cycle from issue identification, assessment, and mitigation. PPRA also leads CESER’s and the Department’s security-focused engagement with energy critical infrastructure stakeholders, both in government and the private sector, with the goal of enhancing operational collaboration to reduce and mitigate risks to the sector, including developing policy, exercises, training, and workforce development solutions. This includes overseeing the Energy Government Coordinating Council, whose members include federal agencies and SLTT partners with energy sector security and resilience equities. PPRA will expand, aggregate, and deliver intelligence-informed and actionable data and analysis to SLTT energy and emergency officials and industry via dynamic risk analysis and launch regional ESF #12 training workshops and tabletop exercises for States to enhance preparedness and collaboration, as well as working directly with States to expand their cyber incident response planning. PPRA focuses on developing a shared understanding and prioritization of risks to the sector from all hazards (cyber, physical, and natural) and identifies potential mitigation measures that can be utilized by owners / operators to reduce risk to their assets or systems. PPRA leverages long-term recovery authorities to integrate response and recovery in coordination with CESER’s Response and Restoration division and other DOE offices as well as support / investment from other agencies (e.g., the Federal Emergency Management Agency’s (FEMA) Building Resilient Infrastructure and Communities). PPRA’s Defense Critical Electric Infrastructure efforts, as codified in 16 USC 824o-1, will develop executable strategies to strengthen the energy systems that supply critical defense facilities. In addition, on-going training and exercises with the sector participants are developed to test and identify improvements response plans and procedures and identify mitigation gaps that build into requirements for policy and tool solutions. As an example, CyberForce Competition will expand its work with universities, colleges, and technical schools across the country to advance cybersecurity in the operational technology and industrial controls systems environment and train the next generation of energy security cybersecurity experts.

**Risk Management Tools and Technologies (RMT)** programs focus on research, development, and demonstration (RD&D) of tools and technologies to address all threats and risks in the U.S. energy sector. RMT develops tools, technologies, and techniques that enable prevention, detection, and real-time sector-wide situational awareness combined with time-sensitive analysis, visualization, and dissemination of actionable threat and vulnerability information in support of key DOE, Federal Government, and energy sector stakeholders. Working closely with the energy sector and our government partners, the Request focuses on enhancing the speed and effectiveness of threat and vulnerability information sharing, including bi-directional machine-to-machine information sharing, and accelerating game-changing tools to mitigate cyber incidents in today's systems and to develop next-generation resilient energy delivery systems while developing analyses to quantify the resulting relative risk reduction. In particular, RMT will lead supply chain security efforts as part of the Energy Cyber Sense program. The program will include expanding initiatives such as the Cyber Testing of Resilient Industrial Control Systems (CyTRICS) program and supply chain security in next generation clean energy systems. RMT will also include RD&D for innovative tools and their transition to commercialization. The programs will lead integration of cybersecurity into the energy delivery system research, development, demonstrations, and deployment across the DOE enterprise ensuring that emerging tools and technologies used in the U.S. grid of the future are secure and resilient. The Request supports continuing our efforts in support of tools and capabilities designed specifically to address threats such as extreme weather, physical threats, and electromagnetic pulse (EMP) and geomagnetic disturbance (GMD) (EMP/GMD) investments. RMT will be focused on addressing wildfire threats through innovative sensor technologies, leveraging unmanned aerial systems, and satellite imagery, in addition to artificial intelligence and machine analytics. Finally, RMT will partner with other parts of DOE to ensure that investments in new technologies are informed by existing and future risks.

**Response and Restoration (R&R)** coordinates a national effort to secure U.S. energy infrastructure against all hazards, reduce impacts from disruptive events, and assist the industry in restoring energy infrastructure. During incidents requiring a coordinated federal response, the R&R program activates the Energy Response Organization to deploy responders and engage with relevant sector and SLTT entities. CESER trains and leads coordination activities among a cadre of volunteer ESF #12 responders across DOE. Catastrophic and incidents in remote locations are managed by the ESF #12 Catastrophic Incident Response Team, a subset of ESF #12 responders. The ESF #12 cadre delivers critical capabilities including energy sector emergency response and recovery; near-real-time situational awareness and information sharing about the status of the energy systems to improve risk management; analysis of evolving threats and hazards to energy infrastructure; and technical assistance that incorporates exercises in order to strengthen federal, regional, state, local, Tribal, and Territorial abilities to work together to mitigate the effects of an energy sector emergency. As part of this effort, CESER will continue to develop its Environment for Analysis of Geo-Located Energy Information (EAGLE-I) situational awareness platform and maintain continuous monitoring of the energy sector. CESER's R&R team will also strengthen its cyber response capabilities to ensure DOE is fully prepared to respond to the growing risks from cyber threats to energy infrastructure from nation-states and cyber-criminal groups, including cyber-attacks that lead to physical or operational impacts to energy supply. CESER will also work with DOE's Office of Intelligence and Counterintelligence, the Cybersecurity and Infrastructure Security Agency's Joint Cyber Defense Collaborative, and other agencies to conduct the Energy Threat Analysis Center (ETAC) Pilot concept. ETAC Pilot activities will initially include joint analysis and information-sharing among industry and government entities on cyber threats specific to energy systems. The ETAC Pilot seeks to advance joint collaboration on risks and threats to the energy sector, as well as identify capabilities to quickly develop mitigation measures and implement defensive actions.

#### **Infrastructure Investment and Jobs Act (IIJA) Programs**

In FY 2024, CESER will continue to support the cyber provisions of the IIJA, including the Rural and Municipal Utility Advanced Cyber Grant and Technical Assistance Program and Cybersecurity for the Energy Sector Research, Development, and Demonstration. CESER will also support the development of State Energy Security Plans through technical support. In addition, CESER will provide technical assistance and support for other DOE offices to ensure the integration of cybersecurity considerations in programs funded by IIJA and Inflation Reduction Act throughout the Department.

**CYBERSECURITY, ENERGY SECURITY, AND EMERGENCY RESPONSE PETROLEUM ACCOUNTS**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Cybersecurity, Energy Security, and Emergency Response Petroleum Accounts</b>					
<b>Naval Petroleum &amp; Oil Shale Reserves</b>					
Production Operations	11,650	11,004	11,010	+6	+0.1%
Management	2,000	2,000	2,000	-	-
<b>Total, Naval Petroleum &amp; Oil Shale Reserves</b>	<b>13,650</b>	<b>13,004</b>	<b>13,010</b>	<b>+6</b>	<b>+0.0%</b>
<b>Strategic Petroleum Reserve</b>					
Facilities Development and Operations	168,525	163,444	233,897	+70,453	+43.1%
Management for SPR Operations	28,475	28,651	30,792	+2,141	+7.5%
Northeast Gasoline Supply Reserve	22,000	15,080	16,280	+1,200	+8.0%
<b>Total, Strategic Petroleum Reserve</b>	<b>219,000</b>	<b>207,175</b>	<b>280,969</b>	<b>+73,794</b>	<b>+35.6%</b>
<b>Northeast Home Heating Oil Reserve</b>					
Northeast Home Heating Oil Reserve	6,500	7,000	7,150	+150	+2.1%
<b>Total, Northeast Home Heating Oil Reserve</b>	<b>6,500</b>	<b>7,000</b>	<b>7,150</b>	<b>+150</b>	<b>+2.1%</b>
<b>SPR Petroleum Account</b>					
SPR Petroleum Account	7,350	100	-	-100	N/A
<b>Total, SPR Petroleum Account</b>	<b>7,350</b>	<b>100</b>	<b>-</b>	<b>-100</b>	<b>N/A</b>
<b>Total, Cybersecurity, Energy Security, and Emergency Response Petroleum Accounts</b>	<b>246,500</b>	<b>227,279</b>	<b>301,129</b>	<b>+73,850</b>	<b>+32.5%</b>

**Appropriation Overview**

The Office of **Cybersecurity, Energy Security, and Emergency Response (CESER) Petroleum Accounts** consist of emergency petroleum security/supply programs, a Strategic Petroleum Reserve (SPR) modernization program, and post-sale remediation activities at the Naval Petroleum and Oil Shale Reserves (NPOSR) Nos. 1 and 3. The SPR storage sites are located at four government-owned Gulf Coast locations with oversight from the Project Management Office in Harahan, Louisiana, and Headquarters in Washington, D.C. Both the Northeast Home Heating Oil Reserve (NEHHOR) and the Northeast Gasoline Supply Reserve (NGSR) consist of government-owned refined petroleum products stored in leased commercial storage in terminals in the Northeast. Legacy environmental clean-up/remediation continues at the previously sold NPOSR No. 1 (Elk Hills, CA), and landfill monitoring and closure continues as part of post-sale activities at NPOSR No. 3 (Casper, WY).

**Program Highlights**

- **Strategic Petroleum Reserve**

The SPR Program provides strategic and economic security against foreign and domestic disruptions in oil supplies via an emergency stockpile of crude oil. The program fulfills United States' obligations under the International Energy Program, which avails the U.S. of International Energy Agency assistance through its coordinated energy emergency response plans and provides a deterrent against energy supply disruptions. The SPR Program will perform sustainment and construction activities, as well as cavern wellbore testing and remediation activities to ensure the availability of the SPR's crude oil inventory. Additional funding is included to the Major Maintenance Program for required upgrades to the West Hackberry Physical Security Program in accordance with DOE Order 473.3A and the SPR Level III Criteria. As a subprogram within the SPR account, the NGSR was established in 2014 to ease regional shortages resulting from sudden/unexpected supply interruptions (e.g., Superstorm Sandy). The NGSR consists of 1 million barrels of gasoline blendstock stored in leased commercial storage terminals located in Maine, Massachusetts, and New Jersey. To continue ongoing commercial storage leases and oversight at an annual cost of \$16,280,000.

- SPR Petroleum Account**  
The SPR Petroleum Account Program funds SPR petroleum acquisition, transportation, and drawdown activities. The Program will be used as a source of funding for drawdown costs related to crude oil movements from the SPR.
- Naval Petroleum and Oil Shale Reserves**  
Following the 1998 sale of the Government's interests in the NPOSR-1 (Elk Hills, CA), environmental cleanup/remediation activities under the Corrective Action Consent Agreement with the State of California Department of Toxic Substances Control (DTSC) began. Of the 131 areas of concern (AOCs) for which DOE is responsible for environmental cleanup, as of March 2021, 111 AOCs have received no further action certification from California's DTSC. The remaining 20 AOCs require remediation.
- Northeast Home Heating Oil Reserve**  
The NEHHOR FY 2024 Budget continues to maintain a 1 million barrel inventory of government-owned ultra-low sulfur distillate stored in three Northeast commercial storage terminals, as a short-term supplement to the Northeast systems' commercial supply of heating oil for deployment in the event of an emergency supply disruption. Commercial storage contracts went into effect on April 1, 2020, with the final option year extending through March 31, 2024. The Program will continue to focus its oversight and management on product quality analysis of the Reserve, as well as information technology support for the sales system.
- Energy Security and Infrastructure Modernization Fund**  
The FY 2024 President's Budget Request does not seek an appropriation for the Energy Security and Infrastructure Modernization Fund (ESIM or the Fund). The ESIM fund was established in Section 404 of the Bipartisan Budget Act of 2015 to finance modernization of the SPR. Sales of SPR crude oil will be used to fund the completion of the Life Extension Phase II (LE2) project needed to ensure the SPR can maintain its operational readiness capability, meet its mission requirements, and operate in an environmentally responsible manner. The Coronavirus Aid, Relief, and Economic Security (CARES) Act (Pub. L. 116-136, Section 14002) provided the Department flexibility to conduct the final sale into FY 2022 to raise funding for the SPR Modernization Program, in accordance with Section 404 of the Bipartisan Budget Act of 2015 (Pub. L. 114-74). As a result, Section 404 sales of SPR oil were concluded in FY 2021.



**INDIAN ENERGY POLICY AND PROGRAMS**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Indian Energy Policy and Programs</b>					
Indian Energy Policy and Programs	52,477	61,000	89,697	+28,697	+47.0%
Program Direction	5,523	14,000	20,353	+6,353	+45.4%
<b>Total, Indian Energy Policy and Programs</b>	<b>58,000</b>	<b>75,000</b>	<b>110,050</b>	<b>+35,050</b>	<b>+46.7%</b>

**Appropriation Overview**

The Office of **Indian Energy Policy and Programs** (IE) financial and technical assistance are offered to Indian tribes, including Alaska Native villages, and eligible tribal entities for advancing electrification and clean energy development and deployment on Indian lands, reducing energy costs, and assisting economic development in tribal communities where unemployment and poverty rates far exceed national averages. This assistance is intended to overcome barriers to deploying energy generation (used for heat and electric power) and energy efficiency projects to reduce or stabilize energy costs and address energy poverty, as well as to provide power to unelectrified homes.

