DOE/CF-0215
Volume 4

Department of Energy
FY 2026 Congressional Justification

Energy Efficiency and Renewable Energy
Electricity
Nuclear Energy
Nuclear Waste Disposal
Fossil Energy

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May 2025 Office of the Chief Financial Officer Volume 4

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DEPARTMENT OF ENERGY
Appropriation Summary
FY 2026
(Dollars in Thousands)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 President's Budget	FY 2026 President's Budget vs. FY 2025 Enacted $	FY 2026 President's Budget vs. FY 2025 Enacted %
Department of Energy Budget by Appropriation					
Energy Efficiency and Renewable Energy[1]	3,460,000	3,460,000	888,000	-2,572,000	-74.3%
Electricity	280,000	280,000	193,000	-87,000	-31.1%
Cybersecurity, Energy Security and Emergency Response	200,000	200,000	150,000	-50,000	-25.0%
Strategic Petroleum Reserve	213,390	213,390	206,325	-7,065	-3.3%
Naval Petroleum and Oil Shale Reserves	13,010	13,010	13,000	-10	-0.1%
Strategic Petroleum Reserve Petroleum Account	100	100	100	+0	+0.0%
Northeast Home Heating Oil Reserve	7,150	7,150	3,575	-3,575	-50.0%
Office of Petroleum Reserves	**233,650**	**233,650**	**223,000**	**-10,650**	**-4.56%**
Nuclear Energy (270)[2]	1,525,000	1,525,000	1,210,000	-315,000	-20.7%
Fossil Energy	865,000	865,000	595,000	-270,000	-31.2%
Uranium Enrichment Decontamination and Decommissioning (UED&D)	855,000	855,000	814,380	-40,620	-4.8%
Energy Information Administration	135,000	135,000	135,000	+0	+0.0%
Non-Defense Environmental Cleanup	342,000	342,000	322,371	-19,629	-5.7%
Science	8,240,000	8,240,000	7,092,000	-1,148,000	-13.9%
Office of Technology Commercialization[3]	20,000	20,000	0	-20,000	-100.0%
Office of Clean Energy Demonstrations	50,000	50,000	0	-50,000	-100.0%
Grid Deployment[4]	60,000	60,000	15,000	-45,000	-75.0%
Office of Manufacturing & Energy Supply Chains[5]	0	0	15,000	+15,000	N/A
Advanced Research Projects Agency - Energy	460,000	460,000	200,000	-260,000	-56.5%
Nuclear Waste Disposal Fund	12,040	12,040	12,040	+0	+0.0%
Departmental Administration	286,500	286,500	174,926	-111,574	-38.9%
Indian Energy Policy and Programs	70,000	70,000	50,000	-20,000	-28.6%
Inspector General	86,000	86,000	90,000	+4,000	+4.7%
Title 17 Innovative Technology Loan Guarantee Program	58,719	-121,000	682,588	+803,588	-664.1%
Advanced Technology Vehicles Manufacturing Loan Program	13,000	13,000	9,500	-3,500	-26.9%
Tribal Energy Loan Guarantee Program	6,300	6,300	-12,000	-18,300	-290.5%
Total, Credit Programs	**78,019**	**-101,700**	**680,088**	**781,788**	**-768.72%**
Energy Projects	83,724	0	0	+0	N/A
Critical and Emerging Technologies	0	0	2,000	+2,000	N/A
Total, Energy Programs	**17,341,933**	**17,078,490**	**12,861,805**	**-4,216,685**	**-24.69%**
Weapons Activities[6]	19,108,000	19,293,000	24,856,400	+5,563,400	+28.8%
Defense Nuclear Nonproliferation	2,581,000	2,396,000	2,284,600	-111,400	-4.6%
Naval Reactors[2]	1,946,000	1,946,000	2,346,000	+400,000	+20.6%
Federal Salaries and Expenses	500,000	500,000	555,000	+55,000	+11.0%
Total, National Nuclear Security Administration	**24,135,000**	**24,135,000**	**30,042,000**	**5,907,000**	**+24.47%**
Defense Environmental Cleanup	7,285,000	7,285,000	6,956,000	-329,000	-4.5%
Other Defense Activities	1,080,000	1,107,000	1,182,000	+75,000	+6.8%
Defense Uranium Enrichment D&D	285,000	285,000	278,000	-7,000	-2.5%
Total, Environmental and Other Defense Activities	**8,650,000**	**8,677,000**	**8,416,000**	**-261,000**	**-3.01%**
Nuclear Energy (050)	160,000	160,000	160,000	+0	+0.0%
Total, Atomic Energy Defense Activities	**32,945,000**	**32,972,000**	**38,618,000**	**5,646,000**	**+17.12%**
Southeastern Power Administration	0	0	0	+0	+0.0%
Southwestern Power Administration	11,440	11,440	10,400	-1,040	-9.1%
Western Area Power Administration	99,872	99,872	63,372	-36,500	-36.5%
Falcon and Amistad Operating and Maintenance Fund	228	228	228	+0	+0.0%
Colorado River Basins Power Marketing Fund	0	0	0	+0	+0.0%
Total, Power Marketing Administrations	**111,540**	**111,540**	**74,000**	**-37,540**	**-33.66%**
Total, Energy and Water Development and Related Agencies	**50,398,473**	**50,162,030**	**51,553,805**	**1,391,775**	**+2.77%**
Excess Fees and Recoveries, FERC	-9,000	-9,000	-9,000	+0	+0.0%
Title XVII Loan Guar. Prog Section 1703 Negative Credit Subsidy Receipt	-6,493	-61,106	-65,805	-4,699	+7.7%
UED&D Fund Offset	-285,000	-285,000	-278,000	+7,000	-2.5%
Sale of Northeast Gasoline Supply Reserve	-98,000	0	0	+0	N/A
Sale of Northeast Home Heating Oil Reserve	0	0	-100,000	-100,000	N/A
Total Funding by Appropriation	**49,999,980**	**49,806,924**	**51,101,000**	**+1,294,076**	**+2.6%**
Total Discretionary Funding	***49,999,980***	***49,806,924***	***46,319,000***	***-3,487,924***	***-7.0%***
DOE Budget Function	**49,999,980**	**49,806,924**	**51,101,000**	**+1,294,076**	**+2.6%**
NNSA Defense (050) Total	24,135,000	24,135,000	30,042,000	+5,907,000	+24.5%
Non-NNSA Defense (050) Total	8,810,000	8,837,000	8,576,000	-261,000	-3.0%
Defense (050)	*32,945,000*	*32,972,000*	*38,618,000*	*5,646,000*	*17.12%*
Science (250)	8,240,000	8,240,000	7,092,000	-1,148,000	-13.9%
Energy (270)	8,814,980	8,594,924	5,391,000	-3,203,924	-37.3%
Non-Defense (Non-050)	*17,054,980*	*16,834,924*	*12,483,000*	*-4,351,924*	*-25.85%*

[1] The Office of Energy Efficiency and Renewable Energy funding levels for FY 2024 Enacted and FY 2025 Enacted included the Offices of State and Community Energy Programs, Federal Energy Management Program, and Manufacturing and Energy Supply Chains.

[2] Naval Reactors and Nuclear Energy (050) amounts do not reflect the mandated transfer of $92.8 million in FY 2024 and FY 2025 from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor

[3] The Office of Technology Commercialization, formerly known as the Office of Technology Transitions, is funded in the Departmental Administration appropriation in FY 2026 at $10 million.

[4] Funding for the Grid Deployment account in FY 2026 will support OE programs and projects, with close coordination with CESER, that increase generation and transmission capacity and strengthen grid security.

[5] Funding for the MESC account in FY 2026 will support EERE and FE activities to address supply chain vulnerability areas, to include critical minerals and materials. The Office of Manufacturing and Energy Supply Chains was funded at $19 million in the Energy Efficiency and Renewable Energy appropriation in both FY 2024 Enacted and FY 2025 Enacted.

[6] FY 2026 Requested Funding includes $4.782 billion in mandatory Reconciliation resources for NNSA Weapons Activities.

Energy Efficiency and Renewable Energy

Energy Efficiency and Renewable Energy
($K)

FY 2024 Enacted	FY 2026 Request
3,460,000	888,000

Proposed Appropriation Language

For Department of Energy expenses including the purchase, construction, and acquisition of plant and capital equipment, and other expenses necessary for energy efficiency and renewable energy activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, $880,000,000, to remain available until expended: Provided, That of such amount, $183,000,000 shall be available until September 30, 2027, for program direction.

Mission

EERE advances America's security and prosperity through the research and development of affordable, secure, innovative, and integrated energy technology solutions across multiple sectors of the economy -- transportation, buildings, industry, and generation.

Overview

In support of Trump Administration priorities, this budget request focuses on cost efficiencies and fiscal constraint and focuses EERE resources on the energy technologies that are best positioned to advance energy dominance – reliable, firm power that Americans can depend on an unleashing American energy innovation.

EERE research focuses on the following key outcomes:

- Reducing costs and increasing efficiency to drive improvements in energy affordability,
- Securing domestic supply chains for critical materials and components for energy technologies,
- Growing the competitiveness of U.S. industries, science, and technology,
- Strengthening America's industrial sector,
- Ensuring the reliability, security, and modernization of the electricity grid,
- Promoting affordability and consumer choice in home appliances; and
- Using robust data collection, model development, and objective, transparent analysis to inform energy decisions.

As such, in accordance with Administration and Departmental priorities, the FY 2026 EERE budget request prioritizes research of emerging geothermal and hydropower technologies, as well as biofuels, industrial efficiency, critical minerals and materials, and advanced manufacturing technologies. It provides a moderate level of support for efficiency standards, specifically for work needed to repeal inefficient standards and/or meet statutory requirements. This request also provides for program direction funds needed to foster efficient and effective program management and facilities and infrastructure funds to support core operation of the National Renewable Energy Laboratory, including the next construction segment of the Energy Materials and Processing at Scale (EMAPS) facility.

Summary Funding Table by Budget Control
Energy Efficiency and Renewable Energy ($K)

	FY 2024 Enacted	FY 2026 Request
Vehicle Technologies	450,000	25,000
Bioenergy Technologies	275,000	70,000
Hydrogen and Fuel Cell Technologies	170,000	-
Energy Grid Integration	22,000	-
Solar Energy Technologies	318,000	-
Wind Energy Technologies	137,000	-
Water Power Technologies	200,000	90,000
Geothermal Technologies	118,000	150,000
Advanced Materials & Manufacturing Technologies	215,000	70,000
Industrial Technologies	237,000	80,000
Building Technologies	332,000	20,000
Program Direction	186,000	183,000
Strategic Programs	21,000	-
Facilities and Infrastructure	210,000	200,000
Total, Office of Energy Efficiency and Renewable Energy	**2,891,000**	**888,000**
Total, Energy Efficiency and Renewable Energy	**2,891,000**	**888,000**
Total, State and Community Energy Programs	**493,000**	**-**
Total, Manufacturing and Energy Supply Chains	**19,000**	**-**
Total, Federal Energy Management Program	**57,000**	**-**
Total, EERE Appropriation	**3,460,000**	**888,000**
Manufacturing and Energy Supply Chains[1]	**-**	**15,000**

[1] In FY 2026, funding for Manufacturing and Energy Supply Chains (MESC) will support EERE and Fossil Energy to sustain analysis in manufacturing, energy products, and critical minerals and materials.

Vehicle Technologies

Overview

Each year in the U.S., vehicles transport 18 billion tons of freight – about $55 billion worth of goods each day – and move people more than 3 trillion vehicle-miles. The transportation sector accounts for approximately 27 percent of total U.S. energy demand and over 17 percent of average U.S. household expenditures, making it, as a percentage of spending, the costliest personal expenditure after housing. Transportation is critical to the overall economy, from the movement of goods to providing access to jobs, education, and healthcare.

EERE's Vehicle Technologies Office focuses on research and development (R&D) of engines, batteries, power electronics, motors, materials, and transportation systems. The commercialization of vehicle technologies has contributed to cost savings for households and businesses, including gasoline cars that use less fuel, trucks that can travel up to twice as far on a gallon of diesel, and more affordable vehicles for many applications. Research has also begun to make our supply chains more secure by reducing the need for critical minerals like rare earths in magnets, cobalt in batteries, and demonstrating new ways to recycle batteries and other vehicle materials, keeping those critical minerals in the United States.

Highlights of the FY 2026 Budget Request

The FY 2026 Request for Vehicle Technologies prioritizes activities most essential to meet Administration goals of energy dominance, growth of U.S. industry and manufacturing, support of national defense, and cost savings to households and businesses.

- Electrification: Focuses on the most promising and innovative battery chemistries, and specifically, on reducing needs for critical minerals and battery mineral recycling.

- Off-Road, Rail, Marine, and Aviation Technologies (formerly Decarbonization of Off-Road, Rail, Marine, and Aviation): Prioritizes engine and emission control R&D for improved engine and hybridization technologies that reduce costs for businesses and farmers and support a wider range of alternative fuels.

- Technology Integration & Deployment: Prioritizes meeting statutory requirements for data collection and dissemination. Remaining funds will be used to wind down Federal activities that support Clean Cities and Communities Coalitions.

- Analysis: Request supports finalizing improvements to models and tools with a wide user base and support for the broader use of those tools without further development.

Vehicle Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Electrification Technologies	225,500	15,000
Off-Road, Rail, Marine, and Aviation Technologies	35,000	7,000
Materials Technology	37,500	0
Energy Efficient Mobility Systems	45,000	0
Technology Integration & Deployment	101,000	2,500
Data, Modeling, and Analysis	6,000	500
Total, Vehicle Technologies	**450,000**	**25,000**

Explanation of Change for Vehicle Technologies

Electrification Technologies: The FY 2026 Request deprioritizes funds for Electrification Technologies and activities focused on advanced power electronics, grid integration research, and motors. The Request provides restrained funding for Battery R&D, including critical mineral related battery research and reduces support for battery mineral and supply chain traceability and recycling and materials facilities at several National Labs.

Off-Road, Rail, Marine, and Aviation Technologies: The FY 2026 Request prioritizes research focused on engine and hybrid applications (e.g., construction, agriculture, rail, or mining), focusing on those with the greatest opportunity to reduce costs for businesses and farmers, and narrows work among relevant National Laboratories.

Materials Technology: The FY 2026 Request includes no funds for Materials Technology.

Energy Efficient Mobility Systems: The FY 2026 Request includes no funds for Energy Efficient Mobility Systems.

Technology Integration & Deployment: The FY 2026 Request prioritizes statutory requirements for data collection and analysis, including publishing fuel economy data (e.g., fueleconomy.gov).

Data, Modeling, and Analysis: The FY 2026 Request supports limited analysis and tools needed by other program areas.

Overview

EERE's Bioenergy Technologies Office (BETO) focuses on accelerating the development of cost-competitive technologies to convert the Nation's abundant, domestic biomass and waste resources into advanced biofuels, chemicals, and bio-based products. BETO advances cutting-edge technologies designed to produce "drop-in" biofuels, including synthetic aviation fuels (SAF) from biomass, including wastes from the forests, agriculture, landfills, water treatment facilities, as well as waste gases from industry. BETO conducts activities to maximize U.S. potential to provide fuels that meet both domestic and export market needs; it also focuses on converting these resources into high-value chemicals that can support performance-enhanced polymers and products while simultaneously enhancing the economics of biofuel production.

Production of fuels and products derived from domestically produced biomass and wastes offers a tremendous opportunity to increase economic activity across the entire supply chain, reducing waste streams in our communities, creating new jobs in the farms and forests of rural America, and contributing to growth of the Nation's construction and manufacturing industry. Investing in bioenergy technologies helps our National competitive advantage and positions the U.S. as a global leader in the industrial bioeconomy, which is valued at $1.3 - $2.2 trillion[1]. DOE studies have confirmed that the U.S. has the resource potential to sustainably produce well over one billion dry tons of biomass and waste resources without disrupting agricultural markets for food and animal feed. This could produce approximately 70 billion gallons of biofuels for strategic fuel markets, while also producing high-value chemicals and products and maximizing the use of marginal lands with the production of energy crops that benefit farmers.

Highlights of the FY 2026 Budget Request

The FY 2026 Request supports RD&D to achieve cost reductions across the supply chain to produce SAF, other strategic biofuels, and bio-based products. This includes maintaining core capabilities at the National Laboratories that enable partnerships with industry to advance technologies by bridging the gap between research and commercialization.

High impact RD&D will continue for mobilizing and utilizing biomass resources, including purpose-grown energy crops to generate publicly available data in all regions of the U.S. to aid in feedstock adoption and siting of biorefineries.

Research will incorporate AI and machine learning to improve data analysis, process optimization, and predictive modeling. DOE will update the Greenhouse Gas, Regulated Emissions and Energy Use in Technologies (GREET) tool to be used by research, policy and industry decision makers pursuing high impact technologies for fuels.

[1] https://www.mckinsey.com/industries/life-sciences/our-insights/the-bio-revolution-innovations-transforming-economies-societies-and-our-lives

Bioenergy Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Renewable Hydrocarbon Feedstocks (formerly Renewable Carbon Resources)	77,900	25,000
Conversion Technologies	100,000	39,000
System Development and Integration	87,600	5,000
Data, Modeling, and Analysis	9,500	1,000
Total, Bioenergy Technologies	**275,000**	**70,000**

Explanation of Change for Bioenergy Technologies

Renewable Hydrocarbon Feedstocks (formerly Renewable Carbon Resources) will prioritize energy crop demonstrations to collect necessary data to support farmer and producer adoption and reduce funding for bench-scale algae research.

Conversion R&D will focus on reducing costs and increasing performance of the most promising near-term pathways to scaling up production of fuels and chemicals. The Request reduces funding for longer-term, enabling technology research.

Systems Development and Integration will maintain support for National Laboratory based user facilities for initial pre-pilot testing to de-risk industrial scaling. The FY 2026 Request discontinues support for public-private partnerships that support promising technologies at integrated pilot and demonstration scale.

Data, Modeling, and Analysis will focus on maintaining the scientific integrity of GREET as well as incorporation of AI/machine learning to improve modeling and data analysis and reduce sustainability analysis activities.

Water Power Technologies

Overview

EERE's Water Power Technologies Office (WPTO) administers a broad portfolio of activities to strengthen the body of technical knowledge and support for industry efforts to develop, demonstrate, and deploy hydropower and marine energy technologies at all scales. To accomplish its objectives, WPTO supports R&D across industry, academia, and the National Laboratories through a variety of mechanisms and innovative partnerships.

America has vast domestic hydropower and marine energy resources, with enormous potential to advance energy addition through modernizing the existing hydropower fleet, expanding into new hydropower markets and applications, capturing the oceans' immense power to deliver energy and electricity along U.S. coasts, increasing generation and flexibility across the Nation's sizable hydropower and pumped storage fleet, strengthening U.S. water power supply chains, and streamlining Federal permitting processes for water power projects. WPTO focuses on key opportunities, including enhancing hydropower and pumped storage hydropower (PSH) planning; increasing fleet operation efficiency; conducting site assessments for powering non-powered dams (NPDs) to cost-effectively increase generation and flexibility; enhancing cybersecurity research for hydropower; advancing marine energy technologies to support new and growing industries using waves, currents, tides, and gradient differentials (ocean thermal, pressure, and salinity); and deepening understanding of energy-water connections to integrate energy and water management.

Highlights of the FY 2026 Budget Request

The FY 2026 Request supports ongoing National Laboratory R&D focused on powering NPDs, developing new stream reaches, modernizing irrigation systems, in-the-field validation of innovative hydropower technologies, developing new strategies to quantify hydropower's value to the grid, advancing digital tools supporting fleet modernization, and improving environmental performance and accelerating hydropower relicensing through innovative fish passage technologies. The Request also supports assessing the feasibility of converting retired or abandoned oil and gas mines for PSH and R&D of geomechanical PSH with the Geothermal Technologies Office; NPD pilots at large, high capacity, or federal dams to reduce civil works costs; coordination with U.S. Bureau of Reclamation and U.S. Army Corps of Engineers on upgrade schedules to address domestic supply chain gaps; and integrating training into the hydropower workforce—covering cybersecurity, physical security, and innovative operational strategies—to enhance resilience and security at hydropower facilities nationwide.

The FY 2026 Request supports marine energy R&D for advancements in controls, materials, components, operations, maintenance, and resource characterization. Funding also supports assisting developers during in-water deployments by collecting robust scientific data on marine energy device operations and maintenance, as well as operations and upgrades to test infrastructure and marine energy test sites. To accelerate marine energy development, WPTO works with the National Laboratories to make marine energy data public while ensuring database integrity, and to maintain and improve public databases, web tools, and analytical reports, ensuring marine energy informational resources are easily accessible for all potential users.

Water Power Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Hydropower Technologies	59,000	50,000
Marine Energy Technologies	141,000	40,000
Total, Water Power	**200,000**	**90,000**

Explanation of Change for Water Power Technologies

The Department's FY 2026 Request supports the following ongoing National Laboratory R&D activities:

- powering nonpowered dams & developing new stream reaches;
- modernizing irrigation systems;
- field validation of hydropower technology innovations;
- developing new strategies to quantify hydropower's value to the grid;
- advancing digital tools supporting hydropower fleet modernization;
- improving environmental performance to accelerate hydropower relicensing;
- marine energy R&D for advancements in controls, materials, components, operations, maintenance, and resource characterization;
- Scientific data collection during marine energy in-water deployments to improve maintenance and operations; and
- upgrades to marine energy test infrastructure and test sites.

Geothermal Technologies

Overview

America has abundant natural geothermal resources that, if developed for various beneficial uses, can lower energy costs, reduce dependencies on foreign materials and energy sources, make our energy systems more reliable, and help meet the Nation's surging electricity grid demand. The mission of EERE's Geothermal Technologies Office (GTO) is to enable an energy future where all Americans benefit from abundant, domestic geothermal energy solutions. GTO strives to increase deployment of geothermal energy while enabling the creation of a workforce that leverages the unique skills and abilities of our strong domestic oil and gas workforce for the geothermal jobs of the future.

GTO's diversified and complementary technology portfolio prioritizes investments in three closely related technology categories: Enhanced Geothermal Systems (EGS), Hydrothermal Resources, and Low Temperature and Coproduced Resources. This portfolio addresses technology barriers that industry may not have the technical capabilities, financial support, or institutional knowledge to address. In addition, GTO's Data Modeling, and Analysis activity assesses future opportunities across geothermal use cases through robust grid analysis; impacts, market, and technoeconomic assessments; and reduction of non-technical barriers, including permitting and lack of awareness of the myriad benefits of this technology.

GTO's RD&D and analysis portfolios advance toward our strategic goals to: (1) reduce the cost of EGS by 90 percent to $45 per megawatt hour by 2035 to supply 90 GW of EGS and hydrothermal resources to the grid by 2050; and (2) improve energy affordability nationwide via cost-competitive geothermal industrial and residential heat and storage technologies by 2035.

Highlights of the FY 2026 Budget Request

The Department's FY 2026 Request for Geothermal Technologies supports programs that help discover, access, and develop geothermal resources across the nation. Geothermal promises firm and flexible power with significant generation potential across the US. The FY 2026 Request prioritizes next-generation pilots to test new power production concepts in multiple geologies, expanded nation-wide exploration and drilling programs, new critical material and geologic hydrogen assessment and technology development efforts, and techno-economic tool refinements.

Geothermal Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Enhanced Geothermal Systems	57,500	78,000
Hydrothermal Resources	24,000	31,000
Low Temperature and Coproduced Resources	24,000	25,500
Data, Modeling, and Analysis	12,500	15,500
Total, Geothermal Technologies	**118,000**	**150,000**

Explanation of Change for Geothermal Technologies

Enhanced Geothermal Systems
The Request maintains focus on high impact R&D topics across the Enhanced Geothermal Systems (EGS) Subprogram. This includes Subsurface Enhancement & Sustainability R&D that supports Early Career Awards in STEM and fewer EGS Greenfield Demonstrations. The FY 2026 budget also defers funding for a potential future extension of the FORGE project until FY 2027, by which time long-term circulation tests at the field laboratory site will provide clarity on the scientific value of future operations at FORGE to EGS commercialization. The Request also prioritizes Subsurface Accessibility R&D, which includes critical geothermal power-related RD&D via the GEODE project, R&D to increase sustainability and reduce costs associated with Well Construction, and subsurface accessibility aspects of EGS Greenfield Demonstrations. The budget will continue funding for Data, Modeling and Analysis R&D and Exploration and Characterization Activities to maintain near-field seismic monitoring of EGS sites for induced seismicity.

Hydrothermal Resources
The Request maintains support for activities related to geothermal Exploration and Characterization, including an initiative to support drilling of exploration wells and subsurface characterization activities that will build upon a legacy of successful exploration campaigns to reduce the risks and costs of geothermal development for private sector partners. The requested budget will also maintain funding for Subsurface Accessibility R&D, including critical geothermal power-related RD&D via the GEODE project, and Resource Maximization R&D, including subsurface energy cross-industry R&D efforts at the intersections of geothermal energy, critical minerals, and geologic hydrogen. This Request deprioritizes funding for prior year initiatives, including the Hidden Systems and Regional Geothermal Data Partnerships initiatives, and instead focuses on development of a novel geothermal Exploration and Characterization program that will reduce drilling risks for private sector developers.

Low Temperature and Coproduced Resources
The Request maintains this subprogram's focus on Resource Maximization R&D initiatives in FY 2026, including funding for the Federal Geothermal Partnerships program supporting technical assistance for Federal sites engaged in geothermal energy development, such as Department of Defense and General Services Administration sites. This Request also supports a new funding opportunity for hybrid geothermal demonstrations, including RD&D activities addressing the large thermal and electric loads of data centers and will support an initiative building the shallow drilling workforce needed to sustain geothermal energy development in the U.S. This budget deprioritizes RD&D focused on residential and industrial applications for geothermal heat pumps, particularly for technologies that are considered commercial.

Data, Modeling, and Analysis
The Request maintains funding for developing and maintaining techno-economic tools and data, supporting cross-DOE analysis on firm generation resource grid value, technical assistance, and work with Federal and state partners to streamline geothermal siting, leasing, and permitting. The Request deprioritizes funding in NREL analytic capacity building and stakeholder outreach and integration with cross-EERE initiatives valuing geothermal heat pumps.

Industrial Technologies
(formerly Industrial Efficiency and Decarbonization)

Overview

Every day, Americans rely on iron and steel, chemicals, cements and concrete, glass, and other industrial products that are energy intensive to manufacture and exposed to global trade and supply chain risks. Through research, development, pilots, and technical assistance, EERE's Industrial Technologies Office (ITO, formerly the Industrial Efficiency and Decarbonization Office) works to strengthen America's industrial sector to compete on a global stage and accelerate the innovation of affordable, secure, energy efficient technologies and processes.

ITO executes its mission through three subprograms: Energy-Intensive Industries, Cross-Sector Technologies, and Technical Assistance and Workforce Development. Through these subprograms, ITO pursues American energy abundance by modernizing industrial infrastructure and advancing innovative energy-efficient technologies to strengthen national security and global competitiveness. These efforts aim to reduce energy demands, unlock cost savings, generate jobs, and improve the lives of Americans.