Financial assistance will support funding opportunities toward energy development and electrification in Indian Country and technical assistance will assist in overcoming barriers to project development and support American Indians and Alaska Natives in planning to transition to clean energy and seven-generation planning. The FY 2024 Budget Request increases Program Direction funds and reflects an overall increase to continue two multi-year initiatives started in FY 2022: 1) transition all of the nation’s tribal colleges and universities to renewable energy; and 2) electrify the roughly 30,000 tribal homes that currently lack electricity. Both efforts will include supporting a substantial interagency coordinated tribal energy job training component. DOE will work together with U.S. Department of Agriculture and the Department of Interior to ensure that tribal energy policy, regulation, and incentives are properly aligned and that the right mix of loans, grants, and technical assistance is deployed to achieve the objectives as cost-effectively as possible, while fully respecting tribal sovereignty and self-determination. In addition to the two initiatives, the current program to assist Native community’s transition to clean energy will be continued.

**Program Highlights**

IE is beneficial in promoting energy development, efficiency, and use, reducing or stabilize energy costs, strengthening energy and economic infrastructure, and bringing electrical power and service to Indian land and homes, with the ancillary benefit of providing employment on tribal lands and in Alaska Native communities. This assistance is intended to overcome barriers to energy development, increase energy reliability and resiliency, and electrify tribal lands and homes.

Technical assistance facilitates expeditious energy planning and deployment. By building internal IE technical capability, and subject matter experts from DOE laboratories and partner organizations, technical assistance is being provided to support energy planning and the transition to clean energy. Specifically, through increased on-site staff and a local technical assistance network IE can deliver local solutions to American Indian and Alaska Native communities with a network that understand the local challenges. During FY 2024, IE will continue to expand is network of subject matter experts and partner organizations to provide local technical assistance.

Financial assistance provides funding opportunities for energy infrastructure deployment to American Indian and Alaska Native communities across the Nation in the form of grant awards. From 2010-2022, DOE’s Office of Indian Energy has invested over \$120 million in more than 210 tribal energy projects in American Indian and Alaska Native communities across the Nation. These projects, valued at nearly \$215 million, are leveraged by over \$93 million in recipient cost share.

**TITLE 17 INNOVATIVE TECHNOLOGY LOAN GUARANTEE PROGRAM**

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted <sup>b</sup>	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Title XVII Loan Guarantee Program</b>					
Administrative Expenses	32,000	66,206	70,000	+3,794	+5.7%
Offsetting Collections	(6,288)	(52,224)	(196,524)	-144,300	+276.3%
Rescission of Prior Year Balances	-	(150,000)	-	+150,000	N/A
<b>Total, Title XVII Loan Guarantee Program</b>	<b>25,712</b>	<b>(136,018)</b>	<b>(126,524)</b>	<b>+9,494</b>	<b>+ 7.0%</b>

**Appropriation Overview**

The **Title 17 Innovative Technology (Title 17) Loan Guarantee Program**, as authorized under Title XVII of the Energy Policy Act of 2005 (EPA of 2005), as amended, allows the Department of Energy (DOE) to provide loan guarantees for innovative energy projects that include energy efficient and renewable energy systems, advanced nuclear facilities, advanced fossil and carbon capture, sequestration, utilization and storage systems, energy storage, virtual power plants, and various other types of projects. Through Title 17 Innovative Clean Energy (ICE), the Loan Programs Office (LPO) provides access to debt capital for high-impact and large-scale energy infrastructure projects and first-time commercial deployments in the U.S. Eligible projects must avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; employ new or significantly improved technologies compared to commercial technologies in service in the U.S. at the time the guarantee is issued; and offer a reasonable prospect of repayment of the principal and interest on the guaranteed obligation. The FY 2024 Budget provides \$70 million for LPO to administer Title 17 authorities.

The Title 17 ICE Loan Guarantee Program is ideally positioned to accelerate the deployment of innovative projects that can help launch new energy technologies and markets, reduce greenhouse gas emissions, and drive American economic growth by providing flexible, custom financing and access to debt capital to meet specific project needs. LPO can provide access to capital that allows innovative technologies to scale and reach full market acceptance, overcoming key barriers to bankability. This Budget will fund LPO to continue to actively monitor its Title 17 ICE portfolio and provide resources to help provide oversight of project milestones, address issues that may arise, and provide guidance and risk mitigation for the long-term success of projects.

**Program Highlights**

The FY 2024 Budget Request includes \$70 million, wholly offset by an estimated \$196.5 million in collected fees, for administrative expenses to continue originating loans for the Title 17 Loan Guarantee Program, as well as to effectively monitor the existing portfolio. Title 17 ICE provides loan guarantees to eligible critical minerals projects and to non-innovative projects provided financial support or credit enhancements by eligible State Energy Financing Institutions.

<sup>a</sup> The FY 2022 Enacted collection reflects actual offsetting collections in FY 2022.

<sup>b</sup> The FY 2023 Enacted offsetting collection is based on the estimated loan authority used in FY 2023, and will be in the President's Budget.

**ADVANCED TECHNOLOGY VEHICLES MANUFACTURING DIRECT LOAN PROGRAM**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Advanced Technology Vehicles Manufacturing</b>					
Advanced Technology Vehicles Manufacturing	5,000	9,800	13,000	+3,200	+32.7%
<b>Total, Advanced Technology Vehicles Manufacturing</b>	<b>5,000</b>	<b>9,800</b>	<b>13,000</b>	<b>+3,200</b>	<b>+32.7%</b>

**Appropriation Overview**

The **Advanced Technology Vehicles Manufacturing (ATVM)** Direct Loan Program supports the manufacturing of advanced technology vehicles and associated components in the U.S. ATVM provides loans for the cost of re-equipping, expanding, or establishing manufacturing facilities in the U.S. to produce advanced technology vehicles or qualified components and for associated engineering integration costs.

In FY 2024, the Loan Programs Office (LPO) requests \$13.0 million for Administrative Expenses to originate ATVM direct loans and monitor the program’s growing portfolio. While the FY 2024 Budget Request does not request new loan authority, LPO anticipates utilizing nearly all remaining ATVM funds for the costs of loans by the end of FY 2028 – including closing approximately \$15 billion in loans in FY 2023 and \$16 billion in FY 2024 – which this increased request for Administrative Expenses would support.

**Program Highlights**

The FY 2024 Budget requests \$13.0 million for Administrative Expenses for the ATVM direct loan program. The program has been key in propelling the resurgence of the American auto manufacturing industry and accelerating U.S. electric vehicle (EV) manufacturing. The Budget Request will allow LPO to continue growing the portfolio of this crucial program. This includes providing access to capital for domestic manufacturers revitalizing U.S. auto supply chains, creating good-quality jobs, securing domestic supply chains from raw materials to parts, and retooling factories to compete globally.

**TRIBAL ENERGY LOAN GUARANTEE PROGRAM**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Tribal Energy Loan Guarantee Program</b>					
Administrative Expenses	2,000	2,000	6,300	+4,300	+215.0%
Guaranteed Loan Subsidy	-	2,000	-	-2,000	-100.0%
<b>Total, Tribal Energy Loan Guarantee Program</b>	<b>2,000</b>	<b>4,000</b>	<b>6,300</b>	<b>+2,300</b>	<b>+57.5%</b>

**Appropriation Overview**

The **Tribal Energy Loan Guarantee Program (TELGP)** is authorized by Section 2602 of the Energy Policy Act of 1992, as amended, to help finance tribal investment in energy projects that can support economic development and tribal sovereignty. The Consolidated Appropriations Act, 2022, enacted a change for that fiscal year, which was subsequently made permanent by the Inflation Reduction Act of 2022, to broaden TELGP authority to allow applicants to apply for direct loans financed by the U.S. Treasury Federal Financing Bank and guaranteed by the Department, in addition to partial loan guarantees of other eligible lenders. This change has greatly increased interest in and accessibility to the program. The FY 2024 Budget requests \$6.3 million to administer the TELGP in response to this increased activity level.

**Program Highlights**

TELGP provides debt capital to tribal borrowers and organizations installing robust energy projects that lead to economic development or modernizing power generation and distribution that benefit tribal communities.

The Request also supports LPO’s ongoing close collaboration with the Department’s Office of Indian Energy Policy and Programs and outreach to tribal members, including ongoing communication with tribal leaders, participating in tribal energy annual summits and other tribal events, and organization of listening sessions and workshops to discuss developing and financing of tribal energy projects.

**POWER MARKETING ADMINISTRATIONS**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023	
				Enacted	
			\$	%	
<b>Power Marketing Administrations</b>					
<b>Southeasten Power Administration</b>					
Southeasten Power Administration	73,637	100,960	94,468	-6,492	-6.4%
Less Alternative Financing/Offsetting Collections	(73,637)	(100,960)	(94,468)	+6,492	+6.4%
<b>Total, Southeasten Power Administration (SEPA)</b>	-	-	-	-	N/A
<b>Southwestern Power Administration</b>					
Southwestern Power Administration	125,816	162,802	189,737	+26,935	+16.5%
Less Alternative Financing/Offsetting Collections	(115,416)	(152,194)	(178,297)	-26,103	-17.2%
<b>Total, Southwestern Power Administration</b>	<b>10,400</b>	<b>10,608</b>	<b>11,440</b>	<b>+832</b>	<b>+7.8%</b>
<b>Western Area Power Administration (CROM)</b>					
Western Area Power Administration (CROM)	828,091	1,125,529	1,140,994	+15,465	+1.4%
Less Alternative Financing/Offsetting Collections (CRO)	(737,319)	(1,026,797)	(1,041,122)	-14,325	-1.4%
<b>Total, Western Area Power Administration (CROM)</b>	<b>90,772</b>	<b>98,732</b>	<b>99,872</b>	<b>+1,140</b>	<b>+1.2%</b>
<b>Falcon and Amistad O&amp;M Fund</b>					
Operation And Maintenance	7,545	7,928	8,297	+369	+4.7%
Less Alternative Financing/Offsetting Collections	(7,317)	(7,700)	(5,069)	+2,631	+34.2%
Use of PYB	-	-	(3,000)	-3,000	N/A
<b>Total, Falcon and Amistad O&amp;M Fund</b>	<b>228</b>	<b>228</b>	<b>228</b>	-	-
<b>Colorado River Basins Power Marketing Fund</b>					
Spending Authority from Offsetting Collections	239,290	2,000	535,238	-2,000	-100%
Offsetting Collections	(237,290)	-	(535,238)	-	N/A
<b>Total, Colorado River Basins Power Marketing Fund</b>	<b>2,000</b>	<b>2,000</b>	-	<b>-2,000</b>	<b>-100%</b>
<b>Total, Western Area Power Administration</b>	<b>93,000</b>	<b>100,960</b>	<b>100,100</b>	<b>-860</b>	<b>-0.9%</b>
<b>Total, Power Marketing Administrations</b>	<b>103,400</b>	<b>111,568</b>	<b>111,540</b>	<b>-28</b>	<b>-0.0%</b>

**Appropriations Overview**

The four **Power Marketing Administrations (PMAs)** sell electricity primarily generated by federally owned hydropower projects. Preference in the sale of power is given to public entities and electric cooperatives. Revenues from the sale of Federal power and transmission services are used to repay all related power and transmission costs.

**Program Highlights**

- Southeastern Power Administration**  
Southeastern markets and delivers all available Federal hydroelectric power from 22 U.S. Army Corps of Engineers (Corps) multipurpose projects to preference customers in an eleven-state area in the southeastern U.S. Southeastern does not own or operate any transmission facilities, and contracts with regional utilities that own electric transmission systems to deliver the Federal hydropower to Southeastern’s customers. Southeastern’s use of receipts and alternative financing offsets its appropriations resulting in a net-zero balance for the program.
- Southwestern Power Administration**  
Southwestern markets and delivers Federal hydroelectric power from 24 Corps multipurpose projects to preference customers in a six-state area and participates with other water resource users in an effort to balance diverse interests with power needs. To deliver power to its customers, Southwestern maintains 1,381 miles of high-voltage transmission lines, 26 substations/switching stations, and 51 microwave and very high frequency (VHF) radio sites. To maintain the

infrastructure and modernize systems to increase the reliability, efficiency, and use of Federal assets, Southwestern utilizes appropriations, Federal power receipts, and alternative financing. Of these, 93.0% is derived from use of receipts and alternative financing, resulting in a net appropriation of only 7.0%.

- **Western Area Power Administration**

Western Area Power Administration (WAPA) markets and transmits Federal power to a 1.3-million-square-mile service area in 15 central and western states from 57 Federally-owned hydroelectric power plants operated by the Bureau of Reclamation (the Bureau), the Army Corps of Engineers (the Corps), and the International Boundary and Water Commission. WAPA's capital program, conducted in close coordination with preference customers, continues to emphasize replacement, upgrade, and modernization of the electric system infrastructure to bring continued reliability, improved connectivity, and increased flexibility and capability to the power grid. Through extensive partnering efforts, WAPA has obtained significant stakeholder and customer participation in financing much of the capital program. Through transparency WAPA demonstrates the value of its efficient operations that preference customers enjoy. WAPA will continue to make significant efforts to be open, transparent, and inclusive of customers and stakeholders in its operational choices and capital planning efforts. WAPA is strengthening its Asset and Risk Management to further ensure capital investments are sufficient and wisely deployed for our Nation and for our customers. WAPA received an emergency \$500 million appropriation in FY 2022 through the Infrastructure Investment and Jobs Act, providing near-term relief for immediate concerns regarding the reduced level of Purchase Power and Wheeling (PPW) reserves for both the Construction, Rehabilitation, Operation and Maintenance (CROM) and Colorado River Basins Power Marketing Fund (CRBPMF) accounts. WAPA received an additional \$520 million appropriation in FY 2023 through the Disaster Relief Supplemental Act.

- **Bonneville Power Administration**

Bonneville operates under a business-type budget under the Government Corporation Control Act, 31 U.S.C 9101-10 and on the basis of the self-financing authority provided by the Federal Columbia River Transmission System Act of 1974 (Transmission Act) (Public Law 93-454). Authority to borrow from the U.S. Treasury is available to Bonneville on a permanent, indefinite basis.

Section 40110 of the Infrastructure Investment and Jobs Act (Public Law 117-58), enacted by the President on November 15, 2021, provides Bonneville \$10 billion in additional permanent borrowing authority "... to assist in the financing of construction, acquisition and replacement of the Federal Columbia River Power System and to implement the authority of the Administrator of the Bonneville Power Administration." The amount of Bonneville U.S. Treasury borrowing authority outstanding at any one time cannot exceed \$17.7 billion.

Bonneville is responsible for meeting the net firm power requirements of requesting customers through a variety of means, including energy conservation programs, acquisition of renewable and other resources, and power exchanges with utilities both in and outside the region.

Bonneville provides electric power, transmission, and energy services to a 300,000-square-mile service area in eight states in the Pacific Northwest. Bonneville wholesales the power produced at 31 Federal projects operated by the Corps and the Bureau and from certain non-Federal generating facilities. Bonneville operates and maintains over 15,100 circuit-miles of high voltage transmission lines and 262 substations. From these revenues, Bonneville funds the expense portion of its Budget and the power operations and maintenance costs of the Bureau and the Corps in the Federal Columbia River Power System (FCRPS). The capital portion of the Budget is funded primarily through borrowing from the U.S. Treasury at market rates for similar projects and with some non-Federal financing.

Bonneville is self-financed and receives no direct annual appropriations from Congress. In FY 2024, estimated total requirements of all Bonneville programs of \$4,528 million include estimated budget obligations of \$3,855 million and estimated capital transfers of \$673 million. Estimated obligations include operating expenses of \$2,880 million, capital investments of \$929 million, and \$46 million in projects funded in advance. These investments provide electric utility and general plant requirements associated with the FCRPS's transmission services, capital equipment, hydroelectric projects, conservation, and capital investments to mitigate impacts on the environment, fish, and wildlife.

FEDERAL ENERGY MANAGEMENT PROGRAM

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted <sup>b</sup>	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Energy Efficiency and Renewable Energy</b>					
<b>Federal Energy Management Program</b>					
Federal Energy Management	27,000	29,000		-29,000	-100.0%
Federal Energy Efficiency Fund	13,000	14,000		-14,000	-100.0%
Program Direction	13,997	14,000		-14,000	-100.0%
<b>Total, Federal Energy Management Program</b>	<b>53,997</b>	<b>57,000</b>	<b>-</b>	<b>-57,000</b>	<b>-</b>
<b>Federal Energy Management Program</b>					
Federal Energy Management	-	-	45,000	+16,000	+35.6%
AFFECT	-	-	20,000	+6,000	+30.0%
Program Direction	-	-	17,200	+3,200	+18.6%
<b>Total, Federal Energy Management Program</b>	<b>-</b>	<b>-</b>	<b>82,200</b>	<b>25,200</b>	<b>+30.7%</b>

**Appropriation Overview**

The **Federal Energy Management Program (FEMP)** within the Office of the Under Secretary for Infrastructure works with the Council on Environmental Quality and the Office of Management and Budget to develop guidance and resources that enable Federal agencies to meet statutory and Executive requirements related to energy, water, and greenhouse gas emissions. FEMP provides technical and financial assistance to agencies and works with its stakeholders to identify affordable solutions, facilitate public-private partnerships, and provide energy leadership to the country. FEMP works with Federal agencies to leverage their aggregate procurement power and support replicable models to move markets. FEMP tracks energy, water, and greenhouse gas data to annually report to Congress Federal agency progress and help prepare Office of Management and Budget Sustainability Scorecards. These activities were previously funded within the Office of Energy Efficiency and Renewable Energy (EERE).

Federal agencies have a tremendous opportunity and responsibility to lead by example by deploying technologies at scale to drive market transformation and sharing practices and approaches that state, local and private sector actors can adopt for broader impact. FEMP develops and provides agencies with the information, tools, and technical assistance they need to meet and track their energy-related requirements and goals. FEMP also administers the Federal Energy Efficiency Fund providing financial assistance to facilitate implementation of energy conservation measures across agencies through the Assisting Federal Facilities with Energy Conservation Technologies Grant Program.

FEMP provides skilled teams in energy planning; energy security; infrastructure financing; project development; project management; clean energy supply chains and procurement; state, community, and tribal engagement; and other key areas critical to the success of demonstration and deployment efforts as appropriated through the historic Infrastructure Investment and Jobs Act and annual appropriations. FEMP engages and works in partnership with a diverse set of stakeholders as it stewards and seeks the greatest benefits from Federal funding.

**Program Highlights**

- The FY 2024 President’s Budget Requests \$45 million for Federal Energy Management activities to develop resources and tools, provide technical assistance, issue guidance, facilitate public-private partnerships, track agency performance, and collaborate with agencies to implement required training.
- The \$20 million requested for the Federal Energy Efficiency Fund, authorized by 42 U.S. Code § 8253, will assist multiple agencies in implementing energy and water conservation measures.
- The FY 2024 Budget provides \$17 million for FEMP Program Direction to maintain and support a world-class Federal workforce that oversee program and project management, contract administration, workforce management, IT support, and Headquarters (HQ) and field site non-laboratory facilities and infrastructure.

<sup>a</sup> FY 2022 funds managed by FEMP were enacted under Energy Efficiency and Renewable Energy’s FEMP Office.

<sup>b</sup> FY 2023 funds managed by FEMP were enacted under Energy Efficiency and Renewable Energy’s FEMP Office.

**GRID DEPLOYMENT OFFICE**

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted <sup>a</sup>	FY 2024 Request <sup>b</sup>	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Electricity Appropriation</b>					
<b>Grid Deployment Office</b>					
Transmission Permitting and Technical Assistance	8,000	-	-	-	N/A
Grid Planning and Development	-	16,000	-	-16,000	-100%
Grid Technical Assistance	-	25,000	-	-25,000	-100%
Wholesale Electricity Market Technical Assistance and Grants	-	16,500	-	-16,500	-100%
Interregional and Offshore Transmission Planning	-	2,000	-	-2,000	-100%
Program Direction	3,000	5,207	-	-5,207	-100%
<b>Total, Grid Deployment Office, Electricity Appropriation</b>	<b>11,000</b>	<b>64,707</b>	<b>-</b>	<b>-64,707</b>	<b>-100%</b>
<b>Grid Deployment Office Appropriation</b>					
Transmission Planning and Permitting	-	-	56,500	+56,500	N/A
Distribution and Markets	-	-	36,750	+36,750	N/A
Hydropower Incentives	-	-	250	+250	N/A
Program Direction	-	-	13,100	+13,100	N/A
<b>Total, Grid Deployment Office Appropriation</b>	<b>-</b>	<b>-</b>	<b>106,600</b>	<b>106,600</b>	<b>N/A</b>

**Appropriation Overview**

The **Grid Deployment Office** (GDO) works to provide electricity to everyone, everywhere by maintaining and investing in critical generation facilities to ensure resource adequacy and improving and expanding transmission and distribution systems to make sure all communities have access to reliable, affordable electricity. Working in strong partnership with energy sector stakeholders on a variety of grid initiatives, GDO supports the resilience of our Nation’s electric system by mitigating risk and strengthening our transmission and distribution infrastructure. GDO’s priorities are to develop and deploy innovative grid modernization solutions to address local, state, regional and national electricity system needs, and ensure the availability of clean, firm generation capacity, like hydropower and nuclear energy. GDO funds activities that supports four key priorities:

- Planning – modernize distribution and transmission planning processes to drive the development of highest-need grid projects that provide largest long-term benefits to consumers.
- Financing – deploy the Infrastructure and Investment Jobs Act (IIJA) and the Inflation Reduction Act (IRA) authorities and coordinate existing financial tools within the Department to help accelerate interregional transmission builds and enhance the resilience of the grid.
- Permitting – coordinate with States and Federal permitting agencies to help facilitate and streamline siting and permitting processes.
- Coordination – early, frequent, and collaborative engagement with government entities, including States, Territories, American Indian Tribes, and Alaska Natives, and other stakeholders throughout the process of evaluating needed transmission and distribution infrastructure to meet energy goals and deploying the Department’s tools and authorities to accelerate the infrastructure deployment, integrating energy justice principles.

**Program Highlights**

- **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 2024 Request focuses on assisting states and regions with implementing the results of the National Transmission Planning Study<sup>c</sup>, which will identify pathways necessary for large-scale transmission system buildout that meets regional and national interests. The National Transmission Planning Study will also expand geographic scope from the 48

<sup>a</sup> \$11M in FY 2022 and \$64.7M in FY 2023 were appropriated to the Electricity account. The FY 2024 Budget Request to Congress proposes to split the Electricity appropriation account into two accounts: Electricity and Grid Deployment. Had the proposed FY 2024 structure been in place in FY 2022 and FY 2023, the \$11 million shown under the Electricity account in FY 2022 and the \$64.7 million in FY 2023 would have appeared in Grid Deployment.

<sup>b</sup> Requesting funding in the proposed new Grid Deployment appropriations account.

<sup>c</sup> <http://www.energy.gov/gdo/national-transmission-planning-study>



contiguous states to include Alaska, Hawaii, and the U.S. Territories.

- **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 2024, the Request establishes two new activities: EV Grid Planning and Markets, which supports grid management and integration for EV deployment and related technologies into the distribution market, and Territory, Tribal, and Rural Community Development, which provides technical assistance to ensure communities have access to clean, reliable, and affordable electricity.
- **Hydropower Incentives** invests in flexible hydropower assets, building upon the IJJA's hydropower incentives program. The FY 2024 Request supports 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.

### **Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA)**

In FY 2024, GDO will continue to implement the authorities provided in the IIJA:

- Preventing Outages and Enhancing the Resilience of the Electric Grid (Section 40101) Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency (Section 40103(b))<sup>a</sup>
- Transmission Facilitation Program (Section 40106)
- Deployment of Technologies to Enhance Grid Flexibility (Section 40107)
- Civil Nuclear Credit Program (Section 40323)<sup>b</sup>

GDO will also continue to execute IIJA appropriations provided in FY 2022 and FY 2023 only:

- Maintaining and Enhancing Hydroelectricity Incentives (Section 40333)<sup>c</sup>

GDO will also continue to execute IIJA appropriations provided in FY 2022 only:

- Advanced Energy Security Program to Secure Energy Networks, Modeling and Assessing Energy Infrastructure Risk (Section 40125(d))
- Hydroelectric Production Incentives (Section 40331)<sup>d</sup>
- Hydroelectric Efficiency Improvement Incentives (Section 40332)<sup>a</sup>

In FY 2024, GDO will continue to implement the authorities provided in the IRA:

- Transmission Facility Financing (Section 50151)
- Grants to Facilitate the Siting of Interstate Electricity Transmission Lines (Section 50152)
- Interregional and Offshore Wind Electricity Transmission Planning, Modeling, and Analysis (Section 50153)
- Environmental Reviews (Section 50301)

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<sup>a</sup> Provision appropriated to the Office of Clean Energy Demonstrations and executed by GDO

<sup>b</sup> Provision appropriated to the Office of Nuclear Energy and executed by GDO

<sup>c</sup> Provision appropriated to the Office of Energy Efficiency and Renewable Energy and executed by GDO

<sup>d</sup> Provision appropriated to the Office of Energy Efficiency and Renewable Energy and executed by GDO

**MANUFACTURING AND ENERGY SUPPLY CHAINS**

	(\$K)				
	FY 2022 Enacted <sup>a</sup>	FY 2023 Enacted <sup>b</sup>	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted	
				\$	%
<b>Manufacturing and Energy Supply Chains</b>					
Facility and Workforce Assistance	15,000	16,000	15,490	-510	-3%
Battery and Critical Materials	0	0	75,000	75,000	N/A
Energy Sector Industrial Base	0	2,000	65,000	63,000	3,150%
Program Direction	909	1,000	24,000	23,000	2,300%
<b>Total, Manufacturing and Energy Supply Chains<sup>c</sup></b>	<b>15,909</b>	<b>19,000</b>	<b>179,490</b>	<b>160,490</b>	<b>845%</b>

**Appropriation Overview**

The Office of **Manufacturing and Energy Supply Chains** (MESC), within the Office of the Under Secretary for Infrastructure, is responsible for strengthening and securing manufacturing and energy supply chains needed to modernize the nation’s energy infrastructure and support the energy transition. This work includes two major mission areas: supporting the private sector in increasing U.S. manufacturing capacity for critical energy technologies and supporting the U.S. industrial sector in efforts to increase competitiveness by increasing efficiency and reducing emissions.