- Energy-Intensive Industries: Supports the strategic development of the U.S. industry subsectors with the highest energy consumption, with a particular focus on chemicals and refining, iron and steel, food and beverage, forest products, and building materials, including cement, concrete, glass, and asphalt.

- Cross-Sector Technologies: Accelerates the readiness of process and equipment technologies that can lower energy usage across many industrial subsectors. Activities focus on industrial systems with wide applicability, including advanced thermal processes and systems, advanced fuels and feedstocks, barriers to utilization of grid and on-site electricity from large industrial loads, like data centers, and the efficiency of water and wastewater treatment technologies.

- Technical Assistance and Workforce Development: Addresses the significant energy and cost savings achievable through the adoption of existing technologies and practices, including energy management practices, onsite energy generation systems, and other advanced technologies. Activities include direct assistance and the development of transformational tools to help American companies realize these benefits and translate them into new opportunities for business success and lower costs for American consumers.

Highlights of the FY 2026 Budget Request

The FY 2026 Request prioritizes a limited set of broad technologies applicable to multiple industrial sectors, rather than sector-specific R&D. National Laboratory funding focuses on a subset of new and ongoing capabilities, prioritizing those with the highest impact. The FY 2026 Request also focuses on sustaining continuity for select Technical Assistance programs in priority regions and sectors.

Industrial Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Energy-Intensive Industries	113,000	20,000
Cross-Sector Technologies	81,000	40,000
Technical Assistance & Workforce Development	43,000	20,000
Total, Industrial Technologies	**237,000**	**80,000**

Explanation of Change for Industrial Technologies

- The Department's FY 2026 request will prioritize emerging needs, with a particular focus on supporting power availability for data center development, including enhanced utility-focused technical assistance and expanded National Laboratory capabilities for testing novel thermal management technologies.

- Funding will support a continuation of priority activities in chemical manufacturing, with a particular focus on high-priority work in thermal reactor development. Funding will be subcritical to maintain support in other chemicals topic, including electrochemical reactors and innovative chemical feedstocks, as well as other energy-intensive industries, including iron and steel, cement and concrete, food and beverage, and forest products.
- Cross-sector technologies activities will focus on maintaining viability of a select subset of National Laboratory capabilities on areas of broad relevance to the industrial sector, with a focus on thermal energy management and industrial load flexibility, by deprioritizing funding for R&D of water and wastewater treatment technologies and reduction in support for Manufacturing USA Institutes and Hubs.
- Technical assistance activities will shift focus to prioritize partnerships between utilities and grid operators with operators of data centers and other large industrial loads and deprioritize broad industry-wide programs like the Better Plants Challenge and the Onsite Energy Technical Assistance Partnerships (TAPs).

Advanced Materials and Manufacturing Technologies

Overview

The U.S. manufacturing sector and its complex supply chains are vital to our economic and national security. The sector employs nearly 13 million people, represents 11% of the U.S. gross domestic product and accounts for roughly 25% of U.S. exports. The opportunity for the U.S. to recapture global leadership in manufacturing is clear – the global market for energy technologies is estimated to be $130 trillion through 2050, while the U.S. accounts for just 6% of these technologies today.

EERE's Advanced Materials and Manufacturing Technologies Office (AMMTO) works to strengthen the Nation's energy manufacturing sector by accelerating innovations in materials and manufacturing technologies that are integral to the strength of our domestic supply chains. AMMTO pursues American energy dominance through new materials and manufacturing capabilities that increase the performance of our Nation's power generation, transmission, energy storage, and energy use. New materials such as advanced metal alloys, composites, semiconductors, and energy materials enable greater power output, lower transmission losses, higher energy storage density and higher efficiency energy systems. Emerging manufacturing technologies including artificial intelligence, digital twins, human-augmented automation systems, and additive manufacturing enable domestic manufacturing to run faster at lower cost and with higher quality. AMMTO seeks to unlock industrial material and process innovation that will establish the U.S. as the global leader in the production of energy technologies and generate high quality American jobs.

AMMTO pursues this vision through three subprograms: Next Generation Materials and Processes, Secure Material Supply Chains, and Energy Technology Manufacturing and Workforce.

- Next Generation Materials and Processes: Supports the development of advanced manufacturing equipment and processing technologies that are critical supply chain elements in the domestic production of energy technologies. Activities focus on advancing new processing technologies and digital technologies, such as artificial intelligence (AI) and digital twins for manufacturing equipment and systems.
- Secure Material Supply Chains: Accelerates the development of manufacturing solutions for materials that are the building block of the domestic supply chain for energy technologies. Activities focus on technologies to support critical minerals and materials for energy, as well as integrated supply chains for other strategic materials.
- Energy Technology Manufacturing and Workforce: Focuses on efforts to advance materials and manufacturing innovations and workforce programs for intermediate energy technology products that are core to many energy systems, including energy storage and semiconductor systems.

Highlights of the FY 2026 Budget Request

- Prioritizes R&D of critical materials mid-stream processing technologies through the Critical Material Innovation Hub; reduces support for material-specific supply chain analysis studies and pilot projects and testbeds.
- Supports limited R&D for domestic manufacturing equipment that focuses on use of artificial intelligence (AI) technologies and deprioritizes automation and new processing technologies.
- Through the National Laboratories, supports a prioritized subset of ongoing research and development capabilities.
- Winds down entrepreneurial incubation programs at the National Laboratories.

Advanced Materials and Manufacturing Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Next Generation Materials and Processes	82,000	20,000
Secure Material Supply Chains	73,000	45,000
Energy Technology Manufacturing & Workforce	60,000	5,000
Total, Advanced Materials and Manufacturing Technologies	**215,000**	**70,000**

Explanation of Change for Advanced Materials and Manufacturing Technologies

- The Department's FY 2026 Request prioritizes funds for Next-Generation Materials and Processes on initiatives in artificial intelligence (AI) enabled manufacturing equipment and advanced materials for energy applications. It also supports a phased reduction in Manufacturing USA programs (i.e., CESMII, CyManII, IACMI), laboratory-based advanced manufacturing facilities (i.e., MDF, CFTF, COMET) and technical assistance programs (i.e., HPC4MFG).
- The FY 2026 Request prioritizes funds for Secure Material Supply Chains toward addressing mid-stream processing technologies for critical materials for energy and eliminates support for initiatives focused on recovery, recycling and reuse technologies.
- The FY 2026 Request prioritizes funds for Energy Technology Manufacturing to support a phased shutdown of laboratory-hosted manufacturing entrepreneurial programs (i.e., LEEP) and eliminates support for semiconductor and energy storage manufacturing, including the Manufacturing USA program (i.e., PowerAmerica).

Building Technologies

Overview

Buildings play a key role in driving affordability and promoting consumer choice. The U.S. building sector accounts for 75% of total U.S. electricity use and 40% of all energy use,. Buildings are at the intersection of our most critical investments to improve energy use, reduce current and future costs, and accelerate consumer choice.

EERE's Building Technologies Office (BTO) works across this diverse sector to identify a range of technical solutions that improve energy performance in buildings, increase productivity, reduce costs to occupants and owners, and leverage grid integration to improve energy demand flexibility – helping businesses, consumers, and grid operators plan effectively while enabling more affordable utilization of the power sector and transportation. BTO's primary mission is to reduce the cost of operating homes and businesses. It pursues this mission through five subprograms: Emerging Technologies, Commercial Buildings, Residential Buildings, Codes, and Standards. These efforts prioritize the most impactful cost reductions from building end uses, with an emphasis on affordable space heating, cooling, and water heating, and an increased focus on market priming, building quality, and accelerated adoption of high-performing technologies.

Building Technologies
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Emerging Technologies	119,000	3,000
Commercial Building Integration	76,000	7,000
Residential Building Integration	62,000	3,000
Appliance and Equipment Standards	60,000	5,000
Building Energy Codes	15,000	2,000
Total, Building Technologies	**332,000**	**20,000**

Highlights of the FY 2026 Budget Request

- The Request funds deregulatory actions to repeal inefficient standards and meet statutory requirements, unlocking cost-savings to American consumers through the rollback of unnecessary or uncalibrated requirements for a wide range of commercially available products.
- The Request also includes funding to continue statutorily required activities for building code determinations, working in collaboration with the International Code Council (ICC) and Association for Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE).
- Non-regulatory investments continue a select subset of technical assistance activities and industry partnerships (including Better Buildings) at reduced scale.
- R&D investments support select analysis and select tool maintenance. No funds are included for building technology specific R&D. No funds are included for testing and validation facilities at National Laboratories.

Program Direction

Overview

Program Direction enables EERE to maintain and support a world-class Federal workforce and provide the necessary internal infrastructure to execute the EERE mission.

Highlights of the FY 2026 Budget Request

The FY 2026 Request prioritizes the EERE workforce, maintaining support for program and project management, oversight activities, contract administration, and facility needs, as well as data management and IT functionality. The Request assumes a zero percent pay increase for Federal staff and includes funding to meet anticipated permanent changes of station and voluntary and involuntary separation payment requirements.

Of the total requested, $8M supports Program Direction for the Federal Energy Management Program (FEMP) to wind down operations.

Program Direction
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Salaries and Benefits	120,436	120,436	123,856	3,420	3%
Travel	3,750	3,750	1,661	-2,089	-56%
Support Services	18,750	18,750	17,630	-1,120	-6%
Other Related Expenses	43,064	43,064	39,853	-3,211	-7%
Total, Program Direction	**186,000**	**186,000**	**183,000**	**-3,000**	**-2%**

Explanation of Change for Program Direction

The FY 2026 Request reflects a decrease of $3 million dollars. The decrease is attributed to a reduction of FTE, support services contracts, travel, and training.

Program Direction
Activities and Explanation of Changes
($K)

FY 2025 Enacted	FY 2026 Request	Explanation of Changes FY 2026 Request vs FY 2025 Enacted
Program Direction		
$186,000	**$183,000**	**-$3,000**
Salaries and Benefits		
$120,436	$123,856	+$3,420
Funds support a target of 714 FTEs and associated benefits.	Funds will support an estimated 368 EERE FTEs and 16 FEMP FTEs, as well as associated benefits, including required permanent change of station payments[1] and other payments resulting from separations.	Increase includes funds for EERE as well as FEMP and funds for required relocation, separation payments, and leave payouts.
Travel		
$3,750	$1,661	-$2,089
Funds support Federal employee travel for project oversight and other critical activities.	Funds will support EERE mission critical travel.	Estimate based on minimum travel requirements.
Support Services		
$18,750	$17,630	-$1,120
Support services funding provided technical and administrative contract support, and information technology services.	Support services funding provides technical and administrative contract support, and information technology services.	Prioritizes critical IT infrastructure, data management, and contract administration support needed to maintain operations.
Other Related Expenses		
$43,064	$39,853	-$3,211
Funds working capital and other Departmental requirements for facilities, administrative expenses, security, and publications.	Funds working capital and other Departmental requirements for facilities, administrative expenses, security, and publications.	The decrease reflects anticipated adjustments based on streamlining business infrastructure investments and an overall reduction in staffing levels.

[1] See Title 41 – Code of Federal Regulations, Subtitle F, Chapter 302, Subchapter B, Part 302-3 – Relocation Allowances

Facilities and Infrastructure

Overview

The National Renewable Energy Laboratory (NREL) is the Office of Energy Efficiency and Renewable Energy's (EERE) Federally Funded Research and Development Center (FFRDC). NREL serves as the Nation's preeminent institution for developing and integrating a broad array of energy technologies into robust, resilient systems, addressing the entire energy spectrum, from generation to distribution to end use. NREL strives to achieve an affordable and secure energy future through leading research, innovation, and strategic partnerships to deliver integrated solutions.

EERE is NREL's steward and primary sponsor. Facilities and Infrastructure (F&I) funding allows EERE to ensure continuity of essential laboratory operations by –

- Providing a safe, secure work environment for the protection of personnel, partners, and the public.
- Providing secure information networks with strong cybersecurity protocols.
- Maintaining, upgrading, and acquiring mission-critical science and technology capabilities to support NREL's science infrastructure.
- Providing direct funding for operational activities of major facilities and infrastructure and site-wide investments.

F&I funding also supports EERE stewardship of secure grid modernization and broader energy systems integration capabilities at the Energy Systems Integration Facility (ESIF), a DOE-designated user facility designed to inform early-stage research, using high performance computing capabilities.

Highlights of the FY 2026 Budget Request

EERE's FY 2026 Request prioritizes operations and maintenance, facility management, and construction.

Operations and Maintenance: Maximizes efficiencies to support the maintenance, repair, safety, and security of the NREL campuses in accordance with DOE Order 430.1C, *Real Property and Asset Management*.

Facility Management: Supports ESIF Operations and maintains utilization of the current High Performance Computer (HPC), "Kestrel."

Construction: Prioritizes funding for the last segment of construction of the Energy Materials and Processing at Scale (EMAPS) facility, including equipment, building security, and critical alarm systems such as gas detection. FY 2026 is planned to be the final year of funding, and the current estimated project completion date is April 2028. There is no change in project scope.

Facilities and Infrastructure
Funding ($K)

	FY 2024 Enacted	FY 2026 Request
Operations and Maintenance	102,370	96,450
Facility Management	57,630	49,550
21-EE-001, Energy Materials Processing at Scale (EMAPS)	50,000[1]	54,000
Total, Facilities and Infrastructure	**210,000**	**200,000**

Explanation of Change for Facilities and Infrastructure

[1] For FY 2024, EERE reprogrammed $7 million from Operations and Maintenance to EMAPS to meet contractual requirements. For FY 2025, EERE reprogrammed $2 million from AMMTO and $2 million from Building Technologies to EMAPS to meet contractual requirements.

The FY 2026 Request prioritizes funds for the EMAPS construction line-item. It also prioritizes required funding for critical maintenance and repair and safety and security measures for all NREL campuses, as well as continued operation of the ESIF user facility, while deprioritizing recapitalization of equipment.

Facilities and Infrastructure
Capital Summary ($K)

	Total[1]	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 vs FY 2025
Capital Summary (including Major Items of Equipment (MIE))						
Capital Equipment > $5M (including MIE)	-	-	-	-	-	-
Minor Construction	-	52,700	33,070	1,010	0	-1,010
Major Construction	-	59,000	50,000	50,000	54,000	+4,000
Total, Capital Summary	**-**	**111,700**	**83,070**	**51,010**	**54,000**	**+2,990**
Capital Equipment > $5M (including MIE)						
Total Non-MIE Capital Equipment (< $5M)	-	19,580	4,000	2,880	6,370	+3,490
Total, Capital Equipment (including MIE)	-	**19,580**	**4,000**	**2,880**	**6,370**	**+3,490**
Minor Construction Projects						
Total Direct Funded Minor Construction Projects (TEC <$5M)	-	-	3,170	1,010	-	-1,010
SERF/S&TF Ventilation (DF & IF)	14,700	14,700	-	-	-	-
Energy Resilience Building (DF)	33,000	33,000	-	-	-	-
ESIF HPC Data Center 10MW Upgrade (DF)	5,000	5,000	-	-	-	-
STM Substation (DF)	29,900	-	29,900	-	-	-
STM East Campus Infrastructure (IF)*	33,000	-	-	-	33,000	33,000
Total, Minor Construction Projects	**115,600**	**52,700**	**33,070**	**1,010**	**0**	**-1,010**
21-EE-001, Energy Materials and Processing at Scale, TEC	224,000	59,000	50,000	50,000	54,000	-
Total, Construction	**339,600**	**111,700**	**83,070**	**51,010**	**54,000**	**+2,990**
Total, Capital Summary	**339,600**	**131,280**	**87,070**	**53,890**	**60,370**	**+6,480**

*STM East Campus Infrastructure project not reflected in total as it is indirect funded.

[1] Dashes (-) in the Total column indicates a broad category where totaling would not be applicable as it would be for an individual investment.

Minor Construction Projects ($M)

Facilities & Infrastructure Operations & Maintenance	
Project Name:	Energy Resilience Building (ERB)
Location/Site:	NREL South Table Mountain Campus
Type:	Minor Construction Project (Direct funded)
Total Estimated Cost (TEC):	$33M (EERE minor construction project and CESER IIJA)
Construction Design:	$3M
Project Start	FY 2024
Design Complete	FY 2025
Construction Complete	FY 2027
Project Description:	Consistent with DOE's Financial Management Handbook (Chapter 2.3, *II.D.2)* the ERB is a direct funded Minor Construction Project funded by two DOE Offices. The ERB will be built on the NREL South Table Mountain Campus. The Total Project Cost (TPC) is ~$34M, whereas the Total Estimated Cost (TEC) is $33M. The TEC excludes the $1M for conceptual design, per the DOE Financial Management Handbook. The Office of Cybersecurity, Energy Security, and Emergency Response (CESER) is providing $24M of Infrastructure Investment and Jobs Act (IIJA) funding for classified space that can support the DOE-Industry Energy Threat Analysis Center (ETAC) and the Office of Energy Efficiency and Renewable Energy (EERE) is providing $10M for new capabilities in classified space for the development of new research and analytics supporting the intersection of clean energy technologies and the grid, with a specific focus on cyber security threats and mitigating risk of disruption. The total square footage for this facility is estimated to be 14,000 sq. feet, pending conceptual and final design. The $34M (TPC) of EERE and CESER funds are segregated into Useful Segments identified below: • Conceptual design - $1M, CESER (excluded from TEC) • Project planning and design - $3M, EERE (e.g., Facilities and Infrastructure (F&I) Minor Construction Projects [MCP]) • Construction - $23M, CESER • Equipment - $7M, EERE (e.g., F&I MCP) The CESER investment will support ETAC, which provides a central coordination point for government and industry partners to share information and real-world-based reporting on threats to the energy sector and how to protect against them. The EERE investment will maximize the capabilities of the classified facility to support multiprogram activities involving DOE and other governmental agencies in a secure facility to be able to respond to national security questions. The EERE contribution specifically supports national security, energy security, system resilience, and cybersecurity activities aligned with EERE and NREL's mission space.
Prior Year Accomplishments:	N/A
Planned Activities:	• Classified Space Options Analysis • Planning, Programming and Conceptual design • Issue a Request for Proposal to a Design-Build Contractor • Award of Design-Build contract • Design (Preparing and finalizing drawings, specifications, and other documents describing the work to allow construction of the project) • Project Management, Procure Long Lead and Government Furnished Equipment (Project management; independent testing/inspection, commissioning, and other third-party services; technical oversight during design and construction; IT and other laboratory provided services; procurement and installation of Government Furnished Equipment)
Significant Changes from original plan: N/A	

Minor Construction Projects ($K)

Facilities & Infrastructure Operations & Maintenance	
Project Name:	STM East Campus Infrastructure
Location/Site:	NREL South Table Mountain Campus
Type	Minor Construction Projects (Indirect funded)
Total Estimated Cost	$33,000
Construction Design	$4,000
Project Start	FY 2026
Design Complete	FY 2027
Construction Complete	FY 2028
Project Description:	The STM East Campus Infrastructure project is to design and construct critical infrastructure needed to support electrical capacity expansion on the NREL campus from a current 15MW electrical feed to a new 30MW electrical feed from the Xcel transmission line. This new connection will support the proposed STM Substation and provide capability for possible future upgrades. The infrastructure project will provide a new electrical switchyard and new electrical lines connected from the switchyard to the 115KV transmission lines which will be constructed by Xcel Energy. In addition, this project will design and construct the necessary electrical distribution lines, data/telecom lines, grading, storm drainage, landscaping, roadways, and other associated items needed to allow for connecting the new STM substation to the Xcel transmission line and the STM Campus to provide appropriate electrical and data pathways that will enable the increase of power on NRELs electrical grid. Useful Segments: • FY 2026 - $33M o Negotiate Interconnection Agreement with Utility Provider (Xcel Energy) to determine final siting of substation and design parameters of substation o Issue Design-Build Request for Proposal to Cooperative Construction Contracting Agreement (CCCA) TOA Contractor o Award a Design-Build contract to the Cooperative Construction Contracting Agreement (CCCA) TOA Contractor for design of the East Campus Infrastructure project o Long Lead Procurement of Electrical Equipment for campus connections o Long Lead Procurement of Electrical Equipment for switchyard (by Xcel) o Design of switchyard and transmission line interconnection (by Xcel) o Design of infrastructure o Acquire easements and ROWs needed to support the project (by Xcel) o Construct switchyard and connection to 115KV electrical transmission line (by Xcel) o Construct infrastructure to support campus interconnection o Install long lead equipment for campus interconnection o Test, Commission, Startup of new STM Campus infrastructure interconnection o Install switchyard long lead equipment (by Xcel) o Test, Commission, Startup of new switchyard (by Xcel)
Prior Year Accomplishments:	N/A
Planned Activities:	• Award a Design-Build contract to the Cooperative Construction Contracting Agreement (CCCA) TOA Contractor for design and long lead procurement of the STM East Campus Infrastructure. • Prepare and finalize drawings, specifications, and other documents describing the work to allow construction of the STM Campus interconnection portion of work. • Procure Long Lead Equipment including preparation of plans and specifications to support procurement of the electrical equipment associated with the STM Campus interconnection portion of work.

	• Execute an Interconnect Agreement with Xcel Energy to support the STM electrical switchyard and its connection to the Xcel electrical transmission lines in the vicinity of the substation to be designed and constructed by Xcel. • Prepare and finalize drawings, specifications, and other documents describing the work to allow construction of the Xcel electrical switchyard and connection to transmission power lines. Work completed by Xcel after interconnect agreement in place. • Procure Long Lead Equipment including preparation of plans and specifications to support procurement of electrical equipment including switchgear and switchgear building as designed by Xcel. Work completed by Xcel after interconnect agreement in place. • Construction activities to build new switchyard and overhead transmission lines to existing Xcel 115KV line. Work to be completed by Xcel Energy. • Project Management, independent testing/inspection, commissioning; technical oversight during design and construction; IT support, and other laboratory provided services.
Significant Changes from original plan: N/A	

21-EE-001, Energy Materials and Processing at Scale,
National Renewable Energy Laboratory, Golden, Colorado
TEC Project is for Design and Construction

Summary, Significant Changes, and Schedule and Cost History

Summary: The FY 2026 Budget Request proposes funding $54,000,000 (of the Total Estimated Cost (TEC)) toward the final segment of the final design and construction phase after the Critical Decision 2/3 Project Baseline using a task order acquisition strategy for a firm fixed price Design/Build project approach under a DOE approved Cooperative Construction Contracting Authority pilot contract for the Energy Materials and Processing at Scale project. The FY 2023 funding of $45,000,000 was the first segment to complete preliminary design, long lead procurements (CD-3A), final design, initial sitework, and foundation. The FY 2024 funding of $57,000,000 and the FY 2025 funding of $54,000,000 were needed to fund the building core, shell, and associated infrastructure. The current Total Estimated Cost (TEC) is $218,000,000, with the OPC remaining at $6,000,000. The Total Project Cost (TPC) $225,000,000 (includes Management Reserve and Contingency). The Office of Energy Efficiency and Renewable Energy put forth the $224,000,000 as the final number after confirmation from the Independent Cost Review proceeding after CD-1 with a firm fixed price task order award shortly after CD-1 approval. The TEC and TPC are consistent with the DOE Cost Estimating Guide 413.3-21A. The DOE 413.3B Critical Decision 0 (CD-0) approval was obtained on December 9, 2019. This project was approved for CD-1 on September 20, 2023, and CD-2/3 on August 29. 2024. The FPD for this project is PMCDP certified level 2 working toward level 3. The target Project Completion is 2028 including schedule reserve. Undersecretary of Science and Innovation has delegated the Project Management Executive to the Golden Field Office Executive Director Derek Passarelli effective August 25, 2023. At the External Independent Review/Independent Cost Estimate June 2024, Other Direct Costs funded from Golden Field Office had already spent for $563,000 towards EMAPS AoA support and DOE project reviews was identified. Other Direct Costs are now included in Total Project Costs estimated at $1,000,000 for remaining project reviews and closeout reviews over the life of the project for FY 2020-FY 2028 bringing Total Project Cost to $225,000,000.

Significant Changes: The Cooperative Construction Contracting Approach (CCCA) task order agreement procurement strategy with the EMAPS project has been completed and a conceptual design selected for CD-1. The project went through Project Peer Review and Independent Cost Review in June 2023. With the feedback from the review teams, the IPT sought an increase from the original ROM cost range to the range reflected above ($201M-$246M) with our Budget request point estimate at $224M "design to budget", with the size range narrowed to 123,000 – 127,000 square feet. The range is a class 3 estimate +/- 10% as we have a selected vendor bid in hand for a firm fixed price design/build construction award after CD-1 approval for phase 1 preliminary design. The Independent Cost Review confirmed the IPT point estimate and range in their final report. With escalation due to the inflationary environment taken into account the team adjusted the design phase funding to accommodate the costs expected to reach the CD-2/3 milestone August 29, 2024. Final design and construction phase was awarded upon approval of CD-2/3 on August 30, 2024.

The project's preliminary design phase was completed in March 2024 and culminated in a 100% preliminary design deliverable for a 127,000 gross square foot facility and a firm fixed price proposal for Phase II (final design and construction) from the design-build subcontractor. The project completed an External Independent Review (EIR) and Independent Cost Estimate (ICE) as a part of the CD-2/3 review process in June 2024. Other Direct Costs noted in the Summary above were added for $1M over the life of the project funded separately from EMAPS appropriation by Golden Field Office. As a part of this process, the ICE totaled $231M in TPC, which aligns to within 3.1% of the IPT estimate of $225M. The IPT awarded a contract modification for Phase II after CD-2/3 approval on August 30, 2024.

Critical Milestone History

Fiscal Quarter or Date

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	D&D Complete	CD-4
FY 2021	12/16/2019	2Q FY 2022	3Q FY 2022	3Q FY 2023	4Q FY 2023	3Q FY 2023	N/A	2Q FY 2025
FY 2022	12/16/2019	4Q FY 2022	1Q FY 2023	4Q FY 2023	1Q FY 2024	4Q FY 2023	N/A	3Q FY2025
FY 2023	12/16/2019	2Q FY 2023	3Q FY 2023	3Q FY 2024	4Q FY 2024	3Q FY 2024	N/A	1Q FY 2026
FY 2024	12/16/2019	4/5/2023	4Q FY 2023	3Q FY 2024	1Q FY 2025	3Q FY 2024	N/A	2Q FY 2026
FY 2025	12/16/2019	4/5/2023	9/20/2023	3Q FY2024	Q1 FY2025	3Q FY2024	N/A	Q2 FY 2027
FY 2026	12/16/2019	4/5/2023	9/20/2023	8/29/2024	03/27/2025	8/29/2024	N/A	3Q FY 2028

CD-0 – Approve Mission Need for a construction project with a conceptual scope and cost range
Conceptual Design Complete – Actual date the conceptual design was completed
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
Final Design Complete – Estimated/Actual date the project design will be/was complete (d)
CD-3 – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout

Project Cost History

(Dollars in Thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2021	12,000	148,000	160,000	5,000	0	5,000	165,000
FY 2022	12,000	147,000	159,000	6,000	0	6,000	165,000
FY 2023	12,000	148,000	160,000	5,000	0	5,000	165,000
FY 2024	12,000	148,000	160,000	5,000	0	5,000	165,000
FY 2025	18,000	200,000	218,000	6,000	0	6,000	225,000*
FY 2026	18,000	200,000	218,000	6,000	0	6,000	225,000*

Note: FY 2025 and FY 2026 TPC includes 1,000 in Other Direct Costs (ODCs) funded by GFO Program Direction separate from EMAPS appropriation.