MESC catalyzes the development of the energy sector industrial base through targeted investments that expand and secure domestic supply chains and manufacturing. MESC also engages with private-sector companies, other Federal agencies, and key stakeholders to collect, analyze, respond to, and share data about energy supply chains to inform future decision making and investment. The office manages programs that develop clean domestic manufacturing and workforce capabilities, with an emphasis on opportunities for small and medium enterprises and communities in energy transition. MESC coordinates across all of Department of Energy’s (DOE) programs on manufacturing, supply chain, and industrial decarbonization issues, including the Office of Clean Energy Demonstrations, the Advanced Materials and Manufacturing Technologies Office, the Industrial Efficiency and Decarbonization Office, the Office of Fossil Energy and Carbon Management, the Office of Nuclear Energy, and the Loan Programs Office.

MESC leads efforts to deploy energy efficiency and decarbonization technologies and approaches, conduct industrial assessments, and increase U.S. industrial competitiveness by helping the sector decarbonize. MESC’s adoption and deployment efforts complement the Industrial Efficiency and Decarbonization Office for a dedicated industrial portfolio that spans the innovation spectrum.

MESC provides skilled teams in energy planning; energy security; infrastructure financing; project development; project management; clean energy supply chains; state, community, and tribal engagement; and other key areas critical to the success of demonstration and deployment efforts as appropriated through annual appropriations, the Infrastructure Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA). The Office engages and works in partnership with a diverse set of stakeholders as it stewards and seeks the greatest benefits from Federal funding.

The MESC Request invests \$75 million for activities that support the use of Defense Production Act (DPA) authorities that enable domestic energy sector manufacturing and production infrastructure investments to establish new commercial-scale production capabilities for critical devices, components, and/or systems with low or no domestic manufacturing presence. These activities will target early commercialization and bridge the gap between pilot and commercial scales. MESC will also

<sup>a</sup> FY 2022 funds managed by MESC were enacted under the Energy Efficiency and Renewable Energy’s Advanced Manufacturing Office.

<sup>b</sup> FY 2023 funds managed by MESC were enacted under the Energy Efficiency and Renewable Energy’s Advanced Manufacturing Office.

<sup>c</sup> In FY 2024 Request, total DPA funding is \$75 million, which includes \$65 million for Energy Sector Industrial Base and \$10 million for Program Direction.

support the Global Clean Energy Manufacturing Initiative (GCEMI) to partner with allies to ensure secure, resilient supply chains for energy sector components critical to national and energy security.

### **Program Highlights**

**Facility and Workforce Assistance:** This program area focuses on supporting existing industrial facilities seeking to boost their competitiveness through efficiency improvements, emissions reduction, and workforce development, primarily through the Industrial Assessment Center (IAC) program. The IAC program provides various facilities with a no-cost assessment, including in-depth evaluations conducted by engineering faculty with upper class and graduate students from a participating university. This detailed process analysis will generate specific recommendations with estimates of costs, performance, and payback times. These activities were previously funded within EERE.

**Battery and Critical Materials:** This program area aims to secure US supply chains for advanced batteries and the critical minerals and materials needed for them and for other critical energy technologies, as well as strategies to secure supply chains supported by US allies. MESC activities in this area include efforts to stimulate industry, local governments, and communities to work together to overcome siting and permitting barriers for key domestic mineral resources. The Budget Request includes the Global Clean Energy Manufacturing Initiative (GCEMI), which will support collaborations with international partners to promote cooperation on energy supply chains, including mineral and material resources, material processing, and scaleup, as well as other components of the energy supply chain.

**Energy Sector Industrial Base (ESIB):** This program area develops and advances assessments and strategies for U.S. supply chains and coordinates strategic investments to expand the strength of the U.S. manufacturing and industrial sectors. Activities include supply chain modeling, mapping, and analysis tools that are instrumental for assessing vulnerabilities, strengths, and opportunities in U.S. supply chains and aligning and prioritizing investments by MESC and other parts of DOE and the Federal government across all advanced energy technologies. Strategic investments of \$75 million - \$65 million from ESIB and \$10 million from Program Direction – will be made using Defense Production Act (DPA) and other complementary authorities.

**Program Direction:** Enables MESC to maintain and support a world-class Federal workforce that supports analysis of the US industrial sector as well as strategic investments and technical assistance to support private-sector efforts to boost the security of US supply chains. The FY 2024 Program Direction Request provides resources for program and project management, oversight activities, contract administration, workforce management, IT support, and Headquarters (HQ) and field site non-laboratory facilities and infrastructure. In addition, \$10 million of Program Direction will be made available for management of the DPA activities.

**STATE AND COMMUNITY ENERGY PROGRAMS**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Energy Efficiency and Renewable Energy</b>					
<b>Office of State and Community Programs (SCEP)</b>					
Weatherization Assistance Program	313,000	326,000	-	-326,000	-100%
Training and TA	6,000	10,000	-	-10,000	-100%
WAP Readiness	15,000	30,000	-	-30,000	-100%
State Energy Program	63,000	66,000	-	-66,000	-100%
Energy Future Grants	20,000	12,000	-	-12,000	-100%
Local Government Energy Program	10,000	27,000	-	-27,000	-100%
Program Director	26,973	22,000	-	-22,000	-100%
<b>Total, Office of State and Community Programs (SCEP)</b>	<b>453,973</b>	<b>493,000</b>	<b>-</b>	<b>-493,000</b>	
<b>Office of State and Community Programs (SCEP)</b>					
Weatherization Assistance Program <sup>a</sup>	-	-	436,780	+436,780	+100%
State Energy Program	-	-	75,000	+75,000	+100%
Community Energy Programs <sup>b</sup>	-	-	120,000	+120,000	+100%
Energy Future Grants	-	-	40,000	+40,000	+100%
Program Direction <sup>c</sup>	-	-	33,220	+33,220	+100%
<b>Total, Office of State and Community Programs (SCEP)</b>	<b>-</b>	<b>-</b>	<b>705,000</b>		

**Appropriation Overview**

The Office of **State and Community Energy Programs (SCEP)** within the Office of the Under Secretary for Infrastructure, as authorized by the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), implements efforts under the Weatherization Assistance Program, State Energy Program, Community Energy Programs (which includes the Local Government Energy Program), and Energy Future Grants. These programs work to increase energy affordability and support states and local communities seeking to update and modernize their energy systems and create economic opportunities in the energy transition, by working with community-level implementation partners and state agencies. SCEP works with state and local organizations to significantly accelerate the deployment of clean energy technologies, catalyze local economic development and create jobs, reduce energy costs, and avoid pollution through place-based strategies involving a wide range of government, community, business and other stakeholders.

SCEP manages activities supporting state and community energy infrastructure, programs, and policies by providing direct funding as well as technical assistance. SCEP serves as the primary gateway into DOE for states, tribes, and communities interested in greater energy affordability, energy-related economic opportunity, security, and resilience, and connects them to programs, funding, and technical assistance opportunities across the DOE.

The FY 2024 Request complements the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act of 2022 (IRA) investment and provides SCEP with key additional resources and programmatic direction to address high energy prices, reduce costs for families and businesses, and cut pollution through energy efficiency and other clean energy measures.

**Program Highlights**

- The Weatherization Assistance Program (WAP) supports the largest network of residential energy retrofit providers in the country, providing a foundation for the coordination and implementation of home weatherization services funded by other Federal and non-Federal sources. Funds are allocated on a statutory formula basis and awarded to a single agency in each State and Territory that manages the deployment of

<sup>a</sup> FY 2024 Weatherization Assistance Program total includes funding for Weatherization Readiness (\$51.8M), Training and Technical Assistance (\$10M), and Weatherization Assistance (\$375M).

<sup>b</sup> FY 2024 Communities Energy Programs total includes funding for Local Government Energy Program (\$65M), Energy Burden Reduction Pilot (\$50M), and Energy Communities IWG (\$5M).

<sup>c</sup> Program Direction funds amount is not available because, prior to SCEP, PD funds were distributed to EERE.

services to increase the energy efficiency of homes occupied by low- income households. These agencies, in turn, contract with approximately 700 local service provider organizations to deliver weatherization services to low-income families in every geographic area of the country. WAP is one of the federal government’s best tools to reduce energy costs for the American people. The FY 2024 Budget enables DOE to reach at least 46,000 more of the 33 million eligible low-income households that face high energy costs, most of which will not receive assistance even with the continued implementation of \$3.5 billion in IJA funding.

- The State Energy Program (SEP) supports states in updating and modernizing energy systems by providing funding for planning, development and implementation of energy policies, plans, and programs to reduce energy costs, enhance economic competitiveness, improve security planning, and improve the environment. SEP provides states with capacity building resources, technical assistance, best-practice sharing networks and other assistance to facilitate the implementation of their plans, policies, and programs.
- Community Energy Programs (CEP) partner with local governments and community organizations to support their priorities for upgrading and modernizing energy systems, taking advantage of economic opportunities in the energy transition, and addressing energy challenges. CEP includes the Local Government Energy Program, the new Energy Burden Reduction Pilot initiative, and the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (Energy Communities IWG)<sup>a</sup>.
  - The Local Government Energy Program provides targeted competitive awards, on-site capacity, peer exchanges, and technical assistance to support the development and deployment of transformative clean energy deployment programs of qualifying local governments, with a focus on disadvantaged communities.
  - The Energy Burden Reduction Pilot program is a competitive grant program to pilot approaches to reduce energy costs for at least 3,000 low-income households to less than 5 percent of income while reducing carbon emissions through efficiency retrofits, electrification, and distributed energy resource installation. CEP will work with local entities such as community action agencies, non-profits, state and local governments, and utility partners to leverage the Federal investment for the greatest impact.
  - The Energy Communities IWG is an ongoing interagency effort, led by the National Climate Advisor, the Assistant to the President for Economic Policy, and the Senior Advisor for Clean Energy Innovation and Implementation and administered by DOE, that works with communities where a high proportion of income and economic activity comes from energy industries affected by the energy transition, particularly those affected by coal and power plant closures. The Energy Communities IWG supports economic development efforts, capacity building activities, and the coordination of interagency efforts to deliver Federal resources to support these communities in their transition to more sustainable, resilient, and equitable economies.
- Energy Future Grants support technical assistance to help states and communities address challenges or embrace opportunities in partnership with private sector partners that are difficult to address by individual states or local governments. This program offers technical assistance implementation models to connect states, communities, and their non-government or private-sector partners with world-class energy expertise, helping them develop new approaches, establish best practices, or pursue other strategies to address regional challenges and opportunities. Many states and communities lack resources to evaluate and design approaches to address their unique energy sector challenges. The Energy Future Grants help address this gap.
- Program Direction enables SCEP to maintain and support a world-class Federal workforce that ensures programs are adequately staffed to support states and communities to ensure that the clean energy economy benefits the diverse range of American communities. The FY 2024 Budget provides resources for program and project management, oversight activities, contract administration, workforce management, IT support, stakeholder engagement capacity building resources and support, and Headquarters and field site non-laboratory facilities and infrastructure.

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<sup>a</sup> Previously funded through the Fossil Energy and Carbon Management account.