1. Project Scope and Justification

Scope: As advanced energy generation technologies approach terawatt scale, critical materials and supply chain management become increasingly important. The challenge requires much more than critical materials for complex components, devices, and systems deployed at large scales. Design is required for maximum economic useful life, reuse, refurbishment, repair, remanufacturing, and recycling, all of which require multi- disciplinary research and research facilities that can accommodate scaling R&D project from bench scale to pilot scale. These technologies may also utilize new critical materials and recyclable polymers and composites as their scalability and durability are established. To advance this critical need to address supply chain considerations for energy-related technologies, a multi- disciplinary research capability in process integration that draws on bench scale innovations from multiple institutions and transforms them into integrated and scalable "hybrid technology processes" is needed to ready Department of Energy innovations for commercial development. The Financial Schedule reflects a 127,000 gross square foot research facility as presented in design-build subcontractor's firm fixed price proposal.

Justification: The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets. The TEC and TPC estimates used in this

document align with the current spend plan. The estimate was based on a new facility which conservatively binds the potential alternatives. An Analysis of Alternatives (AoA) to include a justification of the alternative to be selected was conducted prior to CD-1 approval and endorsed by the Acting Assistant Secretary of Office of Energy Efficiency and Renewable Energy to proceed with conceptual planning.

With domestic critical materials production efforts, as well as many energy technologies, it is becoming clear that the United States needs to increase efficiencies for energy-relevant and energy-intensive critical materials and processes incorporating other more traditional attributes such as high performance, affordability and reliability into advanced energy innovations at the start rather than dealing with future legacies. There are now major opportunities at the interfaces of biology, chemistry and materials science and engineering to develop hybrid processes to couple abiotic (e.g., chemical, catalytic, electrochemical) and biological (e.g., enzymatic or organism-based) processes for chemical synthesis, polymer construction and deconstruction to useful domestic manufactured products and materials.

Addressing the full lifecycle of U.S. critical materials, products, and advanced energy innovation is important for the U.S. to maintain global economic dominance. This project allows DOE to lead advanced energy innovation at the interfaces of biology, physics, chemistry and materials science and engineering to develop hybrid processes to couple abiotic and biological processes for synthesis, polymer construction and deconstruction, to useful domestically manufactured products and materials.

Key Performance Parameters (KPPs)

The Key Performance Parameters (KPPs) were revised following the EIR and ICE in June 2024. The scope KPPs of the project are as follows:

Scope Description	KPP
Total Building Size (gsf)	127,000
High-Bay Laboratory Space (nasf)	16,000
Total Lab Space including high bays, lab storage, and utility corridors (nasf)	59,000

gsf – gross square feet; total enclosed area measured to exterior wall
nasf – net assignable square feet; usable space measure from interior face of drywall

2. Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2021	0	0	0
FY 2022	8,000	0	0
FY 2023	10,000	18,000	0
FY 2024	0	0	18,000
FY 2025	0	0	0
Total Design	**18,000**	**18,000**	**18,000**
Construction			
FY 2021	0	0	0
	Budget Authority (Appropriations)	**Obligations**	**Costs**
FY 2022	0	0	0

FY 2023	35,000	0	0
FY 2024	57,000	85,000	4,500
FY 2025	54,000	61,000	79,000
FY 2026	54,000	54,000	67,000
FY 2027	0	0	13,000
FY 2028			36,500
Total Construction	200,000	200,000	200,000
Total Estimated Costs (TEC)			
FY 2021	0	0	0
FY 2022	8,000	0	0
FY 2023	45,000	8,000	0
FY 2024	57,000	95,000	22,500
FY 2025	54,000	59,000	79,000
FY 2026	54,000	56,000	67,000
FY 2027	0	0	13,000
FY 2028	0	0	36,500
Total TEC	218,000	218,000	225,000
Other Project Costs (OPC)			
FY 2021	6,000	1,500	300
FY 2022	0	1,500	1,000
FY 2023	0	0	1,700
FY 2024	0	0	0
36,FY 2025	0	0	0
FY 2026	0	0	0
FY 2027	0	3,000	3,000
Total OPC	6,000	6,000	6,000
GFO Funded Other Direct Costs (ODC)			
FY 2021	239	239	239
FY 2022	0	0	0
FY 2023	198	198	198
FY 2024	126	126	126
FY 2025	150	150	150
FY 2026	175	175	175
FY 2027	112	112	112
Total ODC	1,000	1,000	1,000
Total Project Costs (TPC)			
FY 2021	6,239	1,739	539
FY 2022	8,000	1,500	1,000
FY 2023	45,198	18,198	1,898
FY 2024	50,126	92,126	226
FY 2025	61,150	59,150	79,150

FY 2026	54,175	49,175	67,175
FY 2027	112	3,112	16,112
FY 2028	0	0	36,500
Grand Total	225,000	225,000	225,000

3. Details of Project Cost Estimate

(Budget Authority in Thousands of Dollars)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	14,500	14,500	14,500
Contingency	3,500	3,500	3,500
Total, Design	18,000	18,000	18,000
Construction			
Site Work	4,550	4,550	4,550
Equipment	30,000	30,000	30,000
Construction	134,500	134,500	134,500
Other, as needed	9,800	9,800	9,800
Contingency	21,150	21,150	21,150
Total, Construction	200,000	200,000	200,000
Other TEC (if any)			
Cold Startup	0	0	N/A
Contingency	0	0	N/A
Total, Other TEC	0	0	N/A
Total Estimated Cost	**218,000**	**218,000**	**218,000**
Contingency, TEC	*24,650*	*24,650*	24,650
Other Project Cost (OPC)			
OPC except D&D			
R&D	0	0	0
Conceptual Planning	1,000	1,000	1,000
Conceptual Design	2,000	2,000	2,000
Other OPC Costs	3,000	3,000	3,000
Contingency	0	0	0
Total, OPC	**6,000**	**6,000**	**6,000**
Contingency, OPC	*0*	*0*	0
Other Direct Costs (ODC)	**1,000**	**1,000**	**1,000**
Total Project Cost	**225,000**	**225,000**	**225,000**
Total Contingency (TEC+OPC)	**24,650**	**24,650**	**24,650**

4. Schedule of Appropriations Requests

(Dollars in Thousands)

Request Year	Type	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total

FY 2022	TEC	0	8,000	0	151,000	0	0	0	159,000
	OPC	6,000	0	0	0	0	0	0	6,000
	TPC	6,000	8,000	0	151,000	0	0	0	165,000
FY 2023	TEC	0	8,000	45,000	57,000	54,000	54,000	0	159,000
	OPC	6,000	0	0	0	0	0	0	6,000
	TPC	6,000	8,000	45,000	57,000	54,000	54,000	0	165,000
FY 2024	TEC	0	8,000	45,000	57,000	54,000	54,000	0	159,000
	OPC	6,000	0	0	0	0	0	0	6,000
	TPC	6,000	8,000	45,000	57,000	54,000	54,000	0	165,000
FY 2025	TEC	0	8,000	45,000	57,000	54,000	54,000	0	218,000
	OPC	6,000	0	0	0	0	0	0	6,000
	ODC	239	0	198	126	150	175	112	1,000
	TPC	6,239	8,000	45,198	57,126	54,150	54,175	112	225,000
FY 2026	TEC	0	8,000	45,000	57,000	54,000	54,000	0	218,000
	OPC	6,000	0	0	0	0	0	0	6,000
	ODC	239	0	198	126	150	175	112	1,000
	TPC	6,239	8,000	45,198	57,126	54,150	54,175	112	225,000

5. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3Q FY2028
Expected Useful Life (number of years)	50
Expected Future Start of D&D of this capital asset (fiscal quarter)	2Q FY 2077

Related Funding Requirements
(Budget Authority in Millions of Dollars)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	5.4	5.4	270	270

6. D&D Information

The preferred alternative is a new Federal facility. This new facility will not replace existing facilities. NREL is over capacity in all existing laboratories. This new facility will accommodate the expanded R&D mission for clean energy economy and climate resiliency. The applicability of the "one-for-one" offset requirement will be assessed after CD-2/3. The square footage requirement is noted in FIMS AAIM module and the Project Execution Plan.

7. Acquisition Approach

An Acquisition Strategy for a Design Build firm fixed price task order agreement has been developed. The current version was be signed at CD-2/3 approval in accordance with DOE O 413.3B.

DEPARTMENT OF ENERGY
Funding by Site Detail
TAS_0321 - Energy Efficiency and Renewable Energy - FY 2026
($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 President's Budget
Ames Laboratory			
Vehicle Technologies	500	203	0
Hydrogen and Fuel Cells Technologies	100	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	600	203	0
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	0	1,369	0
Advanced Materials & Manufacturing Technologies Office	10,000	28,000	30,000
Buildings & Industry (formerly Energy Efficiency)	10,000	29,369	30,000
Total Ames Laboratory	**10,600**	**29,572**	**30,000**
Argonne National Laboratory			
Vehicle Technologies	78,084	38,202	0
Bioenergy Technologies	10,186	10,500	1,000
Hydrogen and Fuel Cells Technologies	9,000	3,864	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	97,270	52,566	1,000
Renewable Energy Grid Integration	600	800	0
Solar Energy Technologies	452	98	0
Wind Energy Technologies	2,137	813	0
Water Power Technologies	1,879	2,200	2,000
Geothermal Technologies	0	32	50
Renewable Energy	5,068	3,943	2,050
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	2,329	1,833	0
Advanced Materials & Manufacturing Technologies Office	3,930	9,445	1,000
Building Technologies	2,291	2,125	0
Buildings & Industry (formerly Energy Efficiency)	8,550	13,403	1,000
Strategic Programs	844	700	0
Corporate Support	844	700	0
Facility and Workforce Assistance (MESC)	750	0	0
Analysis and Strategic Investment (MESC)	0	784	530
Total Argonne National Laboratory	**112,482**	**71,396**	**4,580**
Brookhaven National Laboratory			
Vehicle Technologies	5,644	1,371	0
Bioenergy Technologies	1,000	0	0
Hydrogen and Fuel Cells Technologies	400	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	7,044	1,371	0
Wind Energy Technologies	0	82	0
Geothermal Technologies	0	41	50
Renewable Energy	0	123	50
Building Technologies	191	75	0
Buildings & Industry (formerly Energy Efficiency)	191	75	0
Total Brookhaven National Laboratory	**7,235**	**1,569**	**50**
Golden Field Office			
Vehicle Technologies	1,000	227	0

Bioenergy Technologies	105,777	125,000	0
Hydrogen and Fuel Cells Technologies	66,500	4,251	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	173,277	129,478	0
Renewable Energy Grid Integration	0	51,198	0
Solar Energy Technologies	169,062	800	0
Wind Energy Technologies	27,670	861	0
Water Power Technologies	62,174	125,000	0
Geothermal Technologies	65,772	288,823	85,000
Renewable Energy	324,678	466,682	85,000
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	167,500	175,000	50,000
Advanced Materials & Manufacturing Technologies Office	93,657	59,872	22,000
Building Technologies	74,998	0	0
Buildings & Industry (formerly Energy Efficiency)	336,155	234,872	72,000
Program Direction - Energy Efficiency and Renewable Energy	31,324	31,324	28,868
Total Program Direction (EERE)	31,324	31,324	28,868
Corporate Support	31,324	31,324	28,868
Federal Energy Efficiency Fund (FEMP)	14,000	14,000	0
Facility and Workforce Assistance (MESC)	12,000	16,000	13,000
Training and Technical Assistance (SCEP)	1,700	1,700	0
Weatherization (SCEP)	1,700	1,700	0
State Energy Program (SCEP)	1,325	1,325	0
Local Government Energy Program (SCEP)	12,000	0	0
Community Energy Programs (SCEP)	12,000	0	0
Energy Future Grants (SCEP)	27,000	0	0
Program Direction - SCEP	1,000	1,000	0
Total Golden Field Office	**934,459**	**896,381**	**198,868**
Idaho National Laboratory			
Vehicle Technologies	9,775	4,242	0
Bioenergy Technologies	16,250	17,500	0
Hydrogen and Fuel Cells Technologies	8,900	1,123	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	34,925	22,865	0
Renewable Energy Grid Integration	0	5,200	0
Solar Energy Technologies	210	224	0
Wind Energy Technologies	3,920	390	0
Water Power Technologies	4,515	4,200	4,500
Geothermal Technologies	0	141	150
Renewable Energy	8,645	10,155	4,650
Advanced Materials & Manufacturing Technologies Office	500	4,680	0
Building Technologies	235	135	0
Buildings & Industry (formerly Energy Efficiency)	735	4,815	0
Federal Energy Management (FEMP)	334	334	0
Analysis and Strategic Investment (MESC)	400	62	0
Total Idaho National Laboratory	**45,039**	**38,231**	**4,650**
Lawrence Berkeley National Laboratory			
Vehicle Technologies	15,765	6,208	0
Bioenergy Technologies	12,196	12,000	3,000
Hydrogen and Fuel Cells Technologies	4,900	3,220	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	32,861	21,428	3,000
Renewable Energy Grid Integration	1,600	8,560	0
Solar Energy Technologies	4,436	1,183	0
Wind Energy Technologies	4,256	817	0

Geothermal Technologies	0	4,846	4,000
Renewable Energy	10,292	15,406	4,000
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	8,109	3,991	2,000
Advanced Materials & Manufacturing Technologies Office	900	2,000	1,000
Building Technologies	39,955	36,892	3,000
Buildings & Industry (formerly Energy Efficiency)	48,964	42,883	6,000
Strategic Programs	1,890	1,500	0
Corporate Support	1,890	1,500	0
Federal Energy Management (FEMP)	3,728	3,728	0
Facility and Workforce Assistance (MESC)	500	0	0
Training and Technical Assistance (SCEP)	100	100	0
Weatherization (SCEP)	100	100	0
State Energy Program (SCEP)	400	400	0
Total Lawrence Berkeley National Laboratory	**98,735**	**85,445**	**13,000**
Lawrence Livermore National Laboratory			
Vehicle Technologies	2,850	989	0
Bioenergy Technologies	2,875	2,750	0
Hydrogen and Fuel Cells Technologies	2,000	1,000	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	7,725	4,739	0
Solar Energy Technologies	94	0	0
Wind Energy Technologies	1,914	746	0
Geothermal Technologies	0	41	50
Renewable Energy	2,008	787	50
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	130	1,330	0
Advanced Materials & Manufacturing Technologies Office	4,000	5,000	0
Buildings & Industry (formerly Energy Efficiency)	4,130	6,330	0
Total Lawrence Livermore National Laboratory	**13,863**	**11,856**	**50**
Los Alamos National Laboratory			
Bioenergy Technologies	5,006	5,500	0
Hydrogen and Fuel Cells Technologies	4,700	1,875	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	9,706	7,375	0
Wind Energy Technologies	117	0	0
Geothermal Technologies	0	41	50
Renewable Energy	117	41	50
Advanced Materials & Manufacturing Technologies Office	3,930	0	0
Buildings & Industry (formerly Energy Efficiency)	3,930	0	0
Total Los Alamos National Laboratory	**13,753**	**7,416**	**50**
National Energy Technology Lab			
Vehicle Technologies	175,087	40,442	0
Bioenergy Technologies	930	1,250	0
Hydrogen and Fuel Cells Technologies	15,000	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	191,017	41,692	0
Solar Energy Technologies	25	642	0
Geothermal Technologies	26,385	0	0
Renewable Energy	26,410	642	0
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	166	446	0
Advanced Materials & Manufacturing Technologies Office	0	1,000	0
Buildings & Industry (formerly Energy Efficiency)	166	1,446	0
Program Direction - Energy Efficiency and Renewable	20,016	20,016	18,704

Energy			
Total Program Direction (EERE)	20,016	20,016	18,704
Corporate Support	20,016	20,016	18,704
Total National Energy Technology Lab	**237,609**	**63,796**	**18,704**
National Renewable Energy Laboratory			
Vehicle Technologies	36,939	17,420	5,000
Bioenergy Technologies	46,963	51,500	10,000
Hydrogen and Fuel Cells Technologies	14,400	9,000	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	98,302	77,920	15,000
Renewable Energy Grid Integration	12,400	37,946	0
Solar Energy Technologies	81,894	14,335	0
Wind Energy Technologies	52,594	10,811	0
Water Power Technologies	26,235	25,000	23,000
Geothermal Technologies	9,379	24,778	25,000
Renewable Energy	182,502	112,870	48,000
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	4,641	12,933	1,000
Advanced Materials & Manufacturing Technologies Office	4,171	9,505	1,000
Building Technologies	45,085	32,422	3,000
Buildings & Industry (formerly Energy Efficiency)	53,897	54,860	5,000
Strategic Programs	9,550	10,440	0
Corporate Support	9,550	10,440	0
Federal Energy Management (FEMP)	9,313	9,313	0
Facility and Workforce Assistance (MESC)	432	0	0
Analysis and Strategic Investment (MESC)	1,600	429	0
Training and Technical Assistance (SCEP)	4,200	4,200	0
Weatherization (SCEP)	4,200	4,200	0
State Energy Program (SCEP)	1,400	1,400	0
Total National Renewable Energy Laboratory	**361,196**	**271,432**	**68,000**
Oak Ridge Institute for Science and Education			
Vehicle Technologies	3,599	99	0
Bioenergy Technologies	800	600	0
Hydrogen and Fuel Cells Technologies	1,150	550	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	5,549	1,249	0
Renewable Energy Grid Integration	0	1,650	0
Solar Energy Technologies	0	500	0
Wind Energy Technologies	640	254	0
Geothermal Technologies	0	189	700
Renewable Energy	640	2,593	700
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	3,971	1,000	1,000
Advanced Materials & Manufacturing Technologies Office	6,854	1,500	0
Building Technologies	4,650	4,301	0
Buildings & Industry (formerly Energy Efficiency)	15,475	6,801	1,000
Strategic Programs	160	160	0
Corporate Support	160	160	0
Federal Energy Management (FEMP)	1,465	1,465	0
Training and Technical Assistance (SCEP)	400	400	0
Weatherization (SCEP)	400	400	0
State Energy Program (SCEP)	1,500	1,500	0
Total Oak Ridge Institute for Science and Education	**25,189**	**14,168**	**1,700**
Oak Ridge National Laboratory			
Vehicle Technologies	36,857	14,030	0

Bioenergy Technologies	11,077	9,200	0
Hydrogen and Fuel Cells Technologies	3,725	1,500	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	51,659	24,730	0
Renewable Energy Grid Integration	3,500	0	0
Solar Energy Technologies	191	83	0
Wind Energy Technologies	700	134	0
Water Power Technologies	10,675	11,000	10,500
Geothermal Technologies	500	75	3,000
Renewable Energy	15,566	11,292	13,500
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	16,240	12,957	2,000
Advanced Materials & Manufacturing Technologies Office	38,220	36,257	13,000
Building Technologies	27,819	6,491	3,000
Buildings & Industry (formerly Energy Efficiency)	82,279	55,705	18,000
Federal Energy Management (FEMP)	2,217	2,217	0
Analysis and Strategic Investment (MESC)	0	222	150
Training and Technical Assistance (SCEP)	1,200	1,200	0
Weatherization (SCEP)	1,200	1,200	0
Total Oak Ridge National Laboratory	**152,921**	**95,366**	**31,650**
Pacific Northwest National Laboratory			
Vehicle Technologies	26,136	10,634	0
Bioenergy Technologies	14,909	10,500	0
Hydrogen and Fuel Cells Technologies	6,000	1,359	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	47,045	22,493	0
Renewable Energy Grid Integration	1,000	4,418	0
Solar Energy Technologies	0	2,200	0
Wind Energy Technologies	11,179	2,438	0
Water Power Technologies	38,504	21,000	19,000
Geothermal Technologies	0	9,368	1,500
Renewable Energy	50,683	39,424	20,500
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	525	650	0
Advanced Materials & Manufacturing Technologies Office	1,000	6,673	0
Building Technologies	41,576	36,099	3,000
Buildings & Industry (formerly Energy Efficiency)	43,101	43,422	3,000
Strategic Programs	770	700	0
Corporate Support	770	700	0
Federal Energy Management (FEMP)	4,542	4,542	0
Facility and Workforce Assistance (MESC)	200	0	0
Analysis and Strategic Investment (MESC)	0	261	175
Total Pacific Northwest National Laboratory	**146,341**	**110,842**	**23,675**
Sandia National Laboratories			
Vehicle Technologies	8,927	3,126	0
Bioenergy Technologies	5,031	4,000	0
Hydrogen and Fuel Cells Technologies	7,300	2,367	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	21,258	9,493	0
Solar Energy Technologies	13,296	2,768	0
Wind Energy Technologies	13,442	2,752	0
Water Power Technologies	10,660	9,500	7,200
Geothermal Technologies	1,410	25,016	2,500
Renewable Energy	38,808	40,036	9,700
Advanced Materials & Manufacturing Technologies Office	53	0	0
Building Technologies	75	75	0

Buildings & Industry (formerly Energy Efficiency)	128	75	0
Strategic Programs	500	500	0
Corporate Support	500	500	0
Total Sandia National Laboratories	**60,694**	**50,104**	**9,700**
Savannah River National Laboratory			
Hydrogen and Fuel Cells Technologies	100	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	100	0	0
Advanced Materials & Manufacturing Technologies Office	0	500	0
Buildings & Industry (formerly Energy Efficiency)	0	500	0
Total Savannah River National Laboratory	**100**	**500**	**0**
SLAC National Accelerator Laboratory			
Vehicle Technologies	6,390	2,727	0
Bioenergy Technologies	625	625	0
Hydrogen and Fuel Cells Technologies	500	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	7,515	3,352	0
Solar Energy Technologies	414	465	0
Renewable Energy	414	465	0
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	50	0	0
Advanced Materials & Manufacturing Technologies Office	500	1,500	0
Buildings & Industry (formerly Energy Efficiency)	550	1,500	0
Analysis and Strategic Investment (MESC)	0	217	145
Total SLAC National Accelerator Laboratory	**8,479**	**5,534**	**145**
Undesignated Lab/Plant/Installation			
Bioenergy Technologies	0	0	47,500
Hydrogen and Fuel Cells Technologies	15,325	0	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	15,325	0	47,500
Water Power Technologies	0	61,100	18,000
Renewable Energy	0	61,100	18,000
Industrial Technologies (formerly Industrial Efficiency & Decarbonization Office)	0	159,535	16,000
Advanced Materials & Manufacturing Technologies Office	0	157,600	0
Buildings & Industry (formerly Energy Efficiency)	0	317,135	16,000
Federal Energy Management (FEMP)	3,614	3,614	0
Program Direction - MESC	1,000	1,000	1,000
Training and Technical Assistance (SCEP)	800	800	0
Weatherization (SCEP)	800	800	0
Total Undesignated Lab/Plant/Installation	**20,739**	**383,649**	**82,500**
Washington Headquarters			
Vehicle Technologies	29,415	7,377	1,500
Bioenergy Technologies	41,375	54,075	8,500
Hydrogen and Fuel Cells Technologies	10,000	6,606	0
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	80,790	68,058	10,000
Renewable Energy Grid Integration	2,900	228	0
Solar Energy Technologies	39,426	18,619	0
Wind Energy Technologies	18,431	9,697	0
Water Power Technologies	36,090	41,000	5,800
Geothermal Technologies	12,305	97,718	15,450
Renewable Energy	109,152	167,262	21,250
Industrial Technologies (formerly Industrial Efficiency &	33,339	37,956	8,000

Decarbonization Office)			
Advanced Materials & Manufacturing Technologies Office	47,285	41,468	2,000
Building Technologies	95,125	29,005	8,000
Buildings & Industry (formerly Energy Efficiency)	175,749	108,429	18,000
Program Direction - Energy Efficiency and Renewable Energy	134,660	134,660	135,428
Total Program Direction (EERE)	134,660	134,660	135,428
Strategic Programs	7,286	7,000	0
Corporate Support	141,946	141,660	135,428
Federal Energy Management (FEMP)	3,787	3,787	0
Program Direction - FEMP	14,000	14,000	0
Facility and Workforce Assistance (MESC)	2,118	0	0
Training and Technical Assistance (SCEP)	1,600	1,600	0
Weatherization (SCEP)	1,600	1,600	0
State Energy Program (SCEP)	1,375	1,375	0
Program Direction - SCEP	21,000	21,000	0
Total Washington Headquarters	**551,517**	**527,171**	**184,678**
Other			
Weatherization Assistance Program (SCEP)	326,000	326,000	0
Weatherization Readiness Fund (SCEP)	30,000	30,000	0
Weatherization (SCEP)	356,000	356,000	0
State Energy Program (SCEP)	60,000	60,000	0
Local Government Energy Program (SCEP)	0	91	0
Community Energy Programs (SCEP)	0	91	0
Total Other	**416,000**	**416,091**	**0**
Undesignated LPI			
Vehicle Technologies	13,032	92,655	18,500
Sustainable Transportation and Fuels (formerly Sustainable Transportation)	13,032	92,655	18,500
Solar Energy Technologies	8,500	0	0
Water Power Technologies	9,268	0	0
Geothermal Technologies	2,248	36,800	12,500
Renewable Energy	20,016	36,800	12,500
Facility Management (NREL)	160,000	200,000	146,000
21-EE-001, Energy Materials Processing at Scale (EMAPS)	50,000	50,000	54,000
Facilities and Infrastructure	210,000	250,000	200,000
Corporate Support	210,000	250,000	200,000
Analysis and Strategic Investment (MESC)	0	25	0
Total Undesignated LPI	**243,048**	**379,480**	**231,000**
Total Funding by Site for TAS_0321 - Energy Efficiency and Renewable Energy	**3,460,000**	**3,459,999**	**903,000**

Electricity

Electricity
($K)

FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted
280,000	280,000	193,000	-87,000

Proposed Appropriation Language

For Department of Energy expenses including the purchase, construction, and acquisition of plant and capital equipment, and other expenses necessary for electricity activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, $193,000,000, to remain available until expended: *Provided*, That of such amount, $19,000,000 shall be available until September 30, 2027, for program direction: *Provided further*, That of such amount, $20,000 from unobligated funds made available under this heading for projects specified in the table that appears under the heading "Congressionally Directed Spending Electricity Projects" in the explanatory statement described in section 4 in the matter preceding division A of Public Law 117-103 shall be available for the purpose described under this heading: *Provided further*, That of such amount, $500,000 from unobligated funds made available under the "Electricity Delivery and Energy Reliability" heading for projects specified in the table that appears under the heading "Energy and Water Development (Congressionally Directed Spending Items)" in the joint explanatory statement accompanying the conference report on Public Law 111-85 shall be available for the purpose described under this heading: *Provided further*, That funds under this heading allocated for the purposes of section 9 of the Small Business Act, as amended (15 U.S.C. 638), including for Small Business Innovation Research and Small Business Technology Transfer activities, or for the purposes of section 1001 of the Energy Policy Act of 2005, as amended (42 U.S.C. 16391(a)), for Technology Commercialization Fund activities, may be reprogrammed without being subject to the restrictions in section 301 of this Act.

Mission

The Office of Electricity (OE) leads the U.S. Department of Energy's research and development to strengthen and modernize our Nation's power grid to maintain a reliable, affordable, secure, and resilient electricity delivery infrastructure.

Overview

America's energy security, economy, and sustained global leadership are anchored in a robust power grid. Through interdisciplinary research and in partnership with the private and public sectors, OE harnesses innovation to drive a more resilient, reliable, affordable, and secure North American energy system while maintaining energy independence.

The ability to securely move affordable 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 adapt to all generation resource and load types and ensure reliable, resilient grid operations under a variety of conditions. OE leads the Department's efforts in developing new technologies to strengthen, transform, and improve electricity delivery infrastructure so generation and load can be fully integrated into the energy ecosystem and all customers—from data centers to consumers—have access to reliable, and affordable electricity.

A dramatic structural transformation of the electricity delivery system is underway. America's grid is transforming into a more dynamic and structurally complex system, with bidirectional power flows and rapidly changing generation and load characteristics. Managing this will require significant reengineering and advancements in grid technology and system architectures.

In FY 2026, funding for Grid Deployment will support OE programs and projects, in close coordination with CESER, that increase generation and transmission capacity and strengthen grid security.

OE's team of experts share their technical, analytical, and policy expertise with offices throughout DOE and with energy stakeholders across the country. Continued program direction support is crucial to sustain a talented workforce to facilitate the Administration's goal of energy dominance and providing a reliable, resilient, secure, and affordable 21st century power grid for the American people.

Electricity
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Grid Controls and Communications					
Transmission Reliability and Resilience	33,000	33,000	27,500	-5,500	-17%
Energy Delivery Grid Operations Technology	31,000	31,000	31,000	-	-
Resilient Distribution Systems	53,000	53,000	25,000	-28,000	-53%
Cyber Resilient and Secure Utility Communications Networks	15,500	15,500	10,500	-5,000	-32%
Total, Grid Controls and Communications	132,500	132,500	94,000	-38,500	-29%
Grid Hardware, Components, and Systems					
Energy Storage	92,500	92,500	50,000	-42,500	-46%
Transformer Resilience and Advanced Components	22,500	22,500	22,500	-	-
Applied Grid Transformation Solutions	13,500	13,500	7,500	-6,000	-44%
Total, Grid Hardware, Components, and Systems	128,500	128,500	80,000	-48,500	-38%
Program Direction	19,000	19,000	19,000	-	-
Total, Office of Electricity	**280,000**	**280,000**	**193,000**	**-87,000**	**-31%**
Grid Deployment			***15,000***		

Transmission Reliability and Resilience

Overview

The Transmission Reliability and Resilience (TRR) program collaborates with the electric industry to research, develop, and demonstrate system monitoring and diagnostics, advanced data analytics and modeling, and robust control technologies that are critically needed to assess and enhance the reliability and performance of the electricity system, mitigate large-scale blackouts, and adapt to evolving system needs, emerging risks, and interdependencies. This program is critical to realize the full potential of investments in generation technologies and electrification, which are dependent on the transmission grid evolving. TRR focuses on:

- Enhancing reliable systems operations through research, development, and demonstration (RD&D) of system observability and control capabilities
- Developing and validating models, approaches, and frameworks to characterize evolving system needs and the emerging operational landscape
- Advancing tools that fully capture and help grid operators and planners understand new system dynamics
- Developing and demonstrating operational tools for grid enhancing technologies (GETs), such as dynamic line ratings and power flow control, to better utilize existing transmission infrastructure
- Identifying pathways for improving grid resilience through risk-informed operational and planning tools
- Addressing ongoing industry challenges related to relay misoperations and identification and isolation of faults
- Mitigating risks across integrated energy systems through comprehensive data acquisition, augmentation, and synthesis at various scales and development of uncertainty-informed decision support systems that consider human factors

TRR brings together energy stakeholders from government, industry, academia, and national laboratories to generate novel ideas and develop transformative solutions to address the Nation's energy infrastructure challenges, including stakeholder landscape and architecture changes as well as natural and man-made hazards. TRR also fosters strategic university-based power system research, helping ensure an enduring strategic national capability for innovation in this essential area.

Transmission Reliability and Operation (TRO) develops transmission system operational planning and control tools to inform decisions on maintaining and improving system reliability. A key focus of the program is on transmission system measurement, control, and operations to improve grid stability and resilience. Visibility into transmission system conditions, through analytics and displays, allows operators to make risk-informed and cost-effective decisions. TRO develops tools that help system operators understand and respond to reliability events from electricity demand changes and uncertain conditions, such as wildfires, heat waves, cold snaps, and other hard-to-predict events, while managing interdependence with other critical infrastructure systems. TRO works to modernize transmission system tools through human factors, risk science, and cognitive science research for reliable and resilient system operations. RD&D will improve the speed, accuracy, and precision of power system state determinations required to manage the increasing complexity and uncertainty of grid operations and to monitor and manage the interconnected and interdependent effects among the Nation's critical infrastructures. TRO continues to develop research datasets and data platforms that facilitate tool development with real data and reduce the burden of data requests on utilities. This sets the groundwork for catalyzing artificial intelligence and machine learning (AI/ML) in the transmission system.

Advanced Grid Modeling (AGM) supports building electricity sector capacity and capability to analyze the electricity delivery system using Big Data, advanced mathematical theory, and high-performance computing to assess the current state of the grid, mitigate reliability risks, and understand future needs. In FY 2026, AGM includes protective relaying, which identifies and isolates faults so the remaining system will continue to operate under normal conditions and reduces equipment damage and potential injuries to utility personnel and the public. AGM leads research activities to better understand issues affecting the current and future electric power grid and develop robust model-based solutions, resulting in new software and analytical toolsets for operators and planners. Successful research enables grid operators and planners to optimize decision-making, giving the electric industry sophisticated tools, capabilities, and understanding to dramatically improve electric delivery system reliability, security, and affordability. AGM collaborates with the National Science Foundation's (NSF) Division of Mathematical Sciences on Algorithms for Modern Power Systems (AMPS) to build a community of university-level mathematicians and statisticians to solve some of the hardest power-system-related challenges.

Highlights of the FY 2026 Budget Request

TRR investigates and develops technologies that make the present and future grid resilient, reliable, efficient, affordable, and secure. In FY 2026, TRR will concentrate on:

- Advancing the application of cognitive science and human factors to identify and develop tools needed for robust decision making and training for system operators
- Advancing protective relaying methods to improve the functional integrity and effectiveness of corrective actions to prevent misoperations and mitigate power outages
- Continuing research on changes to grid system dynamics with a focus on integration of more power electronics and large dynamic loads such as data centers
- Supporting the development of industry standards and collaboration for wide-area situational awareness and control technologies on the transmission system
- Continuing support for the Grid Event Signature Library to facilitate the development of AI/ML tools for power sector
- Developing strategies for improving operations and operational planning across regions
- Identifying novel operational strategies for maintaining and improving system stability to manage uncertainty and complexity from changes in resources and loads.
- Continuing the partnership with NSF on AMPS, targeting university-based research
- Developing risk-based, measurement-model approaches to enable the operation of degraded or damaged electricity systems while sustaining critical functionality by improving detection, mitigation, recovery, and restoration from system issues
- Advancing transmission system tools that anticipate the evolution of distribution systems' operation and energy resources
- Developing and demonstrating tools with utility partners that identify, locate, and inform actions that mitigate reliability, and security issues
- Developing training tools for operators for knowledge transfer of existing skills, and developing new skills needed for grid operations

Technology, tools, and applications developed under TRR will be evaluated for and hardened against physical and cyber security risks. Testing and evaluation will be conducted in coordination with OE's SecureNet program to ensure that security is built into these technologies and to guard against new security risks to the electric delivery sector.

The FY 2026 Request will continue to support RD&D activities through the Grid Modernization Initiative, including the Grid Modernization Laboratory Consortium (GMLC).

Transmission Reliability and Resilience
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Transmission Reliability and Resilience			
Transmission Reliability and Operations	8,700	11,700	8,700
Advanced Grid Modeling	18,800	21,300	18,800
Protective Relaying	2,500	-	-
Data Analytics & Predictive Models to Prevent & Mitigate Failures	3,000	-	-
Total, Transmission Reliability and Resilience	**33,000**	**33,000**	**27,500**

Explanation of Changes for Transmission Reliability and Resilience

Transmission Reliability and Operations:

- Refocuses research, development, and demonstration of operational and control tools to modernize the transmission system

- Continues core work on transmission reliability to prevent power disturbances including transmission measurement, wide area situational awareness, transmission controls under uncertainty, and human factors for system operations.
- Defers some investments on lab capabilities to research and study improved dashboards and human factors for grid operations.

Advanced Grid Modeling:

- Supports RD&D to develop new models to increase the net power flowing through transmission lines
- Develops analytical methods to manage the impact of uncertainty to maintain the reliability, security, and affordability of the grid
- Helps the electric industry understand and maintain reliability as supply and load change to manage uncertainty and risk associated with the changing grid
- Develops next-generation mathematical and statistical algorithms utilizing EMT simulations, quantum technology and artificial intelligence to improve the security, reliability, and affordability of the electric power system.

Protective Relaying: Activities were merged into AGM in FY 2025.

Data Analytics & Predictive Models to Prevent & Mitigate Failures: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations.

Energy Delivery Grid Operations Technology

Overview

The Nation's energy resilience strategy can benefit from advancements in national-scale energy analytics, including short-term (operational) and long-term (infrastructure) planning capabilities, to better characterize risk and uncertainty across multiple utility and infrastructure boundaries. Built around rigorous and quantitative assessment, sensing, prediction, and deep learning, the Energy Delivery Grid Operations Technology (EDGOT) program 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 manage emerging threats.

The core of the EDGOT portfolio is the North American Energy Resilience Model (NAERM). NAERM is 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 and resilience. NAERM allows for the simulation of impacts to the energy system from natural and manmade events and, through collaborative partnerships, strategic insights will be accessible to utilities and other Federal agencies. NAERM provides enhanced planning and analysis capabilities that can be leveraged to facilitate grid investments to address these threats.

NAERM activities focus on developing, enhancing, and operating the portfolio of tools needed to address grid reliability and resilience in a system with pervasive and evolving threats and challenges. NAERM improves capabilities by transitioning underlying capabilities to a robust, secure operational state, and prioritizes what-if scenarios affecting reliability and security, which is essential for maintaining OE's ability to identify and advance solutions for America's grid. EDGOT's tools support private and public efforts by:

- Utilizing a systems perspective to compare and collectively plan for impacts across organizational, geographic, sector, and jurisdictional boundaries
- Targeting collaboration on mitigations with energy infrastructure owners and operators to effectively address multi-regional-scale natural threats and national security concerns

The EDGOT portfolio leverages previous national laboratory efforts to fully understand the resilience risks associated with the regionally diversified North American electric system and associated infrastructure systems. National laboratories, including Argonne, Idaho, Lawrence Livermore, Los Alamos, National Renewable Energy, Oak Ridge, Pacific Northwest, and Sandia, have a long history of developing system-wide modeling and analysis tools, as well as transformational sensing and communications technology.

Highlights of the FY 2026 Budget Request

Predicting the impact of a specific event on energy system operations, restoration, and recovery is vexing due to the scale of the North American energy system—crossing organizational, geographic, sector, and jurisdictional boundaries—and the underlying physics of energy transport. NAERM will analyze these interdependencies and complex events by leveraging capabilities such as:

- Use of confidential and proprietary data not available to others to drive predictions on resulting impacts
- Tools and expertise to characterize and analyze the relationships between electricity and associated infrastructures, such as communications, and fuel supply
- Data availability to support infrastructure grid planning across seams, including transmission and distribution as well as grid-edge

The FY 2026 Request focuses on developing and enhancing the portfolio of tools to help address modeling needs and to maintain the underlying capabilities in a robust, secure operational state:

- Incorporating the best available information on threat characteristics and their evolution over time
- Hardening and integrating research innovations in advanced analytics to rapidly identify system vulnerabilities and enhance decision support for system analysis
- Developing complex multi-infrastructure contingency analyses for understanding and identifying security challenges
- Enhancing and updating the infrastructure models and facilitating their integration into the NAERM architectural framework

- Expanding NAERM's operational capability in protecting and supporting the increase in data sources and access to NAERM
- Formalizing procedures and establishing partnerships for sharing data with industry stakeholders
- Engaging with industry stakeholders to get a better understanding of issues and practices on a regional basis to ensure that threat and consequence models are realistic and representative of actual system responses
- Supporting other government offices and agencies to assess structural, operational, and contextual changes on the power grid on a regional and national level as well as identifying mitigation approaches to potential reliability, security, and resilience concerns
- Supporting short- and long-term planning activities

Technology, tools, and applications developed under the EDGOT program are evaluated for security risks including cybersecurity.

Energy Delivery Grid Operations Technology
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Energy Delivery Grid Operations Technology			
North American Energy Resilience Model (NAERM)			
NAERM Operations	14,000	14,000	14,000
NAERM Upgrades	17,000	17,000	17,000
Total, Energy Delivery Grid Operations Technology	**31,000**	**31,000**	**31,000**

Explanation of Changes for Energy Delivery Grid Operations Technology

NAERM Operations:

- Expand NAERM use to address analytical needs from internal and external stakeholders, while protecting privileged data
- Use NAERM to conduct studies at the national and regional level

NAERM Upgrades:

- Develop and integrate models and simulation tools, such as natural gas-electricity and wildfire-electricity, into NAERM
- Expands data access and system architecture, enabling easy integration of additional tools into NAERM
- Conducting routine studies to analyze the impact of changes to the power grid whether from natural events (storms, wildfires, flooding, etc.) or man-made events (physical attacks, infrastructure upgrades, etc.) at the national or regional level to ensure grid reliability, resilience, and security

Resilient Distribution Systems

Overview

The Resilient Distribution Systems (RDS) program focuses on research, development, and demonstration (RD&D) of grid technologies, tools, and techniques needed to maintain power to end users and coordinate information and control across segments of the electricity system (transmission, distribution, the grid edge, microgrids, etc.). RDS works to improve grid operational reliability and resilience across the electricity system. RDS also creates, shares, and disseminates information and best practices with stakeholders, including utilities, state entities, and the public. The growing convergence of transmission and distribution (T&D) systems requires new architectural, control, and operational approaches alongside a more sophisticated approach to data as a collective resource to catalyze the use of analytics, leveraging artificial intelligence (AI) and machine learning (ML). As the complexity of the electricity distribution system increases, new technologies are needed to address operational uncertainty and challenges. Utilities require new tools and capabilities to enhance observability, control, and dynamic protection across all system assets.

RDS focuses on:

- Improving reliability, resilience, and affordability of electrical power delivered to consumers through RD&D of tools and technologies that support operational coordination and integrated planning across transmission, distribution, and grid edge system domains
- Lowering costs and advancing functional capabilities of microgrid solutions to ensure reliable, affordable, and secure electricity delivery to consumers, including uninterruptible power supply to critical infrastructure
- Developing tools for effective utilization of dynamic loads and distributed assets for power stability and power outage prevention
- Helping to develop and propagate best practices and methodologies for grid design and operations
- Identifying pathways for optimizing power delivery to consumers through improved transmission, distribution, and microgrid system controls and operations

RDS pursues strategic investments in innovative technologies, tools, and practices that improve overall grid reliability, affordability, and security, while also providing grid system planners, stakeholders, and operators with better solutions for coordinating decision-making and investment strategies across grid system domains.

Microgrid Research and Development (R&D) focuses on developing and validating next-generation microgrid system tools, techniques, topologies, and technologies to improve grid reliability, affordability, and security under both normal and disruptive conditions. Advanced microgrid systems can optimize integration of all types of local generation sources, energy storage, and loads to provide affordable and resilient electricity services to all customers—defense, industrial, commercial, and residential. This includes small modular nuclear-reactor-integrated microgrids that the defense, data center, and other sectors are actively pursuing to meet critical load demand at military and other installations. Advanced microgrid-based architectures can also provide grid reliability services and facilitate enhanced demand-side management, improving overall grid flexibility. Microgrid program investments enable electrically remote and Tribal communities across the Nation to navigate options and implement solutions for achieving reliable, affordable, and resilient energy systems and these investments remain of strategic value in the RDS portfolio. As microgrid technologies evolve to improve grid performance, microgrids are envisioned to become essential building blocks of the future electric grid and active participants in future power markets.

Dynamic Controls RD&D investigates new control approaches and technologies to enhance the electric distribution grid's ability to harness flexibility across all distribution and customer assets, reducing transmission burdens and freeing up capital to address load growth. Operating an electric grid supporting the growing U.S. economy requires control and balancing capabilities beyond the capabilities of single owner-operators, necessitating coordination and incentivization to attract willing and capable customer-owned resources. A new data-rich environment is emerging, with data originating both within and outside traditional utility boundaries. This new environment needs expanded sensor research to increase situational awareness at the distribution level, supporting both normal operations and the ability to withstand and recover from disruptions caused by extreme weather and man-made events. Dynamic Controls also explores implications of increasing dynamic loads and other transformative grid-edge influences.

Sensor Data Analytics (SDA) supports the development and demonstration of systems and data analytics for an increasingly advanced, robust, and diverse mix of information-gathering devices for situational awareness and decision

making. SDA develops tools to give utilities reliable and secure visibility into grid system conditions during normal and extreme events.

Electricity Delivery Systems (EDS) works closely with State officials and the utility industry to advance practices leading to the formulation of grid investment strategies that address community, State, and Federal planning processes and serve utilities and their customers. The program examines technological and institutional issues and applies grid architecture principles and decision-making processes for addressing them. Toward this end, EDS is advancing integrated system planning practices, developing guidelines to enable coordinated operations between transmission, distribution, and the grid edge—including dynamic loads. The program develops reference designs to address emerging structural complexity across the electricity delivery system. These activities are meant to establish a common understanding among utilities, regulators, and their stakeholders of grid investments needed to enable the utilization of an increasingly diversified set of resources and dynamic loads while maintaining reliability, resilience, and affordability.

RDS research results enable industry to strengthen electrical infrastructure reliability and resilience and support the ongoing evolution of the electric grid. RDS is developing a U.S. Electric Sector Data Strategy to establish a framework to allow sector participants to contextualize information created and used throughout the system, enable new uses for existing and emerging data resources, and extend data sharing capabilities without sacrificing privacy or security.

Highlights of the FY 2026 Budget Request

RDS R&D focuses on developing and validating new technologies and methods to improve grid reliability and resilience. FY 2026 activities are supported in the following areas:

- Advancing Microgrid Building Block (MBB) development and the cutting-edge concept of dynamic boundary formation for networked microgrids, progressing from lab-based testing to developing use case(s) collaboratively with industry partners.
- Continuing to develop innovative design, control, and operational schemes for modular microgrids that can improve system reliability and resilience at airports and distribution centers.
- Developing solutions for power system engineering issues and operational challenges facing small nuclear-reactor-integrated microgrids for applications in remote communities and high-availability systems such as data centers.
- Researching transactive controls to explore the economic and reliability impacts of meeting load growth with status quo upgrades or relying on flexible resources with different control and ownership schemes.
- Researching highly resilient distribution designs accommodating evolving electricity supply and adapting to extreme events and disruptions.
- Developing control and coordination approaches addressing dynamic grid-edge load integration issues.
- Highlighting industry best practices and guidance on complex data sharing challenges across ownership and responsibility boundaries that assures data security, integrity, and privacy while ensuring attainment of stakeholder operational objectives.
- Developing analytics, platforms, frameworks, and tools to visualize the grid for electric power operations and delivery—from the grid edge through the distribution system to the transmission system.
- Advancing integrated system planning practices to enable the formulation of holistic and staged grid investment strategies.
- Establishing rules to enable coordinated operations across the T&D system domains, including developing guidelines and sharing best practices to mature and standardize institutional, business, and technical processes governing the interfaces between them.
- Advancing coordinated grid decision-making, operations, and planning across community, State, and regional jurisdictions through working groups, education, and training activities in cooperation with major national energy association groups, such as the National Association of Regulatory Utility Commissioners (NARUC), National Association of State Energy Officials (NASEO), National Rural Electric Cooperative Association (NRECA), American Public Power Association (APPA), National Governors Association (NGA), National Conference of State Legislatures (NCSL), and National Association of State Utility Consumer Advocates (NASUCA).

Technology, tools, and applications developed under RDS will be evaluated, in conjunction with SecureNet testbed capabilities, for security risks including cybersecurity. Testing and evaluations will be conducted to ensure that security is built into these technologies and that new security risks are not being introduced into the electric sector.

Resilient Distribution Systems
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Resilient Distribution Systems			
Microgrids	8,500	11,500	7,500
Dynamic Controls	10,000	15,000	11,500
Sensor Data Analytics	2,500	4,500	-
Electricity Delivery Systems	-	10,000	6,000
Modeling Distributed Energy Resources	2,500	-	-
Sensors Demonstration	3,500	-	-
COMMANDER National Testbed Laboratory	5,000	2,000	-
Underserved & Indigenous Community Microgrids	10,000	10,000	-
DER Distribution Planning, Interconnection, & Modeling	11,000	-	-
Total, Resilient Distribution Systems	**53,000**	**53,000**	**25,000**

Explanation of Changes for Resilient Distribution Systems

Microgrids:

- Focuses on developing MBB and DynaGrid use cases in collaboration with industry partners; scaling back and deferring completion of field validation testing of MBB prototype units and the DynaGrid concept.
- Focuses on developing communication-based microgrid protection schemes that are interoperable with any number of protection devices from different vendors; postponing the hardware-in-the-loop testing of the microgrid Protection-in-a-Box design.

Dynamic Controls: The combination of load growth and associated infrastructure expansion requires transformative control approaches to ensure affordable, reliable, and resilient electricity

- Focuses R&D efforts on distributed operational controls including grid edge resource integration, data strategy, and sector interdependencies

Sensor Data Analytics: Planned activities are completed with funding provided in FY 2025

Electricity Delivery Systems:

- Focuses work on multi-State grid planning practices to address regional and multi-jurisdictional issues associated with grid reliability, resilience, affordability and flexibility requirements

Modeling Distributed Energy Resources: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations

Sensors Demonstration: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations

COMMANDER National Testbed Laboratory: Planned activities for this congressionally directed activity are completed with funding provided in FY 2025

Underserved & Indigenous Community Microgrids: Planned activities for this congressionally directed activity are completed with funding provided in FY 2025

DER Distribution Planning, Interconnection, & Modeling: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations.

Cyber Resilient and Secure Utility Communications Networks (SecureNet)

Overview

Our Nation's energy system is heavily dependent on information networks for operational reliability and resilience. Meeting rapidly growing electricity needs—for example, from data centers, manufacturing, and increasing customer demands—requires both adding new generation and efficiently orchestrating the behavior of the increasingly dynamic, distributed assets on both the generation and load sides whose behavior can affect grid stability. This orchestration requirement drives increasing volume, velocity, veracity, and variety of information demands on the grid, both for situational awareness and for control and coordination messaging. Data feeds are used by human operators, automated logic, and, in the near future, artificial intelligence on increasingly rapid timescales to maintain grid stability. At the same time, these distributed assets present a broader attack surface for adversaries to exploit. Modernizing communications and control systems to support end-to-end information security for real time operations—from the edge to the control center and back—is essential to ensure the efficient, reliable, and resilient operation of the electrical power system in a complex and dynamic risk landscape.

The Cyber Resilient and Secure Utility Communications Networks (SecureNet) program develops solutions to strengthen information security in the electricity delivery system through two interdependent research, development, and demonstration (RD&D) subprograms:

- Secure Communications Network RD&D focuses on securing grid data in transit: developing next-generation grid communications systems built from inception to mitigate communication failures and detect, reject, and withstand attacks on and disruptions to information flows. Key areas of research include grid communications architectures, resilient timing systems, securing heterogeneous grid networks, spectrum interference, grid communications quality of service, and new tools for grid operators to plan, build, and manage their networks.
- Grid Technology Cyber Resilience RD&D focuses on securing grid data at the points of production and use, which helps ensure that digital grid technologies are hardened against manipulation and attacks. Key areas of research include operational technology cybersecurity architectures, digital ledger technologies, digital twin applications, hardening digital interfaces for grid hardware, and cyber situational awareness for grid operators.

Highlights of the FY 2026 Budget Request

The SecureNet program will continue to develop and validate technical solutions to strengthen electric grid communications infrastructure. SecureNet will support the Grid Modernization Initiative, including the Grid Modernization Laboratory Consortium (GMLC).

The Request includes the following core activities under the Secure Communications Network RD&D subprogram:

- Definition and evaluation of grid communications architectures.
- Buildout and operation of the Secure Pathways for Resilient Communications (SPARC) testbed. The testbed is a resource for laboratories, utilities, and communications providers to test and evaluate secure communications technologies in realistic grid environments, and a means of providing technical assistance on grid communications.
- Development and evaluation of terrestrial alternatives to GPS at the Center for Alternate Synchronization and Timing (CAST). Tool development, technical assistance, publication of testing results, and formulation of best practices enable the electric grid to implement more robust synchronization and timing capable of operating through GPS-denied environments. The CAST testbed will be consolidated with the SPARC testbed to provide an integrated capability.
- Engagement and outreach with industry on secure grid communications topics to align DOE RD&D activities to needs and to educate stakeholders on available technologies and best practices.

The Request includes the following core activities under the Grid Technology Cyber Resilience RD&D subprogram:

- Definition and evaluation of operational technology cybersecurity architectures and best practices.
- Exploration and demonstration of distributed ledger technology to support information attestation in a variety of grid use cases.
- Provision of cyber design inputs, testing capabilities, and vulnerability assessments to other OE programs early in the RD&D pipeline to ensure they are secure by design.
- Engagement and outreach with industry to align RD&D activities to pressing needs.

SecureNet
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
SecureNet			
Secure Communications Network RD&D	2,500	9,500	7,500
Grid Technology Cyber Resilience RD&D	1,000	6,000	3,000
Darknet	10,000	-	-
Distribution Communications & Control Technologies	2,000	-	-
Total, SecureNet	**15,500**	**15,500**	**10,500**

Explanation of Changes for SecureNet

Secure Communications Network RD&D: Continues communications technology testing activities while consolidating the CAST and SPARC testbed resources into a single program to more efficiently evaluate integrated solutions. Reduces funding for grid communications conceptual architecture activities, the bulk of which will be completed with prior-year funding.

Grid Technology Cyber Resilience RD&D: Reduces funding for core activities on grid operational technology security, since activities funded in FY 2025 are not expected to be ready for follow-on funding before the second half of FY 2026.