**ENVIRONMENTAL MANAGEMENT**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Environmental Management</b>					
Carlsbad/Waste Isolation Pilot Plant (WIPP)	451,230	466,523	474,613	+8,090	+1.7%
Idaho National Laboratory	453,971	471,500	458,541	-12,959	-2.7%
Oak Ridge	629,783	637,010	635,000	-2,010	-0.3%
Paducah	318,808	329,809	304,349	-25,460	-7.7%
Portsmouth	549,136	580,131	579,610	-521	-0.1%
Richland	1,052,426	1,113,669	1,025,066	-88,603	-8.0%
River Protection	1,645,000	1,730,408	1,974,934	+244,526	+14.1%
Savannah River	1,757,085	1,807,872	1,738,885	-68,987	-3.8%
Lawrence Livermore National Laboratory	36,806	36,842	22,074	-14,768	-40.1%
Los Alamos National Laboratory	292,119	331,835	292,479	-39,356	-11.9%
Nevada	75,737	62,652	61,952	-700	-1.1%
Sandia National Laboratories	4,576	4,003	2,264	-1,739	-43.4%
Separation Process Research Unit (SPRU)	15,000	15,300	15,300	-	-
West Valley Demonstration Project	93,418	95,866	95,747	-119	-0.1%
Energy Technology Engineering Center	21,340	26,409	44,135	+17,726	+67.1%
Moab	67,000	67,000	67,000	-	-
<b>Other Sites</b>					
Closure Sites Administration	3,987	4,067	3,023	-1,044	-25.7%
Lawrence Berkeley National Laboratory	5,000	15,000	-	-15,000	N/A
Science Excess Facilities	15,000	10,554	-	-10,554	N/A
<b>Subtotal, Other Sites</b>	<b>23,987</b>	<b>29,621</b>	<b>3,023</b>	<b>-26,598</b>	<b>-89.8%</b>
Program Direction	305,207	317,002	326,893	+9,891	+3.1%
D&D Fund Deposit	573,333	586,035	427,000	-159,035	-27.1%
Mission Support	111,234	142,183	160,904	+18,721	+13.2%
<b>Subtotal, Environmental Management</b>	<b>8,477,196</b>	<b>8,851,670</b>	<b>8,709,769</b>	<b>-141,901</b>	<b>-1.6%</b>
Mercury Storage Receipts	-	(3,000)	(3,000)	-	-
UE D&D Fund Offset	(573,333)	(586,035)	(427,000)	+159,035	-27.1%
<b>Total, Environmental Management</b>	<b>7,903,863</b>	<b>8,262,635</b>	<b>8,279,769</b>	<b>+17,134</b>	<b>+0.2%</b>

**Appropriation Overview**

The Office of **Environmental Management (EM)** supports the Department of Energy (DOE) to meet the challenges of the Nation’s Manhattan Project and Cold War legacy responsibilities. EM was established in 1989 and is responsible for the cleanup of millions of gallons of liquid radioactive waste, thousands of tons of spent (used) nuclear fuel and nuclear materials, disposition of large volumes of transuranic and mixed/low- level waste, huge quantities of contaminated soil and water, and deactivation and decommissioning of thousands of excess facilities. This environmental cleanup program results from six decades of nuclear weapons development and production and Government-sponsored nuclear energy research. It involves some of the most dangerous materials known to mankind. To date, EM has completed cleanup activities at 92 sites in 30 states and in the Commonwealth of Puerto Rico. EM is currently responsible for cleaning up the remaining 15 sites in 11 states.

Cleaning up these remaining sites will support the Justice40 Initiative and advance the Administration’s equity goals. Justice40 is a Government-wide effort to deliver at least 40 percent of the overall benefits from certain Federal investments, including the remediation and reduction of legacy pollution, and training and workforce development, to disadvantaged communities. Under Justice40, EM’s work will primarily focus on benefits from soil and groundwater

remediation and STEM education. The EM Budget also supports a whole-of-Government effort to advance equity for all Americans by including historic support for marginalized people and locations with increased resources for the Minority Serving Institutions Partnership Program and the Community Capacity Building initiative to invest in historically underserved communities.

### **Program Highlights**

- **Savannah River**

At the Savannah River Site, the FY 2024 Request supports the Liquid Waste Program, to achieve additional risk reduction by stabilization and immobilization of high activity radionuclides through vitrification into canisters at the Defense Waste Processing Facility and disposition of decontaminated salt solution in Saltstone Disposal Units. The mission of the Saltstone Disposal Units #8 and #9 project is to construct two cylindrical reinforced concrete tanks designed to contain over 32,000,000 gallons of Saltstone grout each, which is the waste from the disposition of the decontaminated salt solution resulting from salt waste processing. The mission of the Saltstone Disposal Units 10-12 project is to construct three cylindrical reinforced concrete tanks designed to contain over 32,000,000 gallons of Saltstone grout each.

The FY 2024 Request also supports continued risk reduction of the Nuclear Materials Program missions to store, stabilize, and disposition EM-owned nuclear materials and spent nuclear fuel, as well as support the necessary mission for maintaining the safe and environmental compliant state of excess nuclear processing facilities until their future decommissioning. The Nuclear Materials Program missions at the Savannah River Site includes operations of H-Canyon, L-Basin, K-Area Facilities, and the surveillance and maintenance of excess nuclear facilities in F-Area. The mission for the K-Area Facilities is to safely store surplus plutonium and to down blend the material into an acceptable waste form for disposition at the Waste Isolation Pilot Plant in Carlsbad, New Mexico. Other facilities in K-Area will support final packaging of the down blended containers for the Waste Isolation Pilot Plant characterization/certification and storage of the final waste form until disposal. The FY 2024 Request maintains the safe and environmental compliant state of the Savannah River Site excess nuclear facilities.

The FY 2024 Request continues to support direct funding to meet EM's share of the Savannah River Site legacy pension obligations. The FY 2024 Request also direct funds EM's share of operations, maintenance and utilities for the Savannah River National Laboratory.

The decrease over the FY 2023 Enacted level is attributed to the reduction in legacy pension requirements.

- **Office of River Protection**

The Department is working to complete and operate the treatment facilities to safely immobilize and dispose of tank waste at Hanford. The FY 2024 Budget Request represents continued progress toward important cleanup required by the Amended Consent Decree and Tri-Party Agreement. The Request is designed to maintain safe operations of the tank farms to protect workers, the public, and the environment; enable the development and maintenance of infrastructure necessary to enable waste treatment operations; and progress single shell tank retrievals. The Budget Request also focuses on the Waste Treatment on Immobilization Plant High-Level Waste Facility to advance facility engineering and design. The mission of the Waste Treatment Plant Project is to construct a treatment facility to blend waste from the tank farms with molten glass, which is placed into stainless steel canisters suitable for long-term storage of high-level waste and disposal of low-level waste.

The increase from the FY 2023 Enacted level reflects the beginning of the Hot Commissioning and ramp up of capability for Direct-Feed Low-Activity Waste Strategy. The increase also reflects the design and construction activities associated with the Advanced Modular Pretreatment System and the 200 West Area Risk Management Project.

- **Richland**

The Richland Operations Office manages all cleanup activities at Hanford not managed by the Office of River Protection, while also providing site-wide services shared by the two offices. Cleanup activities include soil and groundwater remediation, facility decontamination and decommissioning, and disposition of waste other than the tank waste managed by the Office of River Protection. Richland's FY 2024 Request continues important cleanup progress required by the Tri-Party Agreement. It will maintain safe operations; perform Hanford site-wide services; support Direct Feed

Low-Activity Waste startup and commissioning; and conduct critical site infrastructure projects. The Budget Request also supports progress in modifications to the Waste Encapsulation and Storage Facility for transfer of the cesium-strontium capsules to dry storage by August 2025, continued groundwater treatment progress, accelerated Resource Conservation and Recovery Act compliance well drilling, additional groundwater treatment implementation, and completion of 105KW Fuel Storage Basin above and below water debris disposition and deactivation activities.

The decrease from the FY 2023 Enacted level is due to progress on the 105K West Fuel Storage Basin deactivation, 100 K East area waste site remediation and structure demo completion, and completion of the 105K East reactor Interim Safe Storage. The River Corridor reduction reflects progress on risk mitigation activities.

- **Oak Ridge**

The FY 2024 Budget Request continues cleanup activities at the Oak Ridge site, including slab and soil remediation at the East Tennessee Technology Park; addressing high-risk excess contaminated facilities at Oak Ridge National Laboratory and Y-12, disposition of U-233 material and transuranic waste; design for the On-Site Waste Disposal Facility to support cleanup of ORNL and Y12; and continued investment in mercury characterization and remediation technologies.

The decrease from the FY 2023 Enacted level reflects the ramp-down of cleanup activities at East Tennessee Technology Park, as well as a shift in cleanup work between Y-12 and ORNL.

- **Idaho**

At the Idaho Site, the FY 2024 Request continues progress in characterizing, packaging, and shipping stored contact-handled and remote-handled transuranic waste. The Request also furthers processing, characterizing, packaging, and shipping mixed low-level radioactive waste and remote-handled mixed low-level radioactive waste to off-site disposal facilities. The FY 2024 Request continues the deactivation and decommissioning activities at the Radioactive Waste Management Complex as part of Resource Conservation and Recovery Act closure activities and continues dismantlement and demolition activities making progress toward the capping of the Subsurface Disposal Area. The Funding Request continues hot operation of the Integrated Waste Treatment Unit to treat the sodium-bearing tank waste. In addition, activities continue toward completion of construction on the Product Storage Building expansion to store treated sodium bearing waste. This Request supports the continuation of construction for the Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility Landfill Disposal Cell and Evaporation Pond Project. This Request also supports surveillance and maintenance and risk reduction related activities for spent nuclear fuel. Continued design and engineering work for an interim spent fuel staging project is ongoing.

The decrease from the FY 2023 Enacted level reflects the completion of wet to dry spent fuel transfers in FY 2023 and stable support for continued design efforts for a Spent Nuclear Fuel Staging Facility. The decrease also reflects continued transition from waste treatment operations to closure activities, as well as an adjustment to the current plans for demolition and dismantlement of the Accelerated Retrieval Project facilities. The decrease also reflects an anticipated reduction in costs once transition to Integrated Waste Treatment Unit operations is complete.

- **Carlsbad**

The Carlsbad Field Office is responsible for managing the National Transuranic Waste Program and the Waste Isolation Pilot Plant (WIPP), the Nation's only mined geologic repository for the permanent disposal of defense-generated transuranic waste. The Waste Isolation Pilot Plant FY 2024 Request supports disposal facility operations, regulatory and environmental compliance actions, the Central Characterization Project to perform transuranic waste characterization/certification activities to maintain progress toward legacy transuranic waste related milestones at generator sites, transuranic waste transportation capabilities, continued progress on repairing or replacing infrastructure, modernizing underground equipment to zero-emission battery-electric vehicles powered equipment, the Safety Significant Confinement Ventilation System (15-D-411), and Utility Shaft (15-D-412).

The increase from the FY 2023 Enacted level is attributed to continued investments in infrastructure recapitalization projects as well as mine modernization activities. Increase also reflects increased operations to support an increased shipments, as well as an increase to the Utility Shaft project as a result of delays in regulatory process.



- **Paducah**

The FY 2024 Budget Request supports activities to continue environmental remediation and to further stabilize the gaseous diffusion plant. The stabilization activities include non-destructive assay characterization, activities to remove hazardous materials, and surveillance and maintenance. This Budget Request also supports the safe operation of the Depleted Uranium Hexafluoride Conversion facility.

The FY 2024 decrease from the FY 2023 Enacted level reflects the FY 2023 completion of three Deactivation and Remediation stabilization and deactivation projects: construction of C-333 Material Segmentation Area, final readiness evaluation of the Bundle Crushing area, and commissioning of the Large Item Neutron Assay System. The decrease also reflects partial completion of infrastructure to support oxide and heel/empty cylinder disposition.

- **Portsmouth**

The FY 2024 Budget continues decontamination and decommissioning activities. This Budget Request also supports the safe operation of the Depleted Uranium Hexafluoride Conversion facility. The FY 2024 Budget Request includes funding the On-Site Waste Disposal Facility, Line-Item Capital Project #2 (20-U-401) to receive the debris from the X-333 Process Building. The mission of these projects is to construct an on-site facility for the disposal of debris generated from the demolition of the Portsmouth Gaseous Diffusion Plant and associated facilities.

Increases support significant progress for X-333 Process Building D&D, On-Site Waste Disposal Facility construction, waste placement operations, and completion of X-326 Process Building demolition. The decrease from the FY 2023 Enacted level reflects completion of activities for community-focused education and training opportunities and economic development initiatives in the local community and surrounding counties.

- **Los Alamos National Laboratory**

FY 2024 activities will continue to focus on the removal of legacy waste, conduct of soil and groundwater investigations and remediation where needed, and protection of surface water at the Los Alamos National Laboratory. Consistent with the priorities established with the New Mexico Environment Department in the 2016 Consent Order, cleanup activities will continue to focus on groundwater and soil remediation and surface water protection. The Chromium Plume Control Interim Measure to control migration of a hexavalent chromium plume beneath Mortandad and Sandia Canyons will continue. Additionally, Plume-Center Characterization activities will continue to investigate and develop a corrective measure for remediation of the hexavalent chromium plume. Characterization and risk assessment for the Royal Demolition Explosives (RDX) groundwater plume in Cañon de Valle will continue. Implementation of the individual storm water permit will continue, and investigation and cleanup of several aggregate areas will be completed. Characterization and cleanup at Technical Area 21 will continue as well as retrieval and repackaging of the below-grade transuranic waste to include readiness activities and infrastructure needs to manage the processing and packaging of the waste at Area G. In addition, the FY 2024 Request will continue deactivation and decommissioning activities for the Ion Beam project, a National Nuclear Security Administration high-risk excess facility.

The decrease from the FY 2023 Enacted level primarily reflects progress on planning for decontamination and demolition of deactivated National Nuclear Security Administration excess high-risk facilities.

**DEPARTMENTAL ADMINISTRATION**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023	
				Enacted	
			\$	%	
<b>Departmental Administration</b>					
Office of the Secretary	5,582	6,642	6,737	+95	+1.4%
Congressional & Intergovernmental Affairs	6,000	5,000	7,198	+2,198	+44.0%
Office of the Chief Financial Officer	56,591	62,283	67,345	+5,062	+8.1%
Economic Impact & Diversity	20,000	34,140	53,665	+19,525	+57.2%
Office of International Affairs	28,000	32,000	50,142	+18,142	+56.7%
Artificial Intelligence & Technology Office	1,000	1,000	-	-1,000	-100%
Chief Information Officer	197,000	215,000	245,169	+30,169	+14.0%
<b>Subtotal, Departmental Administration</b>	<b>314,173</b>	<b>356,065</b>	<b>430,256</b>	<b>+74,191</b>	<b>+20.8%</b>
<b>Other Departmental Administration</b>					
Office of Management	61,400	66,000	103,245	+37,245	+56.4%
Project Management Oversight & Assessments	13,325	13,550	14,953	+1,403	+10.4%
Office of Human Capital Management	28,200	35,300	40,144	+4,844	+13.7%
Office of Small & Disadvantaged Business Utilization	3,800	4,200	5,472	+1,272	+30.3%
General Counsel	38,000	41,725	45,630	+3,905	+9.4%
Office of Policy	19,454	23,950	52,037	+28,087	+117.3%
Public Affairs	5,936	5,936	5,965	+29	+0.5%
Undistributed Other Departmental Administration	-	500	-	-500	-100%
<b>Subtotal, Other Departmental Administration</b>	<b>170,115</b>	<b>191,161</b>	<b>267,446</b>	<b>+76,285</b>	<b>+39.9%</b>
Strategic Partnership Projects	40,000	40,000	40,000	-	-
<b>Total, Departmental Administration (Gross)</b>	<b>524,288</b>	<b>587,226</b>	<b>737,702</b>	<b>+150,476</b>	<b>+25.6%</b>
Defense Related Administrative Support	(183,710)	(203,648)	(203,649)	-1	+0.0%
<b>Subtotal, Departmental Administration</b>	<b>340,578</b>	<b>383,578</b>	<b>534,053</b>	<b>+150,475</b>	<b>+39.2%</b>
<b>Miscellaneous Revenues</b>					
Revenues Associated with SPP	(40,000)	(40,000)	(40,000)	-	-
Other Revenues	(60,578)	(60,578)	(60,578)	-	-
<b>Subtotal, Miscellaneous Revenues</b>	<b>(100,578)</b>	<b>(100,578)</b>	<b>(100,578)</b>	<b>-</b>	<b>-</b>
<b>Total, Departmental Administration</b>	<b>240,000</b>	<b>283,000</b>	<b>433,475</b>	<b>+150,475</b>	<b>+53.2%</b>

**Appropriation Overview**

The **Departmental Administration (DA)** appropriation funds 13 management and mission support functional organizations that have enterprise-wide responsibility for administration, accounting, budgeting, contract and project management, human resources management, congressional and intergovernmental liaison, energy policy, information management, life-cycle asset management, legal services, energy jobs, energy justice, workforce diversity, equal employment opportunity, ombudsman services, small business advocacy, sustainability, arctic energy coordination, and public affairs.

The DA appropriation also budgets for Strategic Partnership Projects (SPP) expenses and offsetting collections and for Miscellaneous Revenues 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) to account for the support DA programs provide for the Defense portion of Department of Energy (DOE).

**Program Highlights**

In FY 2024, DA program increases are intended to strengthen enterprise-wide management and mission support functions, per the Administration's priorities, as the highlights below outline:

- **Office of the Chief Financial Officer (CFO):** Funding will support corporate business systems to meet and comply with updated cyber security requirements and initiatives; continued implementation of the Robotic Process Automation (RPA) initiative across the CFO activities; enhance systems supporting enterprise business processes and systems; and staff support for Evidence Act implementation.

- **Economic Impact & Diversity (ED):** Funding will support ED’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 continues support for direct oversight of Civil Rights/Employment Equal Opportunities (EEO) to support increased Civil Rights Enforcement, Compliance, and Technical Assistance (TA) for the DOE enterprise (except for NNSA), and to directly oversee the affirmative employment and diversity and inclusion functions for the DOE enterprise (except for NNSA and the PMAs), and expand external civil rights enforcement and compliance activities in the areas of Limited English Proficiency and TA . Staffing level supports EEO consolidation, energy justice, diversity, equity, and inclusion activities.
- **International Affairs (IA):** Funding will support the Administration’s efforts to accelerate international climate progress, deploy American innovation, and support economic prosperity at home and abroad and continue to pursue international climate and clean energy cooperation through key multilateral and bilateral forums with the objective to reduce global greenhouse gas emissions, create good paying American jobs, enhance U.S. competitiveness on critical energy technologies, and address the distributional impacts of foreign policy decisions (consistent with the Foreign Policy for the Middle Class agenda).
- **Office of the Chief Information Officer (OCIO):** Funding will support 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 cyberattacks to both DOE’s IT and operational technology assets through automation, scale capacity commensurate with demand, and establish IT enterprise capabilities. Cyber vulnerabilities identified by the SolarWinds intrusion incident of December 2020, will continue to be addressed through funds specifically dedicated to cyber response and recovery management in the FY 2024 Request
- **Management (MA):** Funding will support MA’s mission fulfillment, and continued expansion of the Department’s electric vehicle fleet and charging infrastructure as part of DOE’s transition from General Services Administration (GSA)-leased gas-powered vehicles to GSA-leased Zero Emission Vehicles.
- **Office for Human Capital (HC):** Funding will support 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 Infrastructure Investment and Jobs Act (IIJA), build upon Talent Teams and dedicated resources to provide human resource (HR), and hiring managers with new tools and capabilities that are needed to effectively support mission needs.
- **Office of Policy (OP):** Funding will support enhanced energy policy and trend analysis work as an essential function to support urgently needed technology, economic, job creation, and energy-related goals; and the development of a new statistical/analytical capability to provide trend analyses of key energy indicators that can be used by policymakers across the entire government to inform decisions. Funds will also support the Arctic Energy Office.

**ENVIRONMENT, HEALTH, SAFETY AND SECURITY**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Environment, Health, Safety and Security</b>					
Mission Support	132,732	138,854	144,705	+5,851	+4.2%
Program Direction	73,588	76,685	86,558	+9,873	+12.9%
<b>Total, Environment, Health, Safety and Security</b>	<b>206,320</b>	<b>215,539</b>	<b>231,263</b>	<b>+15,724</b>	<b>+7.3%</b>

**Appropriation Overview**

**Environment, Health, Safety and Security (EHSS)** supports implementing Department of Energy (DOE)’s commitment to maintain a safe and secure work environment for all Federal and contractor employees; ensure operations do not adversely affect the environment, health, and safety of surrounding communities; and protect national security and other entrusted assets. EHSS supports achieving DOE’s mission in a safe, secure, environmentally responsible manner by providing consistent policy, technical assistance, and corporate leadership for environment, health, safety, and security program areas.

Specifically, EHSS maintains policies and guidance that promote safe, environmentally sustaining work practices in the areas of occupational, facility, nuclear, and radiation safety; environmental protection; and quality assurance; supports Departmental and national preparedness and response efforts associated with radiation emergencies and accidents and domestic and international research on exposures of workers and the public to nuclear, radiological, and other hazardous materials; provides health and environmental services to the people of the Marshall Islands; provides medical screenings for former DOE and DOE-related vendor employees, and supports the Department of Labor in implementation of the Energy Employee Occupational Illness Compensation Program Act; provides technical security and analytical expertise to develop and assist in the implementation of safeguards and security programs that protect national security assets entrusted to DOE; implements U.S. Government nuclear weapons-related technology classification and declassification program; maintains policies and guidance related to physical protection, personnel and information security and nuclear materials accountability; provides technical assistance to DOE programs, site offices and laboratories to implement cost effective security measures tailored to the mission; maintains corporate security-related information management systems to determine the potential for an undue risk to individual sites, DOE, and national security; provides for the protection of DOE Headquarters facilities and access authorizations for DOE Headquarters personnel.

**Program Highlights**

In FY 2024, the Request proposes to:

- Continue to improve DOE’s safety culture by expanding the community of interest to share best practices, performing assessments, and monitoring performance including analyzing and monitoring-results to improve safe accomplishments of work.
- Manage programs that support worker and former worker health and safety, promote EHSS excellence and efficiency across the complex such as the Voluntary Protection Program.
- Lead DOE efforts to address concerns associated with per- and polyfluoroalkyl substances (PFAS) which are the subject of increasing environmental and health-related concern and support conservation and sustainability programs that improve environmental performance.
- Manage programs that promote improvements in EHSS knowledge and capabilities such as the Nuclear Safety Research and Development Program and international health studies.
- Update the Insider Threat Program (ITP) Strategic Plan and complete the remaining steps necessary to achieve Full Operating Capability (FOC) per the National Insider Threat Task Force Minimum Standards.
- Support cost effective implementation of EHSS requirements including continued support for implementation of DOE’s Design Basis Threat Order.
- Identify and assess effective, safe, and reliable physical security technologies to replace obsolete systems at nuclear facilities and laboratories.

- Manage DOE's classification program to protect national security interests and develop advanced computer tools to decrease the cost and increase the accuracy of derivative classifier work throughout the DOE/National Nuclear Security Administration (NNSA) complex.

**ADVANCED RESEARCH PROJECTS AGENCY-ENERGY**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Advanced Research Projects Agency-Energy</b>					
ARPA-E Projects	414,000	433,000	595,000	+162,000	+37.4%
ARPA-E - Program Direction	36,000	37,000	55,200	+18,200	+49.2%
<b>Total, Advanced Research Projects Agency-Energy</b>	<b>450,000</b>	<b>470,000</b>	<b>650,200</b>	<b>+180,200</b>	<b>+38.3%</b>

**Appropriation Overview**

The U.S. Department of Energy's (DOE) **Advanced Research Projects Agency-Energy** (ARPA-E) was established by the America COMPETES Act of 2007 (Public Law 110–69), as amended. 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. 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 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.

**Program Highlights**

ARPA-E has established a nimble, effective management structure and developed a portfolio of technical programs that is delivering 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.

Since its inception in 2009 through September 2022, ARPA-E has provided approximately \$3.27 billion in funding to over 1,415 projects through focused programs and open funding solicitations. A total of 200 ARPA-E projects have attracted more than \$11 billion in private-sector follow-on funding, 281 project teams have partnered with other agencies for further development, and 131 companies have been formed from ARPA-E projects. In addition, ARPA-E project teams have generated 6,257 peer-reviewed journal articles and received 934 patents from the U.S. Patent and Trademark Office.

In FY 2024, ARPA-E will support research and development (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 net-zero emissions by 2050, including coordination across agencies, to meet the Administration’s goals to adapt and strengthen resilience from the most devastating 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 United States remains the world’s leader in energy technologies, and increase societal resilience to climate change impacts. ARPA-E will work with the other Agencies 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.

In FY 2024, ARPA-E plans to release OPEN and Seeding Critical Advances for Leading Energy technologies with Untapped Potential (SCALEUP) funding solicitations and up to 12 new focused funding opportunity announcements (FOAs) including research and development in support of the Net-Zero Gamechangers Initiative five priority areas. The focused FOAs will address new areas not represented in the present portfolio and develop new opportunities opened by the outcomes of previous programs. The assessment process for the new programs is now underway.

**Potential technology areas for focused programs in FY 2024:**

ARPA-E is developing programs for transformational research across a wide range of energy technologies, and applications including:

- Net-Zero Gamechangers Initiative five priority areas: net-zero low greenhouse gas (GHG) building heating and cooling; net-zero aviation; net-zero power grid and electrification; industrial products and fuels for a net-zero, circular economy; and fusion energy at scale.
- Other topic areas may include: climate sensors and monitoring for dramatically improved GHG detection for potential capture and sequestration; carbon neutral/negative agricultural production; innovative carbon capture technologies, including those utilizing land and water bodies; prevention of GHG emissions from land sources; carbon neutral waste and recycling; research of resilient energy infrastructure to facilitate protection against climate-related severe events, resiliency via wireless power transfer using novel configurations, and new technologies for difficult to address methane abatement.

ARPA-E will also continue its stand-alone Small Business Innovation Research(SBIR)/ Small Business Technology Transfer (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.