Darknet: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations.

Distribution Communications & Control Technologies: FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations.

Energy Storage

Overview

The Energy Storage program shapes bi-directional electrical energy storage technologies into solutions for a reliable, resilient, secure, and affordable future-ready grid. The United States maintains a robust energy storage innovation ecosystem that is leading the development of emerging, innovative technologies with superior cost and performance characteristics, unlocking tremendous opportunities to a wide range of key stakeholders including utilities, industrial facilities, and critical infrastructure owners. Energy storage enhances the value of all electricity resources, provides new tools to improve grid resilience, and creates new infrastructure planning options from deferral to rapid expansion.

The Budget reflects a 46% cut to this program to focus on the development of batteries in the context of supporting firm, baseload power, microgrids, emergency response, and other areas of Administration priorities. New storage technologies with more flexible siting, added modularity, and lower marginal duration cost attributes are dramatically expanding beneficial deployment opportunities for energy storage. As deployments increase, domain expertise, from safety and valuation to operations and decommissioning, must account for continual innovations in both new and existing storage technologies. OE Energy Storage research, development, demonstration, and deployment (RDD&D) efforts recognize that the increasingly varied use cases for storage will be best served by matching user needs to technology strengths, including, but not limited to: providing reliable baseload power, critical facility resilience, data center integration and affordability. These efforts identify foundational, leverageable, and otherwise catalytic investments that help draw in industry and community support through the Energy Storage Program's four primary focus areas:

- **Materials and Systems Innovation** resolves key cost and performance challenges for storage technologies that rely on earth-abundant, domestically available storage materials, including longer-duration (10+ hour to seasonal) technologies. OE supports a diverse portfolio of energy storage materials and technologies (such as flow batteries; sodium-, zinc-, and lead-based batteries; and thermal energy storage). Additional crosscutting R&D areas include interconnections, power electronics, and power conversion systems.
- **Safety and Reliability** improves the understanding and predictability of energy storage systems and components under realistic grid conditions/use cases through advanced research, testing, and standards guidance. Key stakeholders in this focus area include fire departments and other first responders, building managers, and authorities having jurisdiction over energy storage installations.
- **Analytics** assists stakeholders in understanding optimal storage sizing, placement, operation, and valuation, as well as highlighting legacy market and regulatory structures that may not account for all the benefits provided by new technologies. These stakeholders include end-users, utilities, regulatory agencies, investors, and other decision makers. Stakeholder convenings foster collaboration across U.S. energy storage industry, exchange lessons learned, and solve barriers to further reliability and resilience benefits of energy storage nationwide. Assistance activities are enabled through the development of new analytical and open-source tools, performance protocols, and advanced modeling capabilities.
- **Grid Integration and Field Validation** helps analyze and demonstrate the economic and technical viability of storage to end users through real-world validation of storage systems, tools, and models. The Rapid Operational Validation Initiative (ROVI) will employ innovative data science methods such as artificial intelligence and machine learning to help technology innovators and stakeholders across sectors understand and forecast long-term performance, cost, and operational reliability of new storage technologies. ROVI aims to provide at least a 15-year technology life and performance prediction requiring only 1-year or less of real time testing, leveraging innovative modeling techniques informed by artificial intelligence and machine learning.

Highlights of FY 2026 Budget Request

The Request supports the program's core research, development, and demonstration (RD&D) focus areas, including the application of storage technologies that support reliable, firm power. Activities in FY 2026 provide collaborative and nimble mechanisms to nurture a rapidly growing domestic energy storage innovation ecosystem. A sharper focus is placed on highly scalable activities, where the potential exists for a single investment to benefit hundreds or thousands of users. These activities will leverage collaboration space at the newly constructed Grid Storage Launchpad (GSL) at the Pacific Northwest National Laboratory.

Increased use of energy storage across the grid and other sectors requires secure, reliable, sustainable, and affordable materials, components, and supply chains. Materials and Systems Innovation core R&D continues for materials

development and component design toward meeting established levelized cost of storage (LCOS) targets and integration of power electronics and power converter designs into additional prototype systems.

Energy storage continues to be deployed across the country at unprecedented levels.[1] Safety and Reliability R&D continues core activities involving reliability testing and modeling, safety education and safety standards development, power electronics, and stakeholder outreach. These activities will be conducted in partnership with national laboratories, industry members, first responders, authorities having jurisdiction over energy storage installations, safety standards organizations, and communities.

Grid Integration and Field Validation R&D continues core activities for innovative technology demonstrations and performance validation, project techno-economic analyses, system integration standards development, and technology integration into other systems. R&D also continues for storage system failure measures, complex system analysis, and operation requirements to capture full system benefits. These activities will be conducted in partnership with national laboratories, industry members, integration standards organizations, and communities.

Analytics core R&D continues at a reduced level for modeling and analysis, early-stage technology assessments, technical assistance, and market valuation for affordable and reliable systems development. Activities focus on developing open-source tools, establishing performance protocols, and engaging storage stakeholders. Analytics stakeholder engagement will inform stakeholder strategies that facilitate a landscape for energy storage as a tool for grid reliability and resilience.

GSL, the first national laboratory facility focused on battery materials and battery systems for grid applications, began operations in 2024. Activities at GSL focus on materials development and validation of prototype battery systems (up to 100 kW systems integration and testing) to identify and solve issues before moving to larger-scale systems. GSL provides key capabilities to accelerate energy storage RD&D:

- Standardize grid performance testing across the spectrum of battery materials, battery systems, auxiliary power, and battery management systems under market-aware and grid-specific use-case conditions
- Provide an objective national resource to report battery testing performance under grid conditions and duty cycles
- Integrate and coordinate researchers from universities and national labs to rapidly solve crosscutting science and technology challenges
- Develop new capabilities, including characterization capabilities, to rapidly scale up new materials for grid scale storage and deliver these capabilities
- Conduct realistic testing of design options in a laboratory environment

The FY 2026 Request will support RD&D activities through the Grid Modernization Initiative (GMI), including the Grid Modernization Laboratory Consortium (GMLC).

Energy Storage Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Energy Storage			
Materials and Systems Innovation	30,700	32,750	18,500
Safety and Reliability	15,000	15,250	12,500
Analytics	13,500	20,600	8,500
Grid Integration and Field Validation	8,500	9,100	7,700
Grid Storage Launchpad Operations	4,800	4,800	2,800
Section 3201 Pilot Demonstration Grants	20,000	10,000	-...-
Total, Energy Storage	**92,500**	**92,500**	**50,000**

Explanation of Changes for Energy Storage

[1] https://www.eia.gov/todayinenergy/detail.php?id=64586

- *Materials and Systems Innovation:* Core R&D activities continue. Prior activities for end-of-life/alternative life options for system materials and components, domestic supply chain innovations for access to/efficient use of materials, components, and other products used in energy storage technology, and strategic designs for improved manufacturability are not funded. Engagements with academic and industry partners toward identifying and advancing storage materials research for nascent chemistries/systems are not funded.
- *Safety and Reliability:* Core R&D activities continue. Funding for stakeholder awareness and access to DOE national laboratory expertise and national laboratory testing and characterization of battery materials and cells is reduced. Training opportunities for communities with storage projects are not funded.
- *Analytics:* Core R&D activities will be reduced, including energy community access to DOE national laboratory expertise and tools. Support for storage stakeholder convenings for information exchanges across the energy storage community and further development of open-source and advanced tools for storage development is reduced. Development of cutting-edge decision-making tools that utilize artificial intelligence and forums to disseminate these decision-making platforms and learnings from them are not funded.
- *Grid Integration and Field Validation:* Core R&D activities will continue. Funding for continued development of detection tools and methods for identifying and preventing ESS failure or damage caused by cyberattacks and other anomalies is reduced. Further enhancement and development of ROVI's data source expansion and storage technology validation capabilities to additional non-lithium technologies are not funded.
- *Grid Storage Launchpad Operations:* The Request supports maintaining safety, concluding current industry agreements, and conducting essential R&D functions. Future industry engagements are reduced. Education activities and planned upgrades, including system testing and prismatic cell development, are not funded.
- *Section 3201 Pilot Demonstration Grants:* Planned activities for this activity will be completed with funding provided in FY 2024 and FY 2025.

Construction Projects Summary
($K)

	Total Project Cost	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	Future Years
20-OE-100 Grid Storage Launchpad						
Total Estimated Cost (TEC)	76,800[1]	76,800[1]	-[1]	-	-	-
Other Project Costs (OPC)	2,000[2]	1,000[2]	1,000[2]	-	-	-
Total Project Costs (TPC)	78,800	77,800	1,000	-	-	-

[1] An internal reprogramming was used in FY 2024 to shift $1.8M from prior year Energy Storage unobligated balances to GSL to settle an equitable adjustment request from the Design-Build General Contractor for schedule incentives and uncompensated betterments. The settlement included a release of claims and enabled the completed construction project to proceed with closeout actions.
[2] OPC is funded through national laboratory overhead.

Transformer Resilience and Advanced Components

Overview

The Transformer Resilience and Advanced Components (TRAC) program is focused on strengthening the Nation's electricity delivery system by addressing key challenges such as aging infrastructure, evolving electrical loads—including the rapid emergence of large electrical loads—and the increasing need for all grid components to withstand both system transients and extreme physical events. TRAC supports innovation and modernization to enhance the resilience, reliability, and performance of critical grid infrastructure. At the same time, supply chain disruptions and global competition for materials have highlighted the risks of relying on foreign sources for critical grid components. TRAC is focused on developing resilient, high-performance equipment that can be manufactured using domestic materials and supply chains.

TRAC is advancing technologies that carry, control, convert, and condition electricity in ways that are smarter, faster, and more adaptable. By embedding data-driven design, streamlined manufacturing, and flexible system architectures, the program supports a grid that is not only more reliable, resilient, and affordable, but also better prepared to meet the demands of a rapidly evolving energy landscape.

Flexibility will be a major advantage of new critical grid components. A single large power transformer (LPT) failure can disrupt power to a half million homes. Even prior to recent supply chain disruptions, a replacement could take over 12 months because LPTs are nearly always custom-made. Increased U.S. electricity demand is also adding an unprecedented need for distribution transformers, increasing lead times. TRAC supports innovative transformer designs that are more flexible, modular, and adaptable, enabling standardized designs to be used in more locations. This approach reduces manufacturing lead times while increasing the applicability of spare inventory. The program covers the full range of electric power transformers from LPTs to distribution service transformers addressing issues across the entire grid.

Modularity enabled by advanced power electronics will be an essential part of the future grid infrastructure. Trends such as increasing data center demand and changes at the grid edge are introducing uncertainties in load growth projections. Consumer behaviors and technological improvements could require new grid capacity in increasingly unpredictable ways. TRAC supports innovative grid-enhancing technologies (GETs), direct current (DC) systems that support electricity delivery and improve efficiency in a number of power systems, including data centers, as well as solid-state power substations (SSPS) to enable faster and more targeted capacity additions. In the near term, DC technologies and GETs, including dynamic line ratings and power flow controllers, will help unlock more capacity from existing assets. In the medium to long term, the SSPS building block concept, reliant on advanced power electronics, will allow for nearly on-demand capacity additions or reallocations. These modular and scalable designs enable greater standardization and allow for more cost-effective capacity expansion. Additional benefits include smaller module sizes for ease of transport and lower power ratings to reduce criticality.

Data-driven approaches will be necessary for a reliable and efficient grid. For example, transmission and distribution equipment such as transformers, power lines, and substation equipment are often exposed to the elements and are vulnerable to adverse conditions. Next-generation grid hardware technologies will need to anticipate, withstand, and rapidly recover from the impact of extreme events, including terrestrial and space weather events, electrical disturbances, equipment failures, accidents, deliberate attacks, and other unknowns. Local intelligence with embedded sensors, data processing, and communications will enable real-time health monitoring, reducing maintenance costs and enhancing system reliability. Leveraging results from other OE activities, including sensors and emerging technologies, will improve system observability.

The TRAC scope encompasses materials research, exploratory concepts, modeling, and analysis to address the range of challenges associated with transformers and other grid components. Specific technologies include transformers, cables, conductors, high temperature superconductors (HTS), power flow and voltage controllers, protection equipment and switchgear, and equipment sensors. Program activities, developed in close coordination with industry, aim to fill fundamental research and development (R&D) gaps and accelerate the adoption of new technologies and approaches.

For the FY 2026 Budget Request, the TRAC program will prioritize technologies that can make the grid more reliable, affordable, and resilient. These technologies include advanced transformers (solid state transformers (SSTs), flexible, hybrid, etc.), advanced power electronics wide-bandgap (WBG) devices, SSPS converters, enhanced transformer health monitoring, alternative transformer core materials, and advanced transformer insulation.

Highlights of the FY 2026 Budget Request

The Request continues materials, component, and system development to enable next-generation transformers and converters. Major technology focus areas include:

- *Market and System Impact Analysis:* The Request supports R&D of advanced transformer health monitoring for increased reliability and resilience and the continued market and system impact analyses of various grid hardware components, including DC systems, advanced conductors, advanced transformers, and GETs. This analysis supports high-fidelity modeling and simulation to help the grid community understand the value and impact of these improved grid component capabilities.

- *Component Design and Development:* The Request supports continued device and operational improvements for SSPS technologies as identified in the 2020 SSPS roadmap.[1] The high-voltage, high-power, and high-reliability requirements of grid applications present unique challenges for SSPS technologies, especially when operating at higher frequencies. Greater utilization of high-voltage power electronic converters within substations, including hybrid and solid-state transformer applications, can provide power flow control capabilities and reactive power support, limit fault currents, and increase system flexibility, reliability, and resilience. The Request advances modular, scalable, flexible, and solid-state transformers from early concept prototypes systems to larger systems suitable for field validation, enabling standardized designs to increase grid resilience. The Request supports the development of DC hardware components, controls, testbeds, and advanced concepts to address technical challenges. The Request also supports the development of low voltage (LV) grid components and power electronic systems that support grid operations and enhance system resiliency and reliability. The Request also supports the continued development of technologies to improve situational awareness of power grid system, subsystems, and component conditions. This includes developing and applying sensing technologies and utilizing emerging platforms such as robotics, unmanned aerial vehicles (UAVs), advanced transformers, and other component health monitoring.

- *Applied Material R&D:* The Request supports continued improvements in magnetics, semiconductor devices, alternative transformer core materials, conductors, packaging, and insulation, targeting increases in heat dissipation, electrical and thermal conductivity, mechanical strength, voltage limits, and operational durability.

Technology, tools, and applications developed under TRAC will be evaluated for risks including physical security of electrical infrastructure, cybersecurity, electromagnetic pulses, and geomagnetic disturbances. Testing and evaluations will be conducted to ensure that security is built-in and new risks are not being introduced into the electric sector.

The FY 2026 Request continues to support R&D activities through the Grid Modernization Initiative (GMI), including the Grid Modernization Laboratory Consortium (GMLC).

Transformer Resilience and Advanced Components
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Transformer Resilience and Advanced Components			
Market and System Impact Analysis	3,000	3,000	3,000
Component Design and Development	15,600	16,600	16,600
Applied Material R&D	2,900	2,900	2,900
Silicon Carbide Semiconductors	1,000	-	-
Total, TRAC	**22,500**	**22,500**	**22,500**

[1] https://www.energy.gov/sites/prod/files/2020/06/f75/2020%20Solid%20State%20Power%20Substation%20Technology%20Roadmap.pdf

Explanation of Changes for Transformer Resilience and Advanced Components

- *Market and System Impact Analysis:* continues market and system analyses for different grid hardware components, including SST characterization, flexible modeling of interactions between transformers and power electronics assets, and expands R&D for advanced transformer health monitoring.

- *Component Design and Development:* continues addressing DC hardware technical challenges, including accelerating the development of WBG packaging solutions for higher power density grid-scale power electronics, the development of SSPS, and expands advanced transformer development, including solid-state, flexible, and modular transformers

- *Applied Material R&D:* continues R&D on advanced transformer insulation, conductors, alternative materials for transformer cores, dielectrics, and semiconductor devices.

- *Silicon Carbide Semiconductors:* FY 2024 funding was for a congressionally directed activity that was fully funded from FY 2024 appropriations.

Applied Grid Transformation Solutions

Overview

The Applied Grid Transformation Solutions (AGTS) program tests and validates innovative grid technologies prior to their deployment in the field and increases awareness of advanced grid solutions that can meet pressing industry needs. Modernizing the grid to broaden reliability, resilience, and security while maintaining affordability requires significant reengineering of system architectures and well-informed adoption of advanced grid solutions. By assembling and enhancing testbed capabilities to stress test advanced grid technologies and identify performance limitations; methodically assessing pilot demonstrations in integrated and operational environments to document best practices, requirements, and capability gaps; and developing decision-making tools and resources for a variety of stakeholders, AGTS will provide industry with the data, insights, and support to inform grid transformation, infrastructure investments, and future R&D needs.

Transformation Toolkit: The speed of innovation and change facing the electric grid is overwhelming decision makers, especially around different technologies and options that can provide similar benefits. The information available for consideration is vast, unstructured, and diverse due to the various objectives, approaches, and processes for different technologies in different states, regions, and jurisdictions across the United States. Information asymmetry between utilities and regulators leads to suboptimal solutions and slows adoption of beneficial grid technologies that can meet pressing industry needs. OE is a trusted entity that can serve as a clearinghouse for technical information and an unbiased evaluator of options to facilitate grid transformation.

Transformation Toolkit focuses on developing tools, resources, and programs to empower grid stakeholders with actionable information. Activities include documenting best practices, baselining technology readiness, providing technical assistance, and compiling outputs and impacts of OE and DOE grid R&D investments.

Testbed Network: Grid testbeds are vital tools in the technology development process, providing capabilities to evaluate innovative technologies in a controlled and realistic environment prior to integration with operational assets and systems in the field. Stress tests help evaluate their performance, reliability, safety, and security under blue sky, grey sky, and black sky conditions and can surface technical and capability gaps that may require additional or new R&D efforts. While industry has established testing facilities**,** they are facing capacity and capability limitations due to historic underinvestment after a bulk of grid technology manufacturing went overseas. These limitations impose time and cost constraints that the industry can't afford, especially for small businesses and innovators. Facility upgrades and advanced testbeds are also needed to evaluate new grid hardware and software technologies such as grid power electronics and AI operator tools. Investments in grid test facilities and increasing access to their capabilities is vital for the United States to exert global leadership in next-generation grid technology innovations.

Testbed Network focuses on identifying and assembling needed grid testbed facilities across the Nation to test, validate, and evaluate advanced grid technologies. By leveraging and connecting unique capabilities at national laboratories, private sector facilities, and academic testbeds, industry will have a coordinated testing platform to support testing and validation of innovative grid technologies for a variety of use cases and scales while minimizing redundant investments. Activities also include bridging capability gaps and facilitating access to testing resources to bolster local grid innovation ecosystems.

Strategic Pilots and Evaluation: Pilot demonstrations of innovative grid technologies are often required prior to broader implementation since benefits are difficult to quantify when tested in isolation and results are difficult to extrapolate to real utility systems. Due to variations across jurisdictional boundaries, different utilities frequently conduct their own pilots for the same or similar technology. While there are unique characteristics of each project, there are also commonalities and shared learning that can shorten, reduce, or obviate the need for some utility pilots. The current practice is a suboptimal use of ratepayer and taxpayer dollars and slows adoption of beneficial grid technologies that can meet pressing industry needs. Systematic assessment and evaluation of pilot demonstrations will yield the actionable information desired by utilities and regulators such as project use cases, technology performance, integration and operational requirements, and quantified economic benefits.

Strategic Pilots and Evaluation focuses on assessing pilot demonstrations that fill strategic knowledge gaps, integrating innovations into operational environments to identify R&D needs, and systematically documenting project results to inform scaling, replication, and/or extension. Activities include establishing evaluation frameworks based on grid architecture to chart transformation and conducting strategic pilot demonstrations that combine synergistic technologies and innovations to provide enhanced value.

Highlights of the FY 2026 Budget Request

- Enhance at least one grid testbed capability in collaboration with national laboratories, private industry, and academia to evaluate and stress test advanced grid technologies such as:
    - AI tools for operational environments
    - Advanced transformers
    - Sensors and equipment condition monitoring solutions
    - Medium voltage (MV) grid power electronics systems and solutions
    - Coordination and control of distributed energy resources
- Continue industry engagement to share information, gather technology adoption insights and best practices, and identify new grid technology testing and validation needs.
- Refine grid architecture assessment and documentation frameworks for pilot demonstrations to systematically evaluate benefits and scalability.

AGTS is inherently crosscutting and activities are coordinated with other OE programs and DOE offices, including through the Grid Modernization Initiative (GMI), on shared technology development needs, objectives, and results.

Applied Grid Transformation Solutions
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Applied Grid Transformation Solutions			
Transformation Toolkit	3,500	2,000	1,500
Testbed Network	-	5,500	4,000
Strategic Pilots and Evaluation	10,000	6,000	2,000
Total, AGTS	**13,500**	**13,500**	**7,500**

Explanation of Changes for Applied Grid Transformation Solutions

- *Transformation Toolkit:* reduces tool development efforts and decision-making resources
- *Testbed Network:* reduces the scope of tests and test bed enhancements supported
- *Strategic Pilots and Evaluation:* focus efforts on assessment and documentation of pilot demonstration projects

Program Direction

Overview

The Program Direction (PD) program provides for the Federal workforce responsible for the overall direction and administrative support of the Office of Electricity (OE). Headquarters Federal employees provide executive management, programmatic oversight, and analysis for the effective implementation of the OE program, as well as communications, finance, operations, planning, and workforce development functions. PD funding is also provided for time spent by Office of Fossil Energy (FE) technical staff at the National Energy Technology Laboratory (NETL) in support of OE financial assistance activities, including procurement, finance, and legal functions.

Contractor support services are utilized for some administrative tasks and special purpose analyses for management, such as technology and market analyses and development of tools to improve overall office efficiency, consolidate organizational knowledge, track performance and inventory data, and facilitate staff use of the information. Other related PD expenses include corporate IT support and equipment through DOE's Energy Information Technology Services (EITS), Office of Research, Technology, and Economic Security (RTES) reviews, and common administrative services such as rent for office space leased from the General Services Administration, telecommunications, and corporate business systems through DOE's Working Capital Fund (WCF).

Highlights of the FY 2026 Budget Request

OE's team of experts share their technical, analytical, and policy expertise with offices throughout DOE and with energy stakeholders across the country. Continued program direction support is crucial to sustain a talented workforce to facilitate the Administration's goal of energy dominance and providing a reliable, resilient, secure, and affordable 21st century power grid for the American people.

Program Direction
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Program Direction Summary					
Washington Headquarters					
Salaries and Benefits	10,671	11,659	10,727	-932	-8%
Travel	420	350	360	+10	+3%
Support Services	1,566	818	1,035	+217	+27%
Other Related Expenses	3,040	2,963	3,543	+580	+20%
Total, Washington Headquarters	**15,697**	**15,790**	**15,665**	**-125**	**-1%**
National Energy Technology Laboratory					
Salaries and Benefits	1,676	1,692	1,709	+17	+1%
Travel	35	35	45	+10	+29%
Support Services	365	375	383	+8	+2%
Other Related Expenses	1,227	1,108	1,198	+90	+8%
Total, National Energy Technology Laboratory	**3,303**	**3,210**	**3,335**	**+125**	**+4%**
Total Program Direction					
Salaries and Benefits	12,347	13,351	12,436	-915	-7%
Travel	455	385	405	+20	+5%
Support Services	1,931	1,193	1,418	+225	+19%
Other Related Expenses	4,267	4,071	4,741	+670	+17%
Total, Program Direction	**19,000**	**19,000**	**19,000**	**-**	**-**

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Federal FTEs	**55**	50	47	-3	-6%
Additional FE FTEs at NETL supporting OE[1]	10	12	11	-1	-8%
Total OE-funded FTEs	65	62	58	-4	-7%
Support Services and Other Related Expenses					
Support Services					
Technical Support	860	777	908	+131	+17%
Management Support	1,071	416	510	+94	+23%
Total, Support Services	**1,931**	**1,193**	**1,418**	**+225**	**+19%**
Other Related Expenses					
EITS Desktop Services	525	438	550	+112	26%
WCF	2,499	2,525	2,190	-335	-13%
Other Services	1,243	1,108	2,001	+893	+81%
Total, Other Related Expenses	**4,267**	**4,071**	**4,741**	**+670**	**+17%**

[1] OE funds FE FTEs at NETL that support OE activities. The NETL FTEs are included in FE's FTE totals and not in the OE FTE totals shown on the "Federal FTEs" line.

Program Direction
($K)
Activities and Explanation of Changes

FY 2025 Enacted	FY 2026 Request	Explanation of Changes FY 2026 Request vs FY 2025 Enacted
Program Direction		
$19,000	**$19,000**	**$0**
Salaries and Benefits		
$13,351	*$12,436*	*-$915*
• Support 62 FTEs at Headquarters and NETL, providing executive management, programmatic oversight, and analysis for the effective implementation of the OE program	Support 58 FTEs at Headquarters and NETL, providing executive management, programmatic oversight, and analysis for the effective implementation of the OE program	• OE reflects a reduction in the workforce to support the Department's reorganization efforts and the Administration's goals and priorities
Travel		
$385	*$405*	*+$20*
• Funds transportation, subsistence, and incidental expenses allowing OE to effectively facilitate its mission	• Funds transportation, subsistence, and incidental expenses allowing OE to effectively facilitate its mission	• Increases for growth in hotel rates and air fares
Support Services		
$1,193	*$1,418*	*+$225*
• Includes contractor support directed by Federal staff to perform administrative tasks and provide analysis to management • May also include support for post-doctoral fellows and IPA assignments	• Includes contractor support directed by Federal staff to perform administrative tasks and provide analysis to management • May also include support for post-doctoral fellows and IPA assignments	Reflects work scope adjustments due to reduction of Federal staffing changes
Other Related Expenses		
$4,071	*$4,741*	*+$670*
• Includes EITS desktop services and equipment upgrades and replacements • WCF expenses include rent, supplies, copying, graphics, mail, printing, and telephones • Supports commercial credit card purchases using simplified acquisition procedures to the maximum extent possible, security clearances, and other needs	• Includes EITS desktop services and equipment upgrades and replacements • WCF expenses include rent, supplies, copying, graphics, mail, printing, and telephones • Supports commercial credit card purchases using simplified acquisition procedures to the maximum extent possible, security clearances, and other needs	Increases are anticipated for EITS, other IT systems, RTES, and NETL cost share.