**U.S. ENERGY INFORMATION ADMINISTRATION**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Energy Information Administration</b>					
National Energy Information System	129,087	135,000	156,550	+21,550	+16.0%
<b>Total, Energy Information Administration</b>	<b>129,087</b>	<b>135,000</b>	<b>156,550</b>	<b>+21,550</b>	<b>+16.0%</b>

**Appropriation Overview**

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.

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.

**Program Highlights**

The FY 2024 Budget Request of \$156,550,000 will enable EIA to continue delivering the critical energy information products on which its stakeholders rely, including weekly petroleum and natural gas inventory reports, comprehensive monthly forecasts of energy markets, and long-term outlooks for U.S. and global energy production and consumption. This funding will also enable EIA to follow through on efforts to expand its coverage of a dynamic and transitional energy sector. For example, EIA will:

- **Deliver timely insights on electric grid operations** so that stakeholders have access to high-value, near real-time data on actual electricity demand, demand forecasts, pricing, and emissions; and expanded information on electric vehicle (EV) integration with the grid, including historical data on EV electricity consumption and infrastructure.
- **Expand the energy consumption data program** to enable EIA to track and report on short-term shifts in energy consumption patterns and begin developing enhanced visualization capabilities for these data.
- **Modernize the National Energy Modeling System (NEMS)** to expand scenario analysis of decarbonization pathways, for example, developing model representations for increased electrification, biofuels, hydrogen, and carbon capture, transport, and sequestration; and begin developing an open source, next generation energy model.
- **Improve tracking of emissions** by acquiring or developing relevant new data and providing enhanced public trend analysis for sectoral emissions, thereby strengthening Federal analytical capabilities related to emissions measurement.
- **Expand analysis of international energy issues, trends, and events**, such as time-sensitive assessments of significant geopolitical events, and development of spatially resolved international data via interactive maps.
- **Enhance EIA’s short-term forecasts** to expand coverage of near-term energy market volatility and transition and fill a gap in EIA’s modeling portfolio to address market conditions over a three- to five-year timeframe.
- **Increase information accessibility and usability** by leveraging new technologies that offer exciting opportunities for users to access, customize, view, and retrieve data from EIA’s website; and modernize EIA’s IT infrastructure to increase operational reliability and security.



**OFFICE OF ENTERPRISE ASSESSMENTS**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Office of Enterprise Assessments</b>					
Enterprise Assessments	27,335	27,486	30,022	+2,536	+9.2%
Program Direction	56,049	57,941	64,132	+6,191	+10.7%
<b>Total, Enterprise Assessments</b>	83,384	85,427	94,154	+8,727	+10.2%

**Appropriation 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 Department’s science and energy research, environmental cleanup activities, and nuclear weapons complex by conducting independent assessments of security and safety performance throughout the Department, taking enforcement action for contractor violations of security and safety regulations, and providing training programs that institutionalize enterprise security and safety lessons learned. EA activities complement, although do not replace, the responsibility of DOE line management for compliance with security and safety requirements to manage the Department’s programs effectively.

EA reports directly to the Office of the Secretary and is independent of the DOE programs that develop and implement security and safety policy and programs and therefore is more able to provide objective and timely information to DOE senior leadership, contractor organizations, and other entities on the methods to appropriately protect national security material and information assets; and whether Departmental operations provide for 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 classified 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.

**Program Highlights**

In FY 2024, EA is strengthening the Department’s posture and ability to protect national security assets, its employees, and the public by:

- Conducting comprehensive independent security performance assessments and follow-up assessments at DOE National Security/Category I Special Nuclear Material sites, using 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 against 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 such as those at the Los Alamos National Laboratory, Y-12 National Security Complex, Savannah River Site, Hanford Site, and Idaho National Laboratory;

- Enhancing the effectiveness of the DOE enforcement function that holds contractor organizations accountable for noncompliance with worker safety and health, nuclear safety, Unclassified Controlled Nuclear Information, and classified information security regulations;
- Providing training programs that promote the competency and proficiency of DOE federal and contractor employees and performing other related functions via the DOE National Training Center in Albuquerque, NM, to 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 analysis to identify emerging trends in safety, security, and cybersecurity within the Department.

**LEGACY MANAGEMENT**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Legacy Management</b>					
Legacy Management	158,797	168,926	173,681	+4,755	+2.8%
Legacy Management - Program Direction	19,933	21,983	22,621	+638	+2.9%
<b>Total, Legacy Management</b>	<b>178,730</b>	<b>190,909</b>	<b>196,302</b>	<b>+5,393</b>	<b>+2.8%</b>

**Appropriation Overview**

**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. Residual hazards remain at these sites after cleanup is completed due to technical limitations of remedial work. As a result, the U.S. Department of Energy (DOE) maintains a post-closure obligation to reduce legacy pollution and protect human health and the environment after cleanup is completed. LM fulfills DOE’s post-closure obligation by providing long-term stewardship (LTS) of sites that have no continuing mission. In just over five years, LM anticipates adding over 20 new sites to its LTS portfolio.

The LM Request provides funding for its core LTS activities including Long-Term Surveillance and Maintenance (LTS&M) at its current sites. Funding also supports determination of the condition, and risk posed by physical, radiological, and chemical hazards at abandoned Defense-Related Uranium Mine (DRUM) sites. Funding further enables the Archiving and Information Management program, assures post-retirement benefits to former contractor workers, and executes the Department’s Mineral Leasing Program. Other functions include asset management, furthering the goals of Environmental Justice (EJ) as well as providing education, communication, history and outreach to many affected States, Tribes, and local communities.

**Program Highlights**

The Request supports LM’s mission capabilities and its core LTS activities mentioned above. Approximately \$72,406,000 will support LTS&M activities, transition activities for over 20 new sites over five years, and the acceleration of major maintenance and repair projects at sites and field offices with natural and climate-change induced degradation. This will also support inventorying, risk screening, and safeguarding of DRUM sites on public, Tribal, and private lands. Lastly, it supports appropriate implementation of mitigating actions at LM sites to enhance climate resilience.

In addition, \$11,984,000 will allow LM to strengthen its foundational Environmental Justice program activities, enabling the program to reach a larger number of affected communities. This funding also supports Executive Order 13985, “Advancing Racial Equity and Support for Underserved Communities Through the Federal Government,” and Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad.” Funding will allow for 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. Equity and climate resilience are assessed and appropriately implemented for all LM’s activities.

The remaining \$111,912,000 supports legacy benefits for former contractor workers; appropriate implementation of mitigating actions at LM sites to enhance climate resilience; 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 2024 cost-of-living pay increase for civilian employees.

OFFICE OF HEARINGS AND APPEALS

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	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Office of Hearings And Appeals</b>					
Office of Hearings And Appeals	4,356	4,477	4,499	+22	+0.5%
<b>Total, Office of Hearings And Appeals</b>	<b>4,356</b>	<b>4,477</b>	<b>4,499</b>	<b>+22</b>	<b>+0.5%</b>

**Appropriation Overview**

The **Office of Hearings and Appeals (OHA)** is the central administrative adjudicatory body for the Department of Energy. OHA’s jurisdiction includes conducting evidentiary hearings to determine an employee’s eligibility for a security clearance, deciding Freedom of Information Act and Privacy Act appeals, investigating, and conducting hearings on certain contractor whistleblower complaints, and ruling on requests for relief from DOE regulations and orders, such as regulatory relief from the appliance energy efficiency standards. OHA also offers alternative dispute resolution services such as mediation for a variety of matters.

**Program Highlights**

Over the last ten years, OHA has reduced its case-processing time in all areas of jurisdiction without compromising the high quality of decisions. The Request supports salaries and benefits for 24 FTEs operating in OHA’s Personnel Security and Appeals Division, Employee Protection and Exceptions Division, and the Alternative Dispute Resolution Office.

**OFFICE OF THE INSPECTOR GENERAL**

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Office of Inspector General</b>					
Office of Inspector General	78,000	86,000	165,161	+79,161	+92.0%
<b>Total, Office of Inspector General</b>	<b>78,000</b>	<b>86,000</b>	<b>165,161</b>	<b>+79,161</b>	<b>+92.0%</b>

**Appropriation Overview**

The **Office of the Inspector General (OIG)** reviews the integrity, economy, and efficiency of Department of Energy (DOE) programs and operations, including the National Nuclear Security Administration (NNSA) and the Federal Energy Regulatory Commission. The OIG has the authority to inquire into all DOE programs and actions as well as related activities. Audits, inspections, investigations, and other reviews are used to detect and prevent fraud, waste, abuse, and violations of the law.

The Federal Information Security Modernization Act of 2014 directs the OIG to conduct an annual evaluation of DOE’s information security systems. In addition, the OIG is also required to conduct an evaluation of DOE’s implementation of the Cybersecurity Information Sharing Act of 2015 every two years. The OIG is also charged with reviewing the Department’s efforts to eliminate improper payments, in conformance with the Payment Integrity Information Act of 2019. The OIG routinely conducts reviews of the most significant management challenges facing the Department, to include its Environmental Management program. In addition, the OIG addresses alleged violations of law that impact Department programs, operations, facilities, and personnel.

The DOE OIG has been historically underfunded. The FY 2024 OIG Request, if granted, would be a significant step in correcting the shortfall, leaving only a \$16.8 million shortfall for FY 2024.

Compounding the historic budget shortfall, the DOE OIG was subsequently underfunded in the Infrastructure Investment and Jobs Act (IIJA), CHIPS and Science Act of 2022 (CHIPS), and the Inflation Reduction Act (IRA). The DOE OIG underfunding is depicted below:

BILLS	DOE	OIG	Percent OIG to DOE	OIG Estimated Requirements 0.35%	OIG Funding Shortfall
IIJA <sup>1</sup>	\$64B	\$62.5M	0.10%	\$224.8M	\$162.3M
IRA <sup>2</sup>	\$44B	\$20.0M	0.05%	\$155.6M	\$135.6M
<b>TOTAL</b>	<b>\$108B</b>	<b>\$82.5M</b>	<b>0.08%</b>	<b>\$380.5M</b>	<b>\$297.9M</b>

<sup>1</sup> The DOE amount of \$64 billion includes \$62.5 billion plus 3.2% of \$46.6 billion in loan and loan guarantee authorized in IIJA. This 3.2% must be re-visited in the second installment of funding needed for the OIG.

<sup>2</sup> The DOE amount of \$44 billion includes \$35 billion plus 3.2% of \$290 billion in loan and loan guarantee authorized in IRA. This 3.2% must be re-visited in the second installment of funding needed for the OIG.

As a result, the taxpayer funds recently authorized and/or appropriated by Congress for the U.S. Department of Energy under the IIJA, CHIPS, and IRA are at substantial risk of fraud, waste, and abuse.

Under IIJA, CHIPS, and IRA, Congress authorized and/or appropriated \$127.5 billion to DOE and increased DOE's direct loan and loan guarantee authority to \$350 billion. However, IIJA, CHIPS, and IRA only appropriated a small amount of the money to the OIG to oversee these funds. DOE has already begun rolling out some of these enhanced programs, and it will continue to receive funding to do so over the next five years. The OIG will need additional funds to perform risk assessments, evaluations, data analytics, audits, inspections, and investigations to conduct appropriate oversight of these historic expenditures.

The Administration has proposed \$150 million in additional funding for under-resourced OIGs and has identified the DOE OIG as one of the under-resourced OIGs. The Administration has not yet announced the amount of this funding that might be allocated to the DOE OIG. Over the next few years, the OIG will be requesting additional appropriations to offset the lack of funding provided to the OIG in the IIJA, CHIPS, and IRA Acts.

### Program Highlights

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

- **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 \$19 billion per year as of FY 2022. Additionally, the CHIPS Act authorized \$50 billion for the Office of Science, for which the OIG will be responsible for conducting independent incurred cost audits of the funds that are distributed to the National Laboratories.
- **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.
- **Data Analytics.** The OIG will continue to expand its utilization of data analytics. For example, the newly established programs under IIJA, CHIPS and IRA present an exciting "ground floor" opportunity to collect quality data to allow us to identify trends and provide indications of fraud, waste, and abuse related to these expenditures.
- **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, CHIPS and IRA, it will become increasingly important to secure these systems from vulnerabilities that could result in the loss of billions of dollars' worth of innovative or sensitive technologies developed using taxpayer dollars.
- **Inspections, Intelligence/Counterintelligence Oversight, and Special Projects.** The OIG's inspection teams will continue focusing on intelligence and counterintelligence oversight and will continue conducting timely and objective inspections of the programs and performance of the Department. The OIG's inspection teams are currently preparing to conduct the first round of inspections in order to begin evaluating the Department's internal controls developed to protect the expenditures under IIJA, CHIPS Act and IRA. Additionally, these teams will continue to address allegations received through the OIG's Hotline, and whistleblower complaints, which have increased dramatically in recent years.
- **Investigations.** In recent years, the OIG has experienced a 36 percent increase in the number of criminal investigations and a substantial increase in the dollar value of contractor fraud cases, resulting in additional work by the Office of Investigations. The increased level of information sharing and collaboration within the Department and among other federal agencies, the OIGs increased use of data analytics, and the OIGs performance of incurred cost audits have further increased Investigations workload. Additionally, the OIG will continue to utilize Special Assistant U.S. Attorneys to support the DOJ's prosecution of criminal matters and work with the Department's suspension and debarment officials with respect to administrative remedies.
- **Mandatory Disclosure Rule.** The Mandatory Disclosure Rule (MDR) is a significant element of the contract integrity framework. The MDR mandates that the contractors establish an employee concerns program and disclose potential fraud to the OIG. OIG inspections revealed significant deficiencies in MDR reporting. Therefore, the OIG is developing a comprehensive and modernized approach to MDR reporting. The new reporting format will allow for more complete and expedited reporting, which will increase the volume of OIG investigations, inspections, and audits.
- **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 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.

- **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 \$519,660,000,000 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.

OFFICE OF TECHNOLOGY TRANSITIONS

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Office of Technology Transitions</b>					
Technology Transitions Program Office	11,095	8,915	11,911	+2,996	+33.6%
Foundation For Energy Security and Innovation	-	-	31,000	+31,000	N/A
Office of Technology Transitions	8,375	13,183	13,639	+456	+3.5%
<b>Total, Office of Technology Transitions</b>	<b>19,470</b>	<b>22,098</b>	<b>56,550</b>	<b>+34,452</b>	<b>+155.9%</b>

**Appropriation Overview**

The mission of the **Office of Technology Transitions (OTT)** is to expand the commercial and public impact of the research investments of the DOE. OTT serves a multi-disciplinary 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, support in the development of commercialization roadmaps, commercial adoption risk assessments, expertise in use of prizes and partnership intermediary agreements, and providing management of DOE’s ongoing 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), and Energy Tech University Prize. OTT stewards DOE technology transition activities, including policy reform, data collection and analyses, industry stakeholder convenings, and strategic communication and amplification of DOE technology transfer success stories. OTT supports the establishment of the Foundation for Energy Security and Innovation (FESI) which will work with DOE to carry out its critical missions and to accelerate the commercialization of energy technology.

**Program Highlights**

OTT’s key activities in FY 2024 include:

- Technology Commercialization Fund – focuses on commercializing promising technologies, including those from the National Laboratories, by 1) enhancing the pipeline of technologies positioned for commercial deployment, and 2) enabling the commercialization ecosystem by seeding new approaches to maximize public-private partnerships.
- Energy Program for Innovation Clusters (EPIC) – encourages the growth of regional energy innovation ecosystems across the U.S. through competitive funding for incubators and accelerators.
- Energy I-Corps – trains National Laboratory scientists/engineers through an immersive commercialization program centered around customer outreach and partnership with the private sector.
- Energy Tech University Prize – supports student engagement through a business plan competition for multidisciplinary student teams to identify an energy technology, assess its market potential, and propose a commercialization strategy.
- Lab Partnering Service – provides external stakeholders the ability to connect with leading DOE National Laboratory expertise, technologies, and facilities through a searchable, online platform.
- Market/ Commercialization Analytics – supports scoping and execution of market adoption risk assessments, and commercialization roadmaps to support DOE investment decisions; supports alignment of existing tech roadmaps and program plans to demonstration and deployment pathways to maximize impact.
- Tech Transfer Coordination – stewards DOE’s technology transfer policy mission through the statutory Tech Transfer Working Group and Tech Transfer Policy Board and ensures informed policy-making across the Department.



- Outcome Tracking – sustains impact and outcome tracking and mandatory reporting, effectively leveraging data to illustrate success of commercialization activities across DOE.
- Foundation for Energy Security and Innovation (FESI) – authorized by Section 10691 of the CHIPS and Science Act, FESI will work with DOE to carry out its critical mission to ensure America's continued security and prosperity through transformative science and technology solutions. In FY 2024, DOE will work with the National Academies, as required by law, to establish the FESI and endow it with \$29.5 million. A key aim of FESI is to accelerate the commercialization of new and existing energy technologies by raising and investing funds through engagements with the private sector and philanthropic communities.

FEDERAL ENERGY REGULATORY COMMISSION

	(\$K)				
	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 vs. FY 2023 Enacted	
				\$	%
<b>Federal Energy Regulatory Commission (FERC)</b>					
Just and Reasonable Rates, Terms, and Conditions	213,353	226,921	232,093	+5,172	+2.3%
Safe, Reliable, and Secure Infrastructure	160,169	172,762	174,913	+2,151	+1.2%
Mission Support through Organizational Excellence	92,904	108,717	112,994	+4,277	+3.9%
FERC Revenues	(466,426)	(508,400)	(520,000)	-11,600	-2.3%
<b>Subtotal, Federal Energy Regulatory Commission</b>	-	-	-	-	<b>N/A</b>
Fees and Recoveries in Excess of Annual Appropriations <sup>a</sup>	(9,000)	(9,000)	(9,000)	-	-
<b>Total, Federal Energy Regulatory Commission</b>	<b>(9,000)</b>	<b>(9,000)</b>	<b>(9,000)</b>	-	-

**Appropriation Overview**

The **Federal Energy Regulatory Commission (FERC or the Commission)** is an independent agency within the Department of Energy (DOE) that regulates the transmission and wholesale sale of electricity and natural gas in interstate commerce, as well as the transportation of oil by pipelines in interstate commerce. FERC also reviews proposals to build interstate natural gas pipelines, natural gas storage projects, and liquefied natural gas (LNG) terminals, and FERC licenses non-Federal hydropower projects. The Commission assists consumers in obtaining reliable, safe, secure, and economically efficient energy services at a reasonable cost through appropriate regulatory and market means, and collaborative efforts. Congress assigned these responsibilities to FERC in various laws including the Federal Power Act, the Public Utility Regulatory Policies Act, the Natural Gas Act, the Natural Gas Policy Act, and the Interstate Commerce Act. More recently, as part of the Energy Policy Act of 2005, Congress gave FERC additional responsibilities to protect the reliability and cybersecurity of the Bulk-Power System through the establishment and enforcement of mandatory reliability standards, as well as additional authority to enforce FERC regulatory requirements through the imposition of civil penalties and other means. Regulated entities pay fees and charges sufficient to recover the Commission's full cost of operations.

The FY 2024 Request for the Commission is \$520 million and 1,566 full-time equivalents (FTEs). The Commission's Request supports an increase of 58 FTEs. The FTE request will center on enhancing FERC's mission by focusing on strategic opportunities to augment capacity and build new capabilities across all Commission program offices. The additional resources will allow the Commission's program offices to undertake forward-looking strategic studies and expand external engagement efforts with a wide range of stakeholders. In addition, targeted FTE investments will enhance the Commission's advisory services, strengthen organizational capabilities, streamline processes, and minimize inefficiencies to address the Commission's evolving mission requirements. The FTE increase will also continue to directly staff the Office of Public Participation established in FY 2021.

The Request also supports continued funding for program contracts associated with hydropower and natural gas infrastructure, including environmental reviews, public participation and outreach, stakeholder engagement, construction oversight, and expert witness contractor assistance.

**Program Highlights**

**Ensure Just and Reasonable Rates, Terms, and Conditions**

The nation's security and economic prosperity depend on maintaining economically efficient, safe, reliable, and secure energy services at a reasonable cost for consumers. FERC's regulations and orders ensure just and reasonable rates, terms, and conditions for jurisdictional services.

<sup>a</sup> FY2022 and FY2023 amounts are estimated and are not included in their respective enacted appropriations

In carrying out its regulatory role, FERC uses a range of ratemaking activities as well as market oversight and enforcement. FERC's ratemaking activities leverage both regulatory and market means, and involve the issuance of orders and the establishment of rules and policies. FERC's enforcement activities include both increasing compliance and detecting and deterring market manipulation.

Through these efforts, FERC ensures that consumers have access to the energy services they need and that service providers are reasonably compensated.

#### **Ensure Safe, Reliable, and Secure Infrastructure**

Infrastructure for which FERC approval is required includes interstate natural gas pipelines and storage projects, Liquefied Natural Gas (LNG) facilities, and non-Federal hydropower projects. In addition, the Commission has authority to site electric transmission facilities in certain circumstances. Ensuring the development of safe, reliable, and secure infrastructure that is in the public interest and that provides energy for consumers at a reasonable cost is a significant, multifaceted challenge.

FERC's regulatory role in reviewing proposed infrastructure projects involves balancing the benefits of a proposed project against its potential adverse impacts, including environmental concerns as well as impacts to landowners and communities. Additionally, FERC considers the minimization of risks to the public in the operation of the infrastructure project. To promote safe, reliable, and secure infrastructure, FERC ensures the sustainability and safety of non-Federal hydropower projects and LNG facilities throughout their entire life cycle; oversees the development and review of, as well as compliance with, mandatory reliability and security standards for the Bulk-Power System; and helps to secure the Bulk- Power System from cyber and physical attacks. The Commission also protects FERC-jurisdictional energy infrastructure through collaboration and sharing of best practices.

#### **Provide Mission Support Through Organizational Excellence**

The public interest is best served when the Commission operates in an efficient, responsive, and transparent manner. The Commission pursues this goal by maintaining processes and providing services in accordance with governing statutes, authoritative guidance, and prevailing best practices. In accomplishing this goal, the Commission will use its resources efficiently, empower its employees, and earn the public trust. These essential outcomes are indicative of a model regulatory agency.

FERC addresses internal needs and enables organizational excellence by providing processes and services that help office leadership prioritize resource allocations, make prudent investments that yield returns that directly benefit the agency's mission, and use Commission resources in an efficient manner. These processes and services also help management meet federal statutes that require the Commission to recover its operating costs from the entities it regulates and to do so in a manner that avoids unnecessarily increasing the cost of energy to consumers.

FERC provides services, tools, and resources that equip employees to drive success and accomplish the agency's mission. The Commission's FY 2024 Request makes continued investments in its people, information technology resources, and facilities. The Commission allocates 62 percent of its request to cover personnel compensation costs of its employees on an annual basis. The Commission's Request reflects a personnel compensation increase of \$27.7 million or 8.9 percent above the FY 2023 enacted level to support an increase of 58 FTEs and accounts for a 5.2 percent pay raise in January 2024. Given this significant investment, the Commission places extremely high value on its employees and is focused on ensuring that employees have a performance management system that clarifies expectations, removes barriers to performance and engagement, and provides useful feedback that supports employee effectiveness.

Additionally, the Commission's Request includes \$129.7 million in FY 2024 to support information technology (IT) investments. This is an increase of \$14.1 million, or 12.2 percent, over the FY 2023 enacted level. This increase provides additional funding to support IT investments for mission delivery and IT infrastructure, cybersecurity, data analytics capabilities, and management. In FY 2024, the Commission's Request continues to invest in the Commission's Application Layer Modernization initiative, which is a five-year effort that will modernize mission critical systems. At the conclusion of the modernization effort, the Commission anticipates cost avoidance in legacy operations and maintenance. Furthermore, in FY 2024, the Commission will continue its goal of providing a best-in-class IT environment for the Commission and its stakeholders while proceeding to execute Federal mandates for IPv6 requirements and zero trust cybersecurity principals. The Commission will continue to invest in cloud native security technologies, leveraging subscription-based solutions to protect FERC assets. In addition, FERC will continue maturing its data infrastructure,

pursuant to the requirements of the Evidence Act and Federal Data Strategy Action Plans, by evolving its data analytics capabilities with best-in-class data science tools. This supports data-driven decision making and offers a public facing data infrastructure in response to Open Data requirements. FERC is also implementing significantly improved data governance and stewardship tools as it matures its delivery of the Enterprise Data Inventory requirements and connection to data.gov.

The Commission promotes transparency and equity, open communication, and a high standard of ethics to facilitate trust and understanding of FERC's activities. FERC supports these goals by maintaining legal and other processes in accordance with the principles of due process, fairness, and integrity. FERC's proactive communication, along with an online document repository and timely responses to inquiries, fosters awareness and understanding of the Commission's activities. FERC considers matters involving environmental justice and equity consistent with its statutory authority. In particular, the Commission has a strong commitment to working with affected communities, including environmental justice communities and landowners who may be directly impacted by Commission decisions on jurisdictional infrastructure proposals. The FY 2024 Request includes continued funding for consultants and Commission studies to support the environmental justice and equity goals developed during the equity assessment process initiated during FY 2021, as described in the Equity Action Plan. The requested funding may help with removing barriers that can block historically overburdened and underserved communities from benefitting from safe, reliable, secure, and economically efficient energy services. Implementation of the Equity Action Plan may also help lay the foundation for continued integration of environmental justice and equity in the Commission's work. The Commission also promotes understanding, participation, and engagement with the public, stakeholders, Tribes, and jurisdictional entities. The Commission will increase its engagement with the public through its Office of Public Participation, which was established in FY 2021.