DEPARTMENT OF ENERGY
Funding by Site Detail
TAS_0318 - Electricity - FY 2026
($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 President's Budget
Ames Laboratory			
Resilient Distribution Systems	1,459	0	0
Grid Controls and Communications	1,459	0	0
Transformer Resilience and Advanced Components	95	0	0
Grid Hardware, Components, and Systems	95	0	0
Total Ames Laboratory	**1,554**	**0**	**0**
Argonne National Laboratory			
Transmission Reliability and Resilience	3,031	1,865	1,600
Energy Delivery Grid Operations Technology	2,599	1,500	1,500
Resilient Distribution Systems	0	1,200	1,038
Grid Controls and Communications	5,630	4,565	4,138
Energy Storage R&D	2,628	1,145	1,153
Energy Storage	2,628	1,145	1,153
Transformer Resilience and Advanced Components	0	2,000	0
Applied Grid Transformation Solutions	0	35	0
Grid Hardware, Components, and Systems	2,628	3,180	1,153
Grid Deployment - GD	0	0	3,375
Total Argonne National Laboratory	**8,258**	**7,745**	**8,666**
Brookhaven National Laboratory			
Transmission Reliability and Resilience	727	1,000	1,000
Grid Controls and Communications	727	1,000	1,000
Applied Grid Transformation Solutions	0	35	0
Grid Hardware, Components, and Systems	0	35	0
Total Brookhaven National Laboratory	**727**	**1,035**	**1,000**
Idaho National Laboratory			
Transmission Reliability and Resilience	959	1,200	1,400
Energy Delivery Grid Operations Technology	500	0	0
Resilient Distribution Systems	1,580	900	500
Cyber Resilient & Secure Utility Communications Network (SecureNet)	1,360	3,026	2,000
Grid Controls and Communications	4,399	5,126	3,900
Energy Storage R&D	665	50	0
Energy Storage	665	50	0
Transformer Resilience and Advanced Components	700	600	1,800
Applied Grid Transformation Solutions	1,520	635	0
Grid Hardware, Components, and Systems	2,885	1,285	1,800
Total Idaho National Laboratory	**7,284**	**6,411**	**5,700**
Lawrence Berkeley National Laboratory			
Transmission Reliability and Resilience	1,458	1,500	900
Energy Delivery Grid Operations Technology	94	0	0
Resilient Distribution Systems	4,273	4,225	3,099
Grid Controls and Communications	5,825	5,725	3,999
Energy Storage R&D	50	0	0
Energy Storage	50	0	0

Applied Grid Transformation Solutions	875	539	500
Grid Hardware, Components, and Systems	925	539	500
Total Lawrence Berkeley National Laboratory	**6,750**	**6,264**	**4,499**
Lawrence Livermore National Laboratory			
Transmission Reliability and Resilience	1,828	3,565	3,200
Energy Delivery Grid Operations Technology	6,755	9,000	8,500
Resilient Distribution Systems	1,355	232	300
Grid Controls and Communications	9,938	12,797	12,000
Energy Storage R&D	100	50	0
Energy Storage	100	50	0
Applied Grid Transformation Solutions	0	35	0
Grid Hardware, Components, and Systems	100	85	0
Total Lawrence Livermore National Laboratory	**10,038**	**12,882**	**12,000**
Los Alamos National Laboratory			
Transmission Reliability and Resilience	1,371	2,400	1,500
Energy Delivery Grid Operations Technology	1,861	3,000	3,200
Resilient Distribution Systems	2,292	2,018	650
Grid Controls and Communications	5,524	7,418	5,350
Transformer Resilience and Advanced Components	0	600	180
Grid Hardware, Components, and Systems	0	600	180
Total Los Alamos National Laboratory	**5,524**	**8,018**	**5,530**
National Energy Technology Lab			
Energy Delivery Grid Operations Technology	100	0	0
Resilient Distribution Systems	850	0	0
Grid Controls and Communications	950	0	0
Program Direction - OE	2,207	2,372	2,378
Total Program Direction (OE)	2,207	2,372	2,378
Total National Energy Technology Lab	**3,157**	**2,372**	**2,378**
National Renewable Energy Laboratory			
Transmission Reliability and Resilience	3,146	1,625	1,350
Energy Delivery Grid Operations Technology	2,806	1,200	1,200
Resilient Distribution Systems	11,145	14,108	2,950
Cyber Resilient & Secure Utility Communications Network (SecureNet)	205	0	0
Grid Controls and Communications	17,302	16,933	5,500
Energy Storage R&D	1,598	75	0
Energy Storage	1,598	75	0
Transformer Resilience and Advanced Components	775	2,820	696
Applied Grid Transformation Solutions	0	70	0
Grid Hardware, Components, and Systems	2,373	2,965	696
Grid Deployment - GD	0	0	3,375
Total National Renewable Energy Laboratory	**19,675**	**19,898**	**9,571**
Oak Ridge Institute for Science and Education			
Energy Storage R&D	0	45	0
Energy Storage	0	45	0
Grid Hardware, Components, and Systems	0	45	0
Total Oak Ridge Institute for Science and Education	**0**	**45**	**0**
Oak Ridge National Laboratory			
Transmission Reliability and Resilience	4,438	6,200	5,500
Energy Delivery Grid Operations Technology	2,813	2,500	3,500

Resilient Distribution Systems	8,492	3,370	300
Cyber Resilient & Secure Utility Communications Network (SecureNet)	9,685	5,982	3,750
Grid Controls and Communications	25,428	18,052	13,050
Energy Storage R&D	4,003	2,275	2,754
Energy Storage	4,003	2,275	2,754
Transformer Resilience and Advanced Components	3,000	2,630	720
Applied Grid Transformation Solutions	1,916	35	500
Grid Hardware, Components, and Systems	8,919	4,940	3,974
Grid Deployment - GD	0	0	3,375
Total Oak Ridge National Laboratory	**34,347**	**22,992**	**20,399**
Pacific Northwest National Laboratory			
Transmission Reliability and Resilience	6,514	6,400	5,600
Energy Delivery Grid Operations Technology	9,567	9,100	8,500
Resilient Distribution Systems	11,220	11,015	3,500
Cyber Resilient & Secure Utility Communications Network (SecureNet)	1,081	2,020	2,000
Grid Controls and Communications	28,382	28,535	19,600
Energy Storage R&D	24,355	17,236	18,483
Energy Storage	24,355	17,236	18,483
Transformer Resilience and Advanced Components	957	2,617	72
Applied Grid Transformation Solutions	800	500	250
Grid Hardware, Components, and Systems	26,112	20,353	18,805
Grid Deployment - GD	0	0	3,375
Total Pacific Northwest National Laboratory	**54,494**	**48,888**	**41,780**
Sandia National Laboratories			
Transmission Reliability and Resilience	2,972	4,055	4,000
Energy Delivery Grid Operations Technology	3,077	4,000	3,000
Resilient Distribution Systems	2,832	2,693	1,025
Cyber Resilient & Secure Utility Communications Network (SecureNet)	100	0	1,250
Grid Controls and Communications	8,981	10,748	9,275
Energy Storage R&D	25,496	21,801	19,885
Energy Storage	25,496	21,801	19,885
Transformer Resilience and Advanced Components	2,000	5,470	2,480
Applied Grid Transformation Solutions	90	35	0
Grid Hardware, Components, and Systems	27,586	27,306	22,365
Total Sandia National Laboratories	**36,567**	**38,054**	**31,640**
Savannah River National Laboratory			
Transformer Resilience and Advanced Components	0	840	360
Grid Hardware, Components, and Systems	0	840	360
Total Savannah River National Laboratory	**0**	**840**	**360**
SLAC National Accelerator Laboratory			
Energy Delivery Grid Operations Technology	197	0	0
Grid Controls and Communications	197	0	0
Energy Storage R&D	843	900	0
Energy Storage	843	900	0
Grid Hardware, Components, and Systems	843	900	0
Total SLAC National Accelerator Laboratory	**1,040**	**900**	**0**
Washington Headquarters			
Resilient Distribution Systems	0	1,297	638
Grid Controls and Communications	0	1,297	638
Energy Storage R&D	5	6,363	4,483

Energy Storage	5	6,363	4,483
Applied Grid Transformation Solutions	0	800	300
Grid Hardware, Components, and Systems	5	7,163	4,783
Program Direction - OE	693	40	40
Total Program Direction (OE)	693	40	40
Program Direction - GD	0	0	1,500
Total Washington Headquarters	**698**	**8,500**	**6,961**
Other			
Transmission Reliability and Resilience	2,567	1,700	1,450
Energy Delivery Grid Operations Technology	408	0	0
Resilient Distribution Systems	4,938	2,992	2,772
Cyber Resilient & Secure Utility Communications Network (SecureNet)	750	1,600	1,500
Grid Controls and Communications	8,663	6,292	5,722
Energy Storage R&D	30,240	25,517	1,659
Energy Storage	30,240	25,517	1,659
Transformer Resilience and Advanced Components	14,973	1,600	0
Applied Grid Transformation Solutions	5,984	800	800
Grid Hardware, Components, and Systems	51,197	27,917	2,459
Program Direction - OE	16,100	16,588	16,582
Total Program Direction (OE)	16,100	16,588	16,582
Total Other	**75,960**	**50,797**	**24,763**
Undesignated LPI			
Transmission Reliability and Resilience	3,989	1,490	0
Energy Delivery Grid Operations Technology	223	700	1,600
Resilient Distribution Systems	2,564	8,950	8,228
Cyber Resilient & Secure Utility Communications Network (SecureNet)	2,319	2,872	0
Grid Controls and Communications	9,095	14,012	9,828
Energy Storage R&D	2,517	17,043	1,583
Energy Storage	2,517	17,043	1,583
Transformer Resilience and Advanced Components	0	3,323	16,192
Applied Grid Transformation Solutions	2,315	9,981	5,150
Grid Hardware, Components, and Systems	4,832	30,347	22,925
Total Undesignated LPI	**13,927**	**44,359**	**32,753**
Total Funding by Site for TAS_0318 - Electricity	**280,000**	**280,000**	**208,000**

Nuclear Energy

Nuclear Energy
($K)

FY 2024 Enacted[1,2]	FY 2025 Enacted[1,2]	FY 2026 Request[1]	FY 2026 Request vs FY 2025 Enacted
1,685,000	1,685,000	1,370,000	-315,000

Proposed Appropriation Language

For Department of Energy expenses including the purchase, construction, and acquisition of plant and capital equipment, and other expenses necessary for nuclear energy activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion, $1,370,000, to remain available until expended: Provided, That of such amount, $88,000,000 shall be available until September 30, 2027, for program direction.

Mission

The primary mission of the Office of Nuclear Energy (NE) is to advance nuclear power to meet the nation's energy, environmental, and national security needs.

Under the guidance of three research objectives, NE resolves barriers to technical, cost, safety, security, and proliferation resistance through early-stage research, development, and demonstration to:

- Enhance the long-term viability and competitiveness of the existing U.S. reactor fleet.
- Develop an advanced reactor pipeline.
- Implement and maintain national strategic fuel cycle and supply chain infrastructure.

Overview

Nuclear energy is a critical part of unleashing energy dominance at home and abroad. With 94 operating units in 28 states, the U.S. nuclear reactor fleet provides reliable, affordable, safe, and secure power to American families and businesses. Expanded deployment of advanced nuclear power promises to minimize land-use and transmission requirements while offering regional economic benefits, job opportunities, and unique capabilities for technological innovation. U.S. nuclear energy leadership also plays key national security and global strategic roles for the United States, including supporting the highest international standards for safety, security, and nonproliferation while shedding light on anti-competitive behaviors that impede deployment of nuclear energy.

In May of 2025, The Administration issued several Executive Orders (E.O.) to modernize nuclear regulation, streamline nuclear reactor testing, deploy nuclear reactors for national security, and reinvigorate the nuclear industrial base.

- E.O. 14299 Deploying Advanced Nuclear Technologies for National Security
- E.O. 14300 Ordering the Reform of the Nuclear Regulatory Commission
- E.O. 14301 Reforming Nuclear Reactor Testing at the Department of Energy
- E.O. 14302 Reinvigorating the Nuclear Industrial Base

The United States pioneered the development and peaceful use of civil nuclear power and the nuclear fuel cycle to produce around-the-clock, reliable baseload electricity generation. The Office of Nuclear Energy now leads and supports research, development, and demonstration (RD&D) activities enabling (1) continued operation of existing reactors, (2) deployment of new reactors, and (3) a secure and sustainable nuclear fuel cycle. NE executes its mission through investments in RD&D that leverage the tremendous innovation capacity of the United States' national laboratories, universities, and advanced nuclear technology developers to transform the global energy landscape. NE is also responsible for ensuring the secure operational availability of Idaho National Laboratory (INL) as a national asset supporting a broad range of civilian and national security research.

[1] Funding includes the transfer of SBIR/STTR to the Office of Science.
[2] Funding does not reflect the FY 2024 and FY 2025 mandatory transfer of $92.8M from Naval Reactors for operation of the Advanced Test Reactor.

The FY 2026 Request helps to advance U.S. leadership in critical technologies and upgrade America's research infrastructure. It supports the 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 America's energy dominance through strategic, innovative RD&D activities. The NE FY 2026 Request will expand the impact of our RD&D funding through innovative funding mechanisms - such as prizes, competitions, technical assistance, and programs targeted to small businesses.

Additionally, the FY 2026 Request strives to develop and demonstrate the advanced fuel cycle technologies needed to enhance U.S. global leadership in the nuclear industry by addressing gaps in the domestic nuclear fuel supply chain for both existing and advanced nuclear reactors to assure the supply of low enriched uranium (LEU), including high assay low enriched uranium (HALEU), needed by U.S. reactors and those of our allies. The FY 2026 Request also supports spent nuclear fuel management activities.

Nuclear Energy
Funding by Congressional Control ($K)

	FY 2024 Enacted - Comparable[1,2]	FY 2025 Enacted[1,2]	FY 2026 Request[3]	FY 2026 Request vs FY 2025 Enacted	
				$	%
NEUP, SBIR/STTR and TCF	**140,000**	**140,000**	**128,841**	**-11,159**	**-8%**
Reactor Concepts Research, Development & Demonstration (RD&D)					
Advanced SMR RD&D	9,500	0	0	+0	+0%
Light Water Reactor Sustainability	44,500	44,500	35,000	-9,500	-21%
Advanced Reactor Technologies	67,300	73,800	55,000	-18,800	-26%
Integrated Energy Systems	15,512	9,500	10,000	+500	+5%
Subtotal, Reactor Concepts RD&D	**136,812**	**127,800**	**100,000**	**-27,800**	**-22%**
Fuel Cycle Research and Development					
Mining, Conversion and Transportation	1,500	1,500	1,500	+0	+0%
Materials Recovery and Waste Form Development	27,500	33,000	51,000	+18,000	+55%
Accident Tolerant Fuels	92,000	97,900	92,000	-5,900	-6%
Fuel Cycle Core R&D	16,000	16,000	16,000	+0	+0%
Next Generation Fuels	63,000	65,500	58,000	-7,500	-12%
Advanced Nuclear Fuel Availability	126,500	126,500	0[5]	-126,500	-100%
Used Nuclear Fuel Disposition R&D	47,000	47,000	47,000	+0	+0%
Integrated Waste Management System	55,000	57,500	55,000	-2,500	-4%
Subtotal, Fuel Cycle R&D	**428,500**	**444,900**	**320,500**	**-124,400**	**-28%**
Nuclear Energy Enabling Technologies					
Advanced Materials and Manufacturing Technologies	10,582	14,082	14,000	-82	-1%
Advanced Sensors and Instrumentation	4,582	5,682	5,000	-682	-12%
Nuclear Energy Advanced Modeling and Simulation	27,500	28,500	28,600	+100	+0%
Nuclear Science User Facilities	34,500	34,500	34,500	+0	+0%
Gateway for Accelerated Innovation In Nuclear	11,100	11,000	10,000	-1,000	-9%
Nuclear Energy Enabling Technologies	**88,264**	**93,764**	**92,100**	**-1,664**	**-2%**
Advanced Reactor Demonstration Program					
National Reactor Innovation Center[3]	63,000	63,000	31,000	-32,000	-51%
ARDP Demonstration Reactors	60,000	60,000	20,000	-40,000	-67%
Risk Reduction for Future Demonstrations	137,222	137,222	72,000	-65,222	-48%
Regulatory Development	14,030	17,030	15,000	-2,030	-12%
Advanced Reactor Safeguards and Security	9,172	9,172	9,000	-172	-2%
23-E-200, LOTUS	32,000	16,112	7,559	-8,553	-53%
Subtotal, Advanced Reactors Demonstration Program	**315,424**	**302,536**	**154,559**	**-147,977**	**-49%**
Infrastructure					
INL Facilities Operations & Maintenance	326,000	326,000	326,000	+0	+0%
Subtotal, Infrastructure	**326,000**	**326,000**	**326,000**	**+0**	**+0%**
Idaho Sitewide Safeguards and Security	**160,000**	**160,000**	**160,000**	**+0**	**+0%**
Program Direction	**90,000**	**90,000**	**88,000**	**-2,000**	**-2%**
Total, Nuclear Energy R&D	**1,685,000**	**1,685,000**	**1,370,000**	**-315,000**	**-19%**

[1] Funding includes the funding transfer of SBIR/STTR to the Office of Science.
[2] Funding does not reflect the FY 2024 and FY 2025 mandatory transfer of $92.8M from Naval Reactors for operation of the Advanced Test Reactor.
[3] Funding through Inflation Reduction Act (IRA) in FY 2026.

Nuclear Energy
Minor Construction Activities ($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted ($)
Minor Construction Projects (Total Project Cost (TPC)<$30M), Idaho National Laboratory (Direct Funded)						
Fuel Conditioning Facility Hot Repair Area Reactivation (IFM)	10,000	0	0	0	10,000	+10,000
Facility Cooling Water System (IFM)	7,000	0	0	7,000	0	-7,000
Interfacility Pneumatic Shuttle Transfer System Refurbishment (IFM)	10,000	0	0	0	10,000	+10,000
Carbon-based fuels and products synthesis testing capability (IFM)	7,600	0	0	1,600	5,000	+3,400
TRA Storage Pad (IFM)	7,000	0	0	7,000	0	-7,000
HALEU Polishing Capability (IRA)	28,000	0	28,000	0	0	0
MFC Mockup Shop Machining Relocation (IRA)	10,000	0	10,000	0	0	0
FCF Criticality Alarm System (IRA)	5,000	0	5,000	0	0	0
System Physics Advanced Reactor Critical (SPARC) Facility	27,500	0	0	19,000	4,250	-14,750
NRIC Advanced Reactor Cooldown Pad	15,000	0	0	0	3,000	+3,000
Minor Construction Projects (Total Project Cost (TPC)<$30M), Idaho National Laboratory (Indirect Funded)						
MFC East Corridor Electrical Upgrade	20,000	0	0	0	1,500	+1,500
MFC-752 HVAC Upgrades	12,000	0	0	0	1,500	+1,500
MFC Office Building	30,000	0	0	0	2,000	+2,000
Fuel Conditioning Facility Special Nuclear Material Melter	6,539	0	700	4,000	1,839	-2,161
Scoville Substation Transformer Replacements and Reliability Upgrades	11,000	0	0	0	600	+600
CFA Data Center/Dial Room	27,000	0	0	0	3,000	+3,000
CITRC Multi-Purpose Facility	25,000	0	0	0	2,500	+2,500
CFA Admin Building	28,000	0	0	2,500	8,500	+6,000
CFA Craft Shop #1	15,000	0	0	0	1,000	+1,000
ATR General Office Building	13,500	0	0	3,260	10,240	+6,980
NQA-1 Storage Facility	12,000	0	0	0	0	0
Bridge Replacements and MFC/TREAT Intersection	11,500	0	2,500	6,000	3,000	-3,000
Outer West Loop	29,000	0	0	0	0	0

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted ($)
Outdoor Testing Space and Pads at ETPG	7,500	0	0	0	3,000	+3,000
TRA-653/662 Remodel	15,000	0	0	0	3,000	+3,000
New ATR Dial Room	8,000	0	0	3,500	4,500	+1,000
SMC Guardhouse	11,000	11,000	0	0	0	0
SMC Sewer Lagoon Upgrade	7,500	0	0	0	0	0
CF-686 Buildout	6,500	2,500	2,900	1,100	0	-1,100
ATR Warm Water Waste Pond	16,500	0	0	0	8,000	+8,000
TTAF Expansion Project	11,500	0	0	0	4,500	+4,500
CFA Utility Tunnel	8,500	0	0	0	1,500	+1,500
Total, Minor Construction Projects	**459,639**	**13,500**	**49,100**	**54,960**	**92,429**	**+37,469**

University and Competitive Research Programs

Overview

The University and Competitive Research Programs budget request consolidates and focuses support to universities and small businesses in areas relevant to the Office of Nuclear Energy's (NE) mission. This program funds university-led research, university infrastructure support and revitalization, and technology commercialization efforts for nuclear energy. Efforts are largely awarded through competitive opportunities for researchers, faculty, and small businesses. Additionally, the program provides fuel services, maintenance support, reactor sharing opportunities, and upgrades for U.S. university research reactors and scientific infrastructure. This budget request is organized into two subprograms: (1) Nuclear Energy University Program (NEUP), Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) programs, and the Technology Commercialization Fund (TCF), and (2) University Fuel Services (UFS).

Highlights of the FY 2026 Budget Request

- Under the Consolidated Innovative Nuclear Research (CINR) funding opportunity, NE will support a new topic area seeking applications for innovative artificial intelligence and machine learning solutions that can accelerate nuclear energy technology design, deployment, operation, and maintenance.
- University Fuel Services (UFS) will procure fresh fuel elements for universities and ship spent fuel elements to a DOE receipt facility. Notably, some FY 2026 funding will be used to continue fabrication of new fuel assemblies for the North Carolina State University PULSTAR reactor.

NEUP, SBIR/STTR and TCF ($100,611,000)

The NEUP, SBIR/STTR, and TCF subprogram includes competitively awarded opportunities for universities, small businesses, and national laboratories, respectively. The university program seeks to support cutting-edge, innovative research at U.S. universities. Having a single program funding line provides more flexibility to NE's competitive award process; streamlines program execution; and provides enhanced transparency for small businesses, universities, and other stakeholders.

The principal focus areas for FY 2026 include four elements: (1) Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR); (2) Technology Commercialization Fund (TCF); (3) University-led Research and Development; and (4) University Infrastructure.

1. **SBIR/STTR ($25,010,000) –** NE supports small businesses through the Department's SBIR/STTR program. The SBIR/STTR reauthorizing language (Reauthorization Act of 2011 (P.L. 112-81, 125 STAT 1822)) directs the Department to spend not less than 3.2 percent of its extramural research and development (R&D) budget for SBIR and not less than 0.45 percent of its extramural R&D budget for STTR. NE's contribution supports scope relevant to NE's R&D mission, for example technologies for improvements of existing reactors, advanced reactors, and fuel cycle systems.

2. **TCF ($6,257,000) –** NE supports the transfer of promising nuclear energy technologies developed at the Department's national laboratories to the nuclear industry for commercialization through TCF. The TCF was established under 42 U.S. Code § 16391, which directed the Secretary to "establish an Energy Technology Commercialization Fund, using 0.9 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application for each fiscal year based on future planned activities and the amount of the appropriations for the fiscal year, to be used to provide matching funds with private sector partners to promote promising energy technologies for commercial purposes."

3. **University-led Research and Development ($57,344,000) –** NE supports nuclear energy research and development being conducted at U.S. colleges and universities through yearly competitive solicitations. The program's goal is to support outstanding, cutting-edge, and innovative research at U.S. universities in the areas of nuclear energy science and technology through the following funding opportunities:
    a. **Consolidated Innovative Nuclear Research (CINR):** NE will utilize the CINR funding opportunity to align nuclear energy research with NE's mission, focusing on strategic needs and priorities including fuel cycle, reactor concepts, and spent fuel management research. The effort will include a new topic area for artificial intelligence (AI) and machine learning (ML) solutions that can accelerate nuclear energy technology design,

licensing, deployment, operation, and maintenance. The funding opportunity also offers Integrated Research Projects (IRPs), which are multi-disciplinary and multi-institutional projects that address near-term nuclear energy research challenges, technology innovation needs, or capability gaps. IRPs are intended to integrate across disciplines to achieve solutions to complex research challenges that cannot be addressed by a less comprehensive team.

b. **Distinguished Early Career Program (DECP):** NE will continue to utilize its most prestigious opportunity for faculty members, DECP. This program will focus on early career faculty conducting transformative research and leadership aligned with NE's mission.
c. **CINR Phase II Continuation:** NE will utilize the CINR Phase II Continuation Notice of Funding Opportunity (NOFO) to provide support for teams that have performed high quality work through the Nuclear Energy University Program (NEUP) to propose new projects that complement and enhance ongoing NEUP research through a competitive application and review process.

4. **University Infrastructure ($12,000,000) –** NE supports the infrastructure needed at universities to conduct cutting-edge research.

NE provides competitively awarded funding to universities through solicitations that will include the following elements to revitalize the existing university nuclear research infrastructure.

1. **Scientific Infrastructure Support**

   a. *General Scientific Infrastructure:* to focus on equipment, instrumentation, and associated non-reactor upgrades that significantly improve or expand research, instruction, and training capabilities at individual universities and colleges.
   b. *Reactor Upgrades:* to improve existing nuclear research and training reactors at individual universities and colleges. It includes the purchase and maintenance of equipment to enhance the safety, security, performance, control, or operational reliability of the research reactor.

2. **Reactor Sharing:** to provide a competitive opportunity to increase the use of university research reactors through support of expanded partnering and public outreach.

3. **Infrastructure Revitalization**: to competitively award consortium-led efforts to establish and/or enhance nuclear research infrastructure capabilities at U.S. universities. They may include enhancements to existing reactors and the addition of related capabilities such as simulators. This support will help U.S. universities (1) offer hands-on experience with commercially relevant advanced reactor concepts, reflective of those being deployed by industry; and (2) offer research capabilities that address emerging technical challenges. These activities are expected to be led by one or more university-led consortia with appropriate expertise to ensure that the new capabilities will support these goals.

University Nuclear Leadership Program ($0)

The University Nuclear Leadership Program (UNLP) provided undergraduate scholarships and graduate fellowships to students attending two and four-year institutions of higher education.

University Fuel Services (UFS) ($28,230,000)

University Fuel Services (UFS) supports the continued operation of U.S. university research reactors for the successful execution of the nuclear energy research mission. The program ensures university research reactor fuel is handled in accordance with U.S. and Department of Energy non-proliferation and national security objectives. The primary roles of UFS are focused on the following areas:

- Providing new fuel and removing used fuel from 25 operating research reactors at 24 universities.
- Procuring new university research reactor fuel (e.g. plate, TRIGA, and PULSTAR fuel) from commercial vendors.
- Shipping spent nuclear fuel to DOE used fuel receipt facilities and lightly irradiated used TRIGA fuel to universities as needed.

University and Competitive Research Programs
Funding ($K) (Comparable)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
NEUP, SBIR/STTR, and TCF	113,148	105,140	100,611	-4,529	-4%
University Nuclear Leadership Program	6,630	6,630	0	-6,630	-100%
University Fuel Services	20,222	28,230	28,230	+0	+0%
Total, University and Competitive Research Program	**140,000**	**140,000**	**128,841**	**-11,159**	**-8%**

Explanation of Changes for University and Competitive Research Programs

University Nuclear Leadership Program (UNLP)

The FY 2026 Budget provides no funding for undergraduate scholarships and graduate fellowships to students pursuing nuclear energy and related degrees and certificates at U.S. universities, colleges and trade schools.

Reactor Concepts Research, Development, and Demonstration

Overview

The Reactor Concepts Research, Development, and Demonstration (RD&D) program supports conducting RD&D on existing and advanced reactor designs and technologies to achieve national dominance in nuclear technology. This RD&D enables industry to address technical and regulatory challenges associated with maintaining the existing fleet of nuclear reactors; promoting the development of a robust pipeline of advanced reactor designs, technologies, and associated supply chains; developing technologies for producing fuels and chemicals; delivering process heat and electricity directly to industries; and progressing these advanced reactor designs and technologies towards demonstration when appropriate. Program activities are focused on addressing technical, economic, safety, and security enhancement challenges associated with the existing commercial light water reactor fleet and advanced reactor technologies, covering large, small, and micro-sized designs across an array of reactor types including light water, fast reactors using liquid metal coolants, and high temperature reactors using gas or molten salt coolants.

To maximize the benefits of nuclear power, the following challenges must be addressed:

- improving affordability of nuclear energy technologies;
- enhancing safety and reducing technical and regulatory risk;
- managing potential proliferation risks of nuclear materials;
- expanding applications and markets of nuclear energy; and
- improving the economic outlook for the U.S. nuclear industry.

Reactor Concepts RD&D is key to enabling the industry to reverse the downward market trajectory of our nation’s nuclear energy sector by regaining a technological and market leadership role. Through cost-shared RD&D activities, related technical assistance, and cross-cutting innovative research and development (R&D), the Department will enable industry to accelerate the timeline for commercialization of new, advanced, and more economic reactor technologies that will help revive and expand the domestic nuclear industry while advancing America's leadership role in the global nuclear sector.

The Reactor Concepts RD&D program continues to support RD&D efforts focused on advanced reactors and the existing fleet in FY 2026. The Light Water Reactor Sustainability (LWRS) subprogram conducts research in support of existing commercial nuclear power plants to provide affordable, safe, and reliable energy. The goal is to enable industry to enhance the energy supply from the existing nuclear power plant infrastructure through capacity expansion, power uprates, and restart of closed plants. The subprogram also promotes the efficient and economic performance of current nuclear power plants while enabling their extended operation. A critical element of the subprogram is the development of advanced methodologies and tools for industry use in resolving highest priority and highest uncertainty technical issues.

The Integrated Energy System (IES) subprogram conducts R&D on nuclear energy pathways for transportation, industrial, and commercial sectors through electrical, thermal, and chemical energy forms. This subprogram focuses on developing technologies that provide multiple nuclear energy products including fuels process heat, electricity, and chemicals. These technologies broaden the market and improve long-term economics for advanced reactor deployment and existing nuclear power plants.

The Advanced Reactor Technologies (ART) subprogram conducts targeted R&D on advanced reactor technologies, including molten salt reactors, liquid metal-cooled reactors, high temperature gas-cooled reactors, and microreactors. The subprogram also supports work on cross-cutting R&D applicable to multiple advanced reactor concepts, including non-light water reactor small modular reactors (SMRs). This subprogram focuses on efforts in the following areas: fundamental technologies and design methods for advanced reactors, interactions of diverse reactor coolants with materials and components, advanced energy conversion, research to enhance safety and reduce regulatory risk, experimental validation of models, advanced materials qualification, and continued international collaborations. The ART subprogram will also support competitively awarded projects to aid the progression of emerging advanced reactor designs and technologies.

With the November 2023 cancellation of the Carbon Free Power Project, no funding is requested to continue the Advanced SMR RD&D subprogram in FY 2026.

Highlights of the FY 2026 Budget Request

The FY 2026 Budget Request supports activities to submit the initial Alloy 709 code case to the American Society of Mechanical Engineers (ASME) for approval to enable the use of Alloy 709 in advanced reactors, which would reduce capital costs and enhance performance and safety. Additionally, the High Dose Graphite-1 experiment irradiation is expected to be completed, to generate material qualification data supporting licensing of high temperature reactors.

Advanced Small Modular Reactor RD&D ($0 million)

The Advanced Small Modular Reactor (SMR) Research, Development, and Demonstration (RD&D) subprogram provided support to help re-establish U.S. leadership in nuclear energy by maturing SMR concepts toward commercial readiness. A range of significant technological accomplishments were achieved in developing advanced SMR designs.

No funding is requested in the FY 2026 budget for the Advanced SMR RD&D subprogram.

Light Water Reactor Sustainability ($35 million)

The Light Water Reactor Sustainability (LWRS) subprogram conducts R&D on technologies and other solutions that can improve economics, increase energy production, sustain safety, and maintain the technical reliability of the current domestic fleet of commercial nuclear power plants. The focus of the subprogram is on conducting R&D that addresses the nuclear industry's economic challenges promoting domestic nuclear energy expansion through restarts of closed plants, greater energy production of operational plants, and continued long-term operation to meet domestic energy demands. LWRS directs national laboratory research and collaborates with nuclear power plant owner-operators, vendors, suppliers, industry support organizations, other research organizations, and the Nuclear Regulatory Commission (NRC) to closely coordinate research that both supports industry needs and maximizes taxpayer benefit.

The LWRS subprogram consists of the following R&D areas:

- **Plant Modernization:** R&D to address nuclear power plant economic viability in current and future energy markets by increasing efficiency through the implementation of digital technologies, machine learning, and Artificial Intelligence (AI). The R&D products will enable modernization of plant systems and processes across the industry by enabling a shift from a labor-centric to a technology-centric business model that supports improved performance at a lower cost.
- **Flexible Plant Operations and Generation:** R&D to build upon previous research that will expand nuclear energy production and use, accelerate near-term capacity expansion opportunities, and extend nuclear power applications beyond the traditional electricity markets.
- **Risk-Informed Systems Analysis:** R&D to support decision-making related to the economics, reliability, and safety of the existing fleet by providing analysis solutions for integrated plant systems. This effort develops and applies advanced quantitative methods and advanced tools to address electricity production and deployment opportunities for commercial nuclear power plants.
- **Physical Security Research:** R&D that will develop and deploy advanced methods and tools to be used to implement cost-effective physical security regimes. This R&D enables companies across industry to reduce excessive conservatisms in security modeling, leverage automation as force multipliers, optimize security postures, enhance efficiency, and develop additional means to risk-inform approaches to evaluate security changes.
- **Materials Research:** R&D to ensure the performance of vital systems, structures, and components (SSC) in their in-service environments and develop techniques and methods for long-term management. The R&D products will be used to define operational limits and aging mitigation approaches for materials in nuclear power plant SSCs, providing key input to both regulators and industry.

In FY 2026, the LWRS subprogram will leverage the national laboratory system to focus the conduct of R&D to resolve industry's highest priority and highest uncertainty challenges, and to identify areas of capacity expansion and plant power uprates. The subprogram will incorporate advanced models, methods, machine learning, and artificial intelligence to address these challenges and provide solutions to improve the current business model and associated practices of the current fleet. Application of these new technologies will enable the existing nuclear power plant fleet to manage the

aging of SSCs, expand capacity and power uprates, and provide energy for applications beyond traditional electricity markets.

Advanced Reactor Technologies (ART) ($55 million)

The ART subprogram conducts essential R&D activities to reduce technical risks associated with advanced reactor technologies and systems. The subprogram's R&D scope reflects input from advanced reactor stakeholders with a goal of enabling industry to mature and ultimately demonstrate advanced reactor technologies in the 2030s. The ART subprogram focuses on industry-informed R&D priorities that would provide widely applicable benefits across many different advanced reactor concepts to enhance the likelihood of future demonstration and commercialization of emergent advanced reactor technologies and stimulate new ideas for transformational future concepts. The ART subprogram continues support for international collaborations on advanced reactor operations and safety promoting the development of advanced reactors in the United States and supporting deployment and export of U.S. technologies in the global marketplace

ART R&D efforts support innovative reactor concepts and supporting capabilities, including:

- **High temperature gas-cooled reactors (HTGR)**: supports advanced alloy qualification, scaled integral experiments, and development and validation of modeling and simulation tools to support design and licensing;
- **Fast reactors**: demonstrates feasibility of advanced systems and component technologies to enhance performance and economic competitiveness and validates methods and codes to support design and licensing;
- **Molten salt reactors (MSR)**: investigates fundamental salt properties as well as materials, models, fuels, and technologies to reduce technical uncertainties for MSRs to enable development and demonstration;
- **Microreactors**: supports non-nuclear and nuclear integrated system testing as well as maturation of innovative components. Supports the Microreactor Applications, Research, Validation and Evaluation (MARVEL) microreactor which will be a nuclear microreactor test platform to test microreactor technologies and end-use applications;
- **Graphite qualification**: supports R&D activities to irradiate, characterize, and qualify nuclear grades of graphite and to establish design rules to enable use of graphite in high temperature reactors. Supports activities to establish a domestic nuclear graphite supply chain for high temperature reactors.

Industry-led, cost-shared R&D activities are supported through competitively selected industry awards to reduce technical and regulatory risks associated with advanced reactor designs. Specifically, in FY2021, DOE announced the selection of three awards to support the development of designs that could have significant impact on the energy market in the mid-2030s or later. The three concepts selected for award were:

- Advanced Reactor Concepts, LLC: Development of a conceptual design of a seismically isolated advanced sodium-cooled reactor facility;
- General Atomics: Development of a fast modular reactor conceptual design with verifications of key metrics in fuel, safety, and operational performance; and
- Massachusetts Institute of Technology: Maturing the Modular Integrated Gas-Cooled High Temperature Reactor (MIGHTR) concept from a pre-conceptual stage to a conceptual stage.

The FY 2026 Budget Request supports activities to submit the initial Alloy 709 code case to the American Society of Mechanical Engineers (ASME) for approval to enable the use of Alloy 709 in advanced reactors, which would reduce capital costs and enhance performance and safety. Additionally, the High Dose Graphite-1 experiment irradiation is expected to be completed, to generate material qualification data supporting licensing of high temperature reactors.

Integrated Energy Systems ($10 million)

Integrated Energy Systems (IES) R&D expands the role of nuclear energy by developing technologies supporting electrical, thermal, and chemical energy pathways to deliver nuclear energy to the industrial, chemical, and transportation sectors. Goals of this subprogram include thermal distribution and control systems capable of delivering heat directly to major industrial and commercial applications managing load transients and reliability for directly supplying heat and electricity to industry and data centers, and converting nuclear energy into fuels and chemicals.

The IES subprogram consists of four pillars of R&D:

- **National Impact of Nuclear IES:** assesses the potential for nuclear energy on a national level based on market competition, enacted policies, and resource limitations for all energy sources.
- **Nuclear Applications R&D:** assesses economic opportunities for supplying energy to a variety of industrial plants. Cost optimization for near-term opportunities substituting energy imports with nuclear energy and longer-term opportunities of retrofitting industrial plants with advanced processes for nuclear energy applications.
- **Thermal Systems R&D:** conducts research on utilizing nuclear heat for industry. This effort analyzes industrial requirements to develop cost-effective and reliable thermal system designs that include heat exchangers, thermal storage, fluid system components, turbine engines, and control systems.
- **Chemical Systems R&D:** focuses on developing nuclear e-fuels that are distributed and used by the existing transportation infrastructure and developing economically competitive processes for producing a range of chemical commodities with nuclear power.

The FY 2026 Budget Request supports activities that will focus on technical targets for nuclear energy systems, technical and economic analyses for industrial plants, assessment of nuclear combined heat and power systems located on industrial sites, optimization of heat transport systems, work on refinery models to support nuclear integration beyond simple substitution of imported electricity, steam and hydrogen, and development and testing of primary chemical processes. These efforts broaden the applications of nuclear energy providing a range of domestic energy products and expanding the marketability of nuclear power plants.

Reactor Concepts Research, Development, and Demonstration
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Reactor Concepts Research, Development, and Demonstration					
Advanced Small Modular Reactor RD&D	10,000	-	-	-	-%
Light Water Reactor Sustainability	45,000	44,500	35,000	-9,500	-21%
Advanced Reactor Technologies	54,000	73,800	55,000	-18,800	-26%
Integrated Energy Systems[1]	-	9,500	10,000	+500	+5%
Total, Reactor Concepts Research, Development, and Demonstration	**109,000**	**127,800**	**100,000**	**-27,800**	**-22%**

Explanation of Changes for Reactor Concepts Research, Development, and Demonstration

The decrease to the Light Water Reactor Sustainability subprogram reflects reduced obligation to a previously awarded industry-led project as the federal cost share will be fully funded in FY 2026.

The decrease in the ART budget from $73.8 million to $55 million reflects a focus on activities needed to achieve national dominance in nuclear technology, including developing innovative concepts for nuclear reactors. The decrease also reflects completion of fabrication of the MARVEL reactivity control system and completion of funding for key MARVEL contracts.

[1] Integrated Energy Systems was a lower-level program within Nuclear Energy Enabling Technologies, Crosscutting Technology Development in FY 2024.

Fuel Cycle Research and Development

Overview

The Fuel Cycle Research and Development (FCR&D) program conducts applied research and development (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, improve resource utilization and energy generation, reduce waste generation, and limit proliferation risk. The FCR&D program also contributes to the Department's policies and programs for ensuring a secure, reliable, and economic nuclear fuel supply for both existing and future reactors.

The FCR&D program also has the responsibility for the disposition of U.S. spent nuclear fuel (SNF) and high-level radioactive waste (HLW), as stated in Nuclear Waste Policy Act of 1982, Public Law 97–425, as amended. The Department remains committed to fulfilling its legal obligation to properly manage and dispose of this material, thereby reducing the Federal Government's estimated SNF liabilities. The program also supports R&D on multiple advanced fuel technologies that hold promise for enhanced performance and improved economics or are an important element in the development of the next generation of reactor designs.

A critical focus of the FCR&D program is supporting the availability of High-Assay Low-Enriched Uranium (HALEU) for civilian domestic research, development, demonstration, and commercial use. The program is ensuring small quantities of HALEU are available in the near-term and establishing a long-term commercial HALEU and LEU supply chain capable of supporting deployment of advanced reactor technologies and continued operation of the existing commercial nuclear fleet.

Highlights of the FY 2026 Budget Request

- The Material Recovery and Waste Form Development (MRWFD) subprogram will focus on advancements in nuclear fuel recycling and waste treatment technologies. Key areas of development include aqueous and vapor phase actinide separation, hybrid ZIRCEX vapor phase extraction with advanced chlorination for HALEU production, off-gas and waste form improvements, and pyro/molten salt processing techniques. The overall goal is to develop more efficient, scalable, and cost-effective methods for nuclear fuel recycling, separation of valuable materials, and waste reduction.

- The Accident Tolerant Fuels (ATF) subprogram focuses on high burnup fuels testing support for industrial licensing needs. Commercial reactor irradiated fuel will be shipped to national laboratories, and industrial contracts for ATF will be placed. The Light Water Reactor Testbed will be utilized to support ATF industrial partners' licensing needs, and Post Irradiation Examination (PIE) on ATF commercial reactor irradiated fuel will continue. Separate effects testing on ATF samples will also continue. Progress will be made toward establishing experimental infrastructure to support Light Water Reactor (LWR) research capabilities.

- The Next Generation Fuels (NGF) subprogram will focus on advanced nuclear fuel research and will concentrate on several key areas to enhance reactor performance and safety. Research on advanced metallic fuels will focus on qualification, improved fabrication, safety testing, and next-generation technologies for sodium-cooled fast reactors. Molten salt fuel research will focus on salt synthesis and irradiation effects. Silicon-carbide cladding will undergo continued fabrication development, testing, and performance code development. Long-term accident-tolerant fuels will be explored through a call for proposals. Research on coated fuel particles (TRISO) will involve completing post-irradiation examination and safety testing while also developing future testing plans. Finally, advanced physics testing will focus on developing a fast reactor SPARC test platform and a five-year plan for critical experiments.

- In FY 2026, the Advanced Nuclear Fuels Availability (ANFA) subprogram will be funded using appropriations from the Inflation Reduction Act of 2022 (IRA). The subprogram supports the availability of small quantities of HALEU for civilian domestic research, development, demonstration, and commercial use. Activities include production from the HALEU demonstration cascade, and recovery and down-blending of limited excess quantities of DOE uranium inventories. The ANFA subprogram complements activities funded under IRA Section 50173, and authorizations under the Nuclear Fuel Security Act of 2023 (NFSA) (section 3131 of the National Defense Authorization Act for Fiscal Year 2024 (Public Law 118–31)).

- Fuel Cycle Laboratory R&D subprogram will focus on key areas to include innovative nuclear materials research aimed at next-generation fuel cladding through advanced manufacturing and novel coatings; enhanced capabilities in Integrated Performance Characterization and salt fuel technologies, focusing on quantitative measurements and fission product removal; advancements in Materials Protection, Accounting, and Control Technologies (MPACT), including holdup monitoring, electro-refiner voltammetry, and nuclear material accounting for fuel fabrication; and comprehensive Systems Analysis and Integration efforts to develop nuclear outlooks, support the assessment of recycling fuel cycle economics, facilitate rapid deployment of advanced reactors, and support HALEU market sustainability.

- The Used Nuclear Fuel Disposition subprogram prioritizes the critical path schedule for the High Burnup Research Cask shipment and opening to support the current commercial nuclear fleet. The subprogram will also perform generic engineering and scientific studies for several candidate geologies for the long-term management of the nation's SNF and HLW.

- The Integrated Waste Management System subprogram will focus on the development and implementation of the Administration's policy to support the management of spent nuclear fuel and high-level waste, in line with Executive Order 14302 Reinvigorating the Nuclear Industrial Base and consistent with the Nuclear Waste Policy Act of 1982, Public Law 97–425, as amended. The program will continue with the development of the necessary infrastructure to move SNF.

Material Recovery and Waste Form Development ($51 million)
The Material Recovery and Waste Form Development (MRWFD) subprogram conducts applied R&D on advanced fuel recycling technologies that have the potential to improve resource utilization and energy generation, reduce waste generation, and manage potential proliferation risk. The subprogram focuses on developing advanced fuel recycling technologies and addressing fundamental materials separations and recovery challenges that present significant degrees of technical risks and financial uncertainties.

The MRWFD subprogram supports the development and demonstration of various recycling technologies to make available quantities of HALEU materials for advanced reactor fuel-fabrication R&D needs. The subprogram continues to evaluate the feasibility of recycling federally owned highly-enriched uranium (HEU) fuels for HALEU production by developing hybrid Zirconium Extraction (ZIRCEX) technology using a ¼-scale vapor phase demonstration pilot facility at Idaho National Laboratory (INL).

Mining, Conversation, and Transportation ($1.5 million)
The Office of Nuclear Energy supports the uranium mining R&D efforts to continuously revitalizing and strengthening the domestic uranium mining industry to benefit the entire front-end of the U.S. nuclear fuel cycle. De-risking the uranium mining technology will help fulfill the Department's goal in unleashing commercial nuclear power in the United States.

In-situ recovery (ISR) technology is the most cost effective and environmentally acceptable uranium mining method in the United States. The Mining, Conversion, and Transportation subprogram has assembled a technical assistant team with ISR experts from Brookhaven, Idaho, Los Alamos, Oak Ridge, and Pacific Northwest National Laboratories. The subprogram goals are to support the uranium mining industry to reduce ISR technology costs and technical uncertainties, accelerate advances, and regain American leadership in ISR technology. Specific R&D efforts supported by this subprogram include:

- advanced in-situ sensors and monitoring systems and characterization capabilities,
- groundwater solution chemistries and associated biological effects,
- subsurface geological conditions and geo-physical characterization, and
- modeling and computation with an emphasis on using artificial intelligence and machine learning tools.

In FY 2026, this subprogram will continue supporting technical experts at DOE national laboratories to develop innovative technologies to improve in-situ uranium extraction efficiency and resource utilization for domestic uranium mining industry.

Accident Tolerant Fuels ($92 million)
The Accident Tolerant Fuels (ATF) subprogram mission is to enable the commercial nuclear industry to enhance the performance and safety of commercial U.S. reactors. The ATF subprogram, in collaboration with nuclear fuel vendors,

performs basic research and testing, infrastructure development, and post-irradiation examinations (PIE), through testing in commercial light water reactors (LWR). The subprogram will meet the objectives of the Nuclear Energy Innovation and Modernization Act (Public Law 115-439), and as re-established by the ADVANCE Act of 2024 (division B of Public Law 118-67). Both the NEIMA and ADVANCE Act provide objectives for the near-term ATF technologies towards enhanced safety and economics.

Nuclear fuel designs with enhanced accident tolerance are intended to provide further safety and performance benefits in comparison to the current UO_2-Zircaloy systems used by the nuclear industry today. These benefits may include in-reactor performance enhancements in normal, transient, and abnormal conditions to reduce handling or storage requirements by reducing discharged-from-service SNF assemblies. Additionally, the use of ATF will enable utilities to consider additional power uprates, a significant potential for improved utility economics that directly supports U.S. energy dominance.

The U.S. nuclear fuel suppliers are developing near-term concepts towards industrialization in the areas of coated claddings and nuclear fuel. Phase 2, Development and Qualification is near completion. The FY 2026 Budget includes funding to begin Phase 3, Commercialization, focused on performance testing of near-term commercially irradiated samples. The primary objective of Phase 3, the near-term technologies will have reached industrialization whereby industry will lead further deployment activities. By the end of Phase 3, one or more nuclear fuel vendors will have succeeded in using ATF near-term technologies to effect commercial plant safety and capacity enhancements consistent with recent executive orders.

Next Generation Fuels ($58 million)
The Next Generation Fuels (NGF) subprogram mission is to perform R&D to revolutionize performance and safety of existing commercial U.S. reactors and advanced LWRs including Small Modular Reactors (SMR) and non-LWRs in coordination with industrial stakeholders, including early engagement with regulatory bodies, as appropriate. NGF laboratory-based R&D lays the groundwork for nuclear fuel designs that significantly outperform today's fuel, focusing on long-term, high-reward nuclear fuel concepts and will continue to drive innovation over the long term.

As a single subprogram with a common purpose, NGF is focused on long-term fuel development efforts including:

- long-term ATF concepts,
- metallic fuel,
- advanced coated particle fuel analysis, and
- molten salt fuels.

Long term high-risk high-reward technologies such as silicon carbide cladding, iron-chrome-aluminum cladding, and higher uranium density fuel are concepts that have great potential to provide even better performance than the near-term ATF subprogram activities described in the preceding section.

Metallic fuel development can assist industry in qualifying the fuel for use in demonstration reactors with long-term improvements. The Leading Innovation in Fuel Technology (LIFT) activity develops the data and methods that support industry and non-LWR advanced reactor developers, such as Sodium-cooled Fast Reactors. Metallic fuel is also important for recycle-driven fuel cycle scenarios under consideration in the United States and can build on these research activities. The subprogram will establish a reference fuel performance using legacy data and modern tools to fill the knowledge gaps.

Investigation of coated particle fuel technologies may extend the existing Tristructural-isotropic (TRISO) particle fuel development and qualification activities and support non-LWR designs. TRISO fuel also has applications for other reactor concepts such as molten salt-cooled high temperature reactors, microreactors, and nuclear thermal propulsion. Irradiation, safety testing, and PIE of TRISO fuel continue to provide data for fuel development and qualification in support of industry efforts to establish a domestic commercial TRISO fuel fabrication capability.

Molten salt fuels are also of interest to advanced reactor developers and require considerable R&D to increase the technology readiness level. Molten salt fuels activities support the development of equipment for salt fuel purification, synthesis, and characterization and capabilities to convert oxide and metal fuels to molten halide salt fuels as well as designing unique irradiation test fixtures for molten salt fuel.

Advanced physics testing in the System Physics Advanced Reactor Critical (SPARC) will enable new fuel designs, configurations, and materials performance to be tested in a physics experiments facility established at INL, in a reactor building once used for the historic Special Power Excursion Reactor Test IV studies. This type of zero-power reactor will provide key benchmarking data for designing, optimizing and licensing advanced reactors and the fuel concepts while providing critical safety data important to the manufacture, shipping, and storage of advanced nuclear fuel systems. SPARC Horizontal Split Table (HST) will represent the nuclear physics of reactors fueled with advanced LWR fuel assemblies, TRISO fuel composites, metallic fuel fast reactor designs, and captures the physics needs of essentially all other systems of interest.

Advanced Nuclear Fuels Availability ($0)
In FY 2026, the activities under the ANFA subprogram will be funded using IRA appropriations. The Department also plans to issue competitive Task Order awards for domestic commercial HALEU deconversion services using IRA appropriations in FY 2026. Companies awarded Indefinite Delivery Indefinite Quantity (IDIQ) contracts with DOE for HALEU deconversion services are eligible to bid on Task Order Awards. The Office of Nuclear Energy will retain the flexibility to fund the accelerated treatment of EBR-II driver fuel or any other scope consistent with IRA Section 50173 using IRA appropriations.

Under the ANFA subprogram, HALEU production will continue under contract with American Centrifuge Operating, LLC at the American Centrifuge Plant in Piketon, Ohio to produce 900 kg UF6 between July 1, 2025, and June 30, 2026.

Activities to support recovery and down-blending of limited excess quantities of DOE uranium inventories will continue in order to meet the needs and schedules of advanced reactor developers. At INL, accelerated treatment of EBR-II driver fuel will produce HALEU metal and enable a successful outcome to the commitment established between DOE and the State of Idaho for completing EBR-II driver fuel treatment prior December 31, 2028, as stipulated in the 2019 Supplemental Agreement to the 1995 Idaho Settlement Agreement. Purification of EBR-II reguli and conversion will produce HALEU oxide. At SRS, downblending the separated inventory of purified HEU solutions in H-Canyon storage will result in 3,100-5,500 kgU HALEU uranyl nitrate solution.

The ANFA subprogram complements activities funded under IRA Section 50173 including:
- Supporting the availability of HALEU for civilian domestic research, development, demonstration, and commercial use,
- Development of criticality benchmark data in support of the U.S. Nuclear Regulatory Commission (NRC),
- Grant opportunities for research, development, and acquisition of NRC certification for HALEU transportation packages, and
- Grant opportunities for innovative technologies to address gaps, enhance current processes, and advance new technologies to produce HALEU.

Finally, the ANFA subprogram complements authorizations under NFSA to support domestic uranium mining, conversion, and enrichment, including domestic production of LEU and HALEU to meet the needs of advanced reactor developers and the consortium. The Energy and Water Development and Related Agencies Appropriations Act, 2024 (P.L. 118-42, Division D), repurposed $2.720 billion in unobligated balances from the Infrastructure Investment and Jobs Act (P.L. 117-58) to the American Energy Independence Fund to carry out NFSA. The Department plans to issue competitive Task Order awards for domestic commercial LEU enrichment and HALEU enrichment using these funds in FY 2026. Companies awarded IDIQ contracts by DOE for LEU enrichment and HALEU enrichment respectively are eligible to bid on Task Order Awards. In addition, the FY 2026 Budget assumes receipts credited to the American Energy Independence Fund as discretionary offsetting collections during this or any prior fiscal year, as authorized by section 312(a) of title III of division D of Public Law 118-42, shall be available until expended to carry out the purposes of the Fund.

Fuel Cycle Laboratory ($16 million)
This subprogram supports research activities that advance knowledge of nuclear fuel cycles and provide transformative innovations to accelerate development of civil nuclear technologies, including consideration of fuel cycle impacts from the potential deployment of advanced reactor technologies. It includes activities in Materials Protection, Accounting and Control Technologies (MPACT), Systems Analysis and Integration (SAI), Innovative Nuclear Materials (INM), and Innovative Process Control.

MPACT develops innovative technologies, analysis tools, and advanced integration methods to enable U.S. domestic nuclear materials management, to enable safeguards for emerging nuclear fuel cycles and to address vulnerabilities in current nuclear systems while managing potential proliferation risks. Addressing U.S. energy security needs requires innovative approaches to material control and accounting (MC&A) to ensure that nuclear material is not misused, diverted, or stolen. In FY 2026 MPACT will develop nuclear material accounting and control approaches for addressing holdup at fuel fabrication and enrichment plants including scale up of TRISO fuel fabrication

SAI activities include strategic planning and analysis as well as integrated evaluation of Fuel Cycle Laboratory R&D subprogram activities. It provides the critical capability needed to analyze complex fuel cycle system options, project nuclear energy demand under various scenarios, assess overall nuclear technology readiness, evaluate nuclear energy competitiveness and economic viability, and improve understanding of the interdependencies between various subsystems and associated technologies. In FY 2026, SAI aims to further develop domestic and global nuclear outlook and guidebook on nuclear energy application to data centers including techno-economic market analyses as requested.

INM activities continue focusing on longer-term cladding and in-core materials discovery and development for advanced nuclear energy systems applications. The goals are to develop new tools, techniques, and capabilities at national laboratories to accelerate the pace of new materials discovery, building on recent advances in artificial intelligence, machine learning, theory, modeling, and computing, and advanced characterizations. More specifically, innovative approaches are needed to develop advanced metallic alloys and composite materials that are optimized to meet new reactor performance targets within the reactor core and fuel cladding, and includes recycling of Zircaloy cladding material, which is the second largest mass in used fuel assemblies. Developing recovery process with sufficient Zr purity to permit re-use will reduce the waste quantity as well as enhance resource utilization and assist in developing similar recycling approaches for other high value nuclear materials. In FY 2026, INM will further develop innovative materials such as novel ceramic/composite coatings and advanced manufacturing techniques to support new types of alloys and thin-walled cladding tubes.

Innovative Process Control activities support foundational research to innovate the fuel cycle process and associated control technologies. The goals are to enhance process controllability and to enable predictive modeling capability in advanced fuel cycle systems. Implementing advanced process control and modeling technologies into the recycling plant design will reduce the size of such tanks or eliminate the need for the tank space, directly reducing the cost of plant construction and operations. In FY 2026, Innovative Process Control will develop the basis for liquid fueled process controls, such as demonstrate the capability of chlorine reference electrode to make quantitative measurements of chlorobasicity of a molten salt solution which directly affects the chemistry and physical properties of molten salt solutions.

Integrated Waste Management ($55 million)
The Integrated Waste Management System (IWMS) subprogram supports efforts to develop and implement Federal plans for the long-term management of SNF and HLW, in line with Executive Order 14302 Reinvigorating the Nuclear Industrial Base and consistent with the Nuclear Waste Policy Act of 1982, Public Law 97–425, as amended.

Used Nuclear Fuel Disposition ($47 million)
The Used Nuclear Fuel Disposition (UNFD) R&D subprogram conducts engineering studies, targeted research, technology development, and program planning for the long-term disposition of spent nuclear fuel and high-level waste.

UNFD focused activities include:

- Conducting generic engineering studies of several candidate geologies that could support siting a deep geologic repository for the permanent disposal of SNF;
- Developing plans for gas sample collection and post-irradiation examination of SNF from the high burnup research cask (HBURC) after it is shipped from the North Anna Power Station in Virginia to INL – data from this project supports continued safe storage of high burnup SNF at U.S. nuclear power plants and future DOE storage facilities;
- Preparing to ship the HBURC in 2027 includes acquisition of transport equipment (impact limiters, cradle, end stops) and coordination with State and Tribal governments on emergency response training, technical assistance, and public engagement;
- Launching the Spent Nuclear Fuel Center for Applied Research in Storage and Transportation to collaborate with the nuclear industry to address common challenges related to extended storage of SNF including different fuel

types, higher enrichments, and higher burnups. The subprogram will leverage lessons-learned from countries with established SNF storage and transportation programs;
- Non-site-specific activities to lay the groundwork for future disposal, to the extent permitted by law;
- Conduct limited research on disposal in granite and shale; and
- Leverage artificial intelligence to synthesize and evaluate available information on large-scale SNF siting efforts.

Fuel Cycle Research & Development
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Material Recovery & Waste Form Development	27,500	33,000	51,000	+18,000	+55%
Mining, Conversion, & Transportation	1,500	1,500	1,500	-	-%
Accident Tolerant Fuels	92,000	97,900	92,000	-5,900	-6%
Next Generation Fuels	63,000	65,500	58,000	-7,500	-12%
Advanced Nuclear Fuels Availability	126,500	126,500	0	-126,500	-100%
Fuel Cycle Laboratory R&D	16,000	16,000	16,000	-	-%
Integrated Waste Management	55,000	57,500	55,000	-2,500	-4%
Used Nuclear Fuels Disposition R&D	47,000	47,000	47,000	-	-%
Total, Fuel Cycle Research & Development	**428,500**	**444,900**	**320,500**	**-124,400**	**-28%**

Explanation of Changes for Fuel Cycle Research & Development

Material Recovery & Waste Form Development (+$18 million)
The budget increase from FY 2025 provides significant acceleration of U.S. research towards advanced nuclear fuel recycling. The technologies have the potential to improve resource utilization and energy generation, reduce waste generation, and manage potential proliferation risk. The Hybrid ZIRCEX activity will design and demonstrate a pilot scale using advanced chlorination techniques. The Off-gas & Waste Form activity will construct a caustic scrubber. The Pyro/Molten Salt activity will seek to demonstrate kilogram-scale deposition techniques of uranium and transuranic onto a solid cathode. Finally, accelerated treatment of EBR-II driver fuel is funded within this subprogram.

Accident Tolerant Fuels (-$5.9 million)
The budget decrease from FY 2025 reflects a correction from previous year carve-out. The Department will continue to prioritize R&D on high-risk, high-reward nuclear fuel concepts that will have enhanced reactor safety and performance.

Next Generation Fuels (-$7.5 million)
The budget decrease from FY 2025 reflects a correction from a previous carve-out. The Department will continue to prioritize long-term, high-reward R&D towards nuclear reactor enhancements in the area of safety and performance.

Advanced Nuclear Fuels Availability (-$126.5 million)
The budget decrease from FY 2025 reflects the use of IRA appropriations in FY 2026.

Integrated Waste Management System (-$2.5 million)
The budget decrease from FY 2025 reflects an adjustment from a previous year increase. The Department will continue to prioritize the disposition of U.S. SNF and HLW without impact to the program mission.

Nuclear Energy Enabling Technologies

Overview

The Nuclear Energy Enabling Technologies (NEET) program conducts research and development (R&D) and makes strategic investments in research capabilities to develop innovative and crosscutting technologies that resolve nuclear technology development issues to enable continued operation of existing U.S. nuclear reactors, enable deployment of advanced nuclear reactors, and develop advanced nuclear fuel cycles. The NEET program budget request is organized into five subprograms: (1) Advanced Materials and Manufacturing Technologies (AMMT), (2) Advanced Sensors and Instrumentation (ASI), (3) Nuclear Energy Advanced Modeling and Simulation (NEAMS), (4), Nuclear Science User Facilities (NSUF), and (5) Gateway for Accelerated Innovation in Nuclear (GAIN).

Highlights of the FY 2026 Budget Request

- NEAMS will complete thermal hydraulic capability to model key gas reactor air-ingress and steam-ingress accidents.
- AMMT will complete the development of a new-generation Fe-based alloy, have it ready to begin qualification, and continue irradiation and post-irradiation examinations of alloy 709 and laser powder bed fusion 316H for nuclear reactor applications.

Advanced Materials and Manufacturing Technologies (AMMT) ($14,000,000)

Advanced Materials and Manufacturing Technologies (AMMT) accelerates the development, qualification, demonstration, and deployment of advanced materials and manufacturing technologies in support of the U.S. leadership in a broad range of nuclear energy applications. The vision of AMMT is the expansion of reliable and economical nuclear energy enabled by advanced materials and manufacturing technologies. Four major technical areas were established to realize the mission and vision of the AMMT program:

- Advanced Materials and Manufacturing - addresses stakeholders' needs through integrated material and manufacturing technologies development to accelerate readiness and provide effective, economic solutions for the nuclear industry.
- Rapid Qualification - establishes a qualification framework for new materials to enable their timely deployment in advanced reactors more rapidly than current standards.
- Environmental Effects - addresses materials degradation for topics that are not covered by current codes and standards, including corrosion and irradiation effects on mechanical properties allowing for long term predicted performance.
- Technology Maturation - advances a technology by increasing its technology readiness level by moving it from concept through technology demonstration and validation to a reliable and scalable solution ready for real-world applications.

Advanced Sensors and Instrumentation (ASI) ($5,000,000)

Advanced Sensors and Instrumentation (ASI) conducts R&D of sensors, instrumentation and controls to support the continued operation of the existing reactor fleet, to address critical measurement technology gaps identified by the advanced reactor developer community, and to support nuclear fuel cycle development. By leveraging engagement with the U.S. national laboratories, universities, and private industry, ASI coordinates R&D to foster technology maturation from initial concept to commercial product. ASI engages directly with other programs in the Office of Nuclear Energy (NE) and with advanced reactor developers to inform its R&D, with its goals and R&D priorities published in the Advanced Sensors and Instrumentation Roadmap, updated annually.

- Develop high performance and rugged sensors for the harsh environments of advanced reactors to measure parameters such as pressure, temperature, and radiation.
- Enhance novel measurement methods and sensor performance in irradiation experiments for nuclear fuels and sensor qualifications.
- Develop methods for sensor integration into existing and future advanced reactor control systems to enhance operational efficiency and safety for the broader industry.
- Expand the development of artificial intelligence (AI) and machine learning (ML) techniques for nuclear industry applications, such as for autonomous control systems, digital twins, and sensor architecture improvements.

Nuclear Energy Advanced Modeling and Simulation (NEAMS) ($28,600,000)

Nuclear Energy Advanced Modeling and Simulation (NEAMS) develops and deploys a set of predictive modeling and simulation tools to support deployment of new nuclear reactor designs and more economic operation of existing nuclear reactors. NEAMS tools provide fundamental insights that are unattainable through experiment alone, inform experiment selection, drive design, and minimize the cost of research, development, and deployment. These modeling and simulation capabilities are extremely flexible and able to accommodate different reactor types and designs.

- For the existing fleet, NEAMS tools address core performance optimization issues and accelerate development of fuels with enhanced accident tolerance to help assure the long-term availability and market competitiveness of nuclear energy.
- For advanced reactor technologies, NEAMS tools help industry accelerate development and meet otherwise cost-prohibitive data needs.
- These tools also help support Nuclear Regulatory Commission (NRC) efforts to address its confirmatory analysis needs.

Nuclear Science User Facilities (NSUF) ($34,500,000)

The Nuclear Science User Facilities (NSUF) is the Nation's designated mechanism to gain access to DOE National Laboratory user facilities for nuclear energy research. As a consortium of partner facilities, NSUF provides users from industry, laboratories, and universities access through competitive solicitations to highly specialized nuclear energy capabilities and infrastructure. On an annual basis, researchers propose projects to be conducted at these unique facilities, with timelines ranging from a few months to several years. When projects are awarded, the NSUF funds the experiment support and laboratory services at the partner user facilities. The focus areas include awarded research for irradiation and post-irradiation examination, high-performance computing (HPC), and capability development as follows:

- The NSUF competitively supports irradiation and post-irradiation examination user access projects to accelerate emergent and innovative nuclear fuel and materials research. User projects include access to research and test reactors such as the Advanced Test Reactor, hot cells, beamline capabilities, irradiation capabilities, irradiation experiment design, test fabrication support, and expert technical support.
- HPC supports scientific computing capabilities to enable nuclear energy advanced energy modeling and simulation, artificial intelligence, and digital twin activities. Four HPC supercomputers are planned to be in operation at Idaho National Laboratory including NE's newest flagship system called Teton.
- Capability development including the Nuclear Fuels and Materials Library support the curation of a collection of high-value neutron irradiated fuel and material specimens accessible to industry and other users from current and prior irradiation test campaigns and real-world components retrieved from decommissioned power reactors.

Gateway for Accelerated Innovation in Nuclear ($10,000,00)

The Gateway for Accelerated Innovation in Nuclear (GAIN) facilitates access for industry and other stakeholders to the technical, regulatory, and financial support necessary to move advanced nuclear technologies toward commercialization and ensure the continued reliable and economic operation of the existing fleet.

GAIN provides direct support to the nuclear industry by:

- Leading nuclear technology cost projection updates and capacity expansion modeling efforts
- Curating and maintaining the legacy documents from demonstration reactors and other significant experiments dating back to the 1950s
- Examining and enhancing contracting mechanisms to more effectively collaborate with industry; and
- Hosting topic-specific workshops and coordinating National lab visits for industrial partners.

In addition, GAIN provides technical assistance to a wide range of stakeholder groups considering nuclear energy as an appropriate fit for their unique energy needs and objectives. In FY 2026, the Department expects that these activities will increase in importance as more States and local communities consider nuclear energy deployment.

On a quarterly basis, GAIN provides competitive opportunities for cost-shared research at the Department's national laboratories to resolve specific technical issues hindering the deployment of nuclear technologies.

Nuclear Energy Enabling Technologies
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Advanced Materials and Manufacturing Technologies	10,582	14,082	14,000	-82	-1%
Advanced Sensors and Instrumentation	4,582	5,682	5,000	-682	-12%
Nuclear Energy Advanced Modeling and Simulation	27,500	28,500	28,600	+100	-%
Nuclear Science User Facilities	34,500	34,500	34,500	-	-%
Gateway for Advanced Innovation in Nuclear	11,100	11,000	10,000	-1,000	-9%
Total, Nuclear Energy Enabling Technologies	**88,264**	**93,764**	**92,100**	**-1,664**	**-2%**

Explanation of Changes for Nuclear Energy Enabling Technologies
ASI – The reduction from $5,682,000 to $5,000,000 supports a more focused set of AI applications and irradiation experiments for sensor development.

Advanced Reactor Demonstration Program

Overview

The Advanced Reactor Demonstration Program (ARDP) focuses Departmental and non-federal resources on supporting the development of commercially promising advanced reactors that have the potential for near and mid-term demonstration and commercial deployment and addressing challenges hindering their deployment. The elements of the ARDP program are consistent with the Administration's energy dominance agenda by developing and deploying advanced commercial nuclear power plants for domestic utilities that are safe, economical, and reliable and to reestablish the United States as the leader in nuclear technologies, in accordance with recent nuclear energy related Executive Orders.

The ARDP research and development elements leading to demonstration include these four major elements:

- National Reactor Innovation Center (NRIC) – Supports testing, demonstration, and performance assessment to accelerate deployment of advanced reactors through development of advanced nuclear energy technologies by utilizing the unique DOE national laboratory facilities and capabilities;
- Risk Reduction for Future Demonstrations – Supports cost-shared (up to 80% government, not less than 20% industry) partnerships with U.S.-based teams to address technical, operational, and regulatory challenges to enable development of a diverse set of advanced nuclear reactor designs for future demonstration;
- Regulatory Development – Coordinates activities with the Nuclear Regulatory Commission (NRC) and U.S. industry to address and resolve key regulatory framework and licensing technical issues that directly impact the "critical path" to advanced reactor demonstration and deployment; and
- Advanced Reactor Safeguards and Security – Evaluates safeguards and security issues that are unique to advanced reactors to help reduce roadblocks by solving regulatory challenges, reducing safeguards and security costs, and utilizing the latest technologies and approaches for plant monitoring and protection.

The ARDP demonstration element supports cost-shared (up to 50% government, not less than 50% industry) demonstration projects designed to facilitate U.S. private industry's development of advanced reactors that are safe, reliable, licensable, and commercially viable. The FY 2026 Budget Request transitions oversight of the ARDP Demonstration projects from the Office of Clean Energy Demonstrations (OCED) to the Office of Nuclear Energy. The two ongoing ARDP Demonstration projects and the five Risk Reduction projects are working to overcome barriers to future deployments to unleash American energy and prosperity, through affordable, reliable, and secure energy.

Highlights of the FY 2026 Budget Request

In 2026, construction on the NRIC Demonstration of Microreactor Operations (DOME) test bed will be complete.

Oversight of the reactor demonstration elements of ARDP are transitioned from the Office of Clean Energy Demonstrations to the Office of Nuclear Energy.

With the FY 2026 funding request, funding for four of the five Risk Reduction awards is complete, at original funding profiles.

National Reactor Innovation Center ($31 million)

The National Reactor Innovation Center (NRIC) enables and accelerates the testing and demonstration of advanced reactors by utilizing the unique capabilities of U.S. national laboratories. NRIC ensures that the strategic infrastructure and assets of the national laboratories are available to enable physical validation of advanced nuclear reactor concepts, resolve technical uncertainties, and generate data relevant to safety, resilience, security, and functionality of advanced nuclear reactor concepts. NRIC works closely with R&D programs within the Office of Nuclear Energy to avoid duplication. NRIC does not conduct R&D; it ensures the connectivity necessary to enable the demonstration of selected nuclear reactor technologies and designs.

The NRIC subprogram activities include interactions with reactor developers who are considering options for demonstrating their reactor technologies as well as development of national laboratory capabilities for hosting advanced reactor demonstrations and tests. While NRIC is led by Idaho National Laboratory (INL) with significant activities at the

INL Site, resources at other national laboratories and potential nuclear reactor demonstration sites play an important role in achieving NRIC's objectives.

NRIC helps accelerate technology readiness of advanced reactors to meet the energy needs of the future. Key support to be provided by NRIC includes:

- Establishing and maintaining testing capabilities at DOE national laboratories to enable development and future demonstration of advanced reactor technologies;
- Developing complementary technologies, in conjunction with relevant Nuclear Energy R&D programs, such as application of digital engineering philosophies and development and proof of concept of advanced construction technologies, to reduce the cost and schedule risks associated with the deployment of advanced reactors;
- Assisting with environmental reviews, as appropriate, and DOE authorization related to testing of advanced reactor technologies;
- Developing a resource network of sites, facilities, and capabilities suitable for performing key R&D, experiments, tests, or fabrications, and for hosting advanced reactor demonstrations; and
- Identifying and facilitating resolution of experimental capability gaps which are vital to advanced reactor development and demonstration.

A key FY 2026 activity for NRIC includes support for establishing infrastructure for the testing of multiple advanced reactor concepts. The Demonstration and Operation of Microreactor Experiments (DOME) test bed will be capable of hosting experiments to support testing and development of microreactor technologies. DOME is located at the former Experimental Breeder Reactor II facility at INL to support this new mission. NRIC has partnered with a number of microreactor developers to complete engineering and experimental design activities to enable future testing of their technologies in DOME to generate data to support design and licensing activities. Construction of the DOME test bed is expected to be completed in 2026. Activities to support the establishment of the Laboratory for Operations and Testing in the United States (LOTUS) test bed are described in the Construction section of the ARDP program. It should be noted that Other Project Costs (OPCs) for the LOTUS project are reflected in the NRIC subprogram, while Total Estimated Costs (TECs) are reflected in line item 23-E-200, LOTUS.

Demonstration Reactors ($20 million)

The Advanced Reactor Demonstration element of ARDP supports two advanced reactor demonstrations through cost-shared (up to 50% government, not less than 50% industry) that were competitively awarded through a financial assistance solicitation. These projects are designed to facilitate U.S. private industry's development of advanced reactors that are safe, reliable, licensable, and commercially viable. The program goals include affordability in construction and operation compared to competing, alternative sources of energy in the near- and mid-term and provide significant improvements in safety, security, economics, and environmental impacts over current nuclear power plant designs. The program is designed to have the ability to design, site, license, procure, construct, and operate a fuel fabrication facility and reactor, with the ability to demonstrate a path to achieving commercial operation with a customer.

The two ARDP projects are:

- **Demonstration 1 ($10 million):** X-energy plans to demonstrate a 320 MWe, 4-unit Xe-100 High Temperature Gas-Cooled Reactor (HTGR) at the Dow Chemical Company's Long Mott Generating Station site in Seadrift, Texas.

  X-energy's FY 2026 primary activities focus on supporting the NRC's review of the Long Mott Generating Station Construction Permit Application for a nuclear-powered electrical generating and process steam plant; advancing plant detailed design towards construction readiness; initiating long-lead material procurements; supporting the NRC's review of the commercial-scale TRISO fuel fabrication facility (TX-1); beginning vertical construction of the TX-1 fuel fabrication facility in Oak Ridge, Tennessee; procuring testing equipment for installation at the Helium Test Facility and the X-energy Test Facility in Frederick, Maryland; and continuing TRISO fuel pebble irradiation test experiments at Idaho National Laboratory.

- **Demonstration 2 ($10 million)**: TerraPower, LLC, plans to demonstrate a 345/500 MWe Natrium Sodium Fast Reactor (SFR) commercial plant at the Kemmerer, Wyoming demonstration site.

TerraPower's FY 2026 primary activities focus on supporting the NRC's review of the Kemmerer Unit 1 Construction Permit Application; initiating site earthworks for Kemmerer Unit 1 construction; advancing the plant design to Detailed Design level of maturity; constructing the Large Sodium Test and Fill facility; construction of the Kemmerer Training Facility; establishing a HALEU procurement pathway; establishing a commercial arrangement with a utility partner and the associated operations readiness plan; initiating long lead procurements for the major designed Nuclear Island equipment; and progressing the design and licensing to construct a large scale HALEU fuel fabrication facility.

Risk Reduction for Future Demonstrations ($72 million)

The Risk Reduction for Future Demonstrations subprogram supports advanced reactor concepts with the potential for future demonstration through cost-shared (up to 80% government, not less than 20% industry) competitively awarded (through a financial assistance solicitation) projects that are designed to maximize the utility of the results across the nuclear energy industry. The projects are aimed at reducing risk and technical uncertainty for a broad range of advanced reactor designs. Project activities may include R&D to address technical challenges associated with development of technologies and methods to improve the timelines for advanced reactor deployments; the cost and schedule for delivery of nuclear products, services, and capabilities supporting these nuclear technologies; design and engineering processes; and resolution of certification challenges potentially impeding the introduction of these technologies into the marketplace. This subprogram coordinates closely with the Reactor Concepts Research, Development & Demonstration program and other relevant programs to avoid duplication, leverage existing expertise, and maximize synergies.

The five projects are:

- Kairos Power, LLC (Alameda, CA) will work to design, construct, and operate its Hermes reduced-scale test reactor. Hermes is intended to lead to the development of Kairos Power's commercial-scale fluoride salt-cooled high temperature reactor (FHR), a novel advanced nuclear reactor technology that leverages TRI-structural ISOtropic particle fuel (TRISO) fuel in pebble form combined with a low-pressure fluoride salt coolant;
- Westinghouse Electric Company, LLC (Cranberry Township, PA) will advance the design of a heat pipe-cooled microreactor;
- BWXT Advanced Technologies, LLC (Lynchburg, VA) will mature a commercially viable transportable microreactor conceptual design focused on using TRISO fuel particles to achieve higher uranium loading and an improved core design using a silicon carbide (SiC) matrix;
- Holtec Government Services, LLC (Camden, NJ) will focus on early-stage design, engineering, and licensing activities to accelerate the development of its light water-cooled small modular reactor (SMR); and
- Southern Company Services Inc. (Birmingham, AL) will lead a project to design, construct, and operate the Molten Chloride Reactor Experiment (MCRE), a critical nuclear test supporting molten salt reactor systems and components demonstrations.

FY 2026 activities focus on continuing design, manufacturing, and construction activities; supporting further interactions with the NRC on high impact regulatory related topics; conducting activities to resolve technical, operational, and regulatory challenges; and developing and executing plans for establishing infrastructure and support capabilities to enable execution of the Risk Reduction projects and future commercialization activities.

Regulatory Development ($15 million)

The Regulatory Development subprogram coordinates with NRC and industry to address and resolve key regulatory framework issues that directly impact the "critical path" to advanced reactor demonstration and deployment. Part of the subprogram focuses on regulatory modernization activities such as developing adaptations of light water reactor (LWR)-based regulations for non-LWR advanced reactors, finalizing the establishment of risk-informed and performance-based license application guidance, and establishing clear expectations for license application content and review criteria. The Regulatory Development subprogram supports limited R&D aimed at producing broadly applicable results than can be used by an array of private sector companies to inform their regulatory requirements. Design-specific regulatory gaps for advanced reactors, including fast reactors, gas-cooled reactors, and molten salt reactors, are also addressed. The Regulatory Development Program is supporting key activities to accelerate advanced reactor licensing including exploring the use of Artificial Intelligence to reduce licensing times. In FY 2026, the Regulatory Development subprogram will continue to provide resources for cost-share grants to applicants for the purpose of funding a portion of NRC fees for pre-application and licensing application review activities.

Advanced Reactor Safeguards and Security ($9 million)

The Advanced Reactor Safeguards and Security (ARSS) subprogram evaluates safeguards and security issues unique to advanced reactor designs. R&D is strongly aligned with vendor needs to drastically reduce physical and cybersecurity costs and inform materials accountancy design for new fuels and reactor types. The research within the ARSS subprogram supports DOE efforts to enable the rapid deployment and export of next-generation nuclear technology and improves U.S. energy security. ARSS promotes robust efficient physical security and cybersecurity protection for advanced reactors through new technologies and approaches. Program research also provides assurance that nuclear material will be tracked and secured from theft or diversion domestically.

All three major elements, physical security, cybersecurity, material control and accountability (MC&A), work to mature areas of R&D and program activities through vendor engagements. This work is completed at DOE national laboratories and generates lessons learned and deliverables to share broadly with the advanced reactor community. The ARSS subprogram also coordinates with the NRC, Nuclear Energy Institute (NEI), National Nuclear Security Administration (NNSA), nuclear industry, and university community to collaborate on the development of technologies and methods to ensure security of advanced reactors.

Key FY 2026 activities include expanding cybersecurity work toward demonstration of wireless remote monitoring and operations, developing physical protection system, MC&A, and Cyber by design recommendations reports for all classes of advanced reactors, demonstrating new measurement technologies on surrogate salt materials representative of molten salt reactor fuel, and collaboration with the NRC on consequence analysis for microreactors to tailor on-site responder requirements.

Construction: 23-E-200, Laboratory for Operations and Testing in the United States ($7.559 million)

23-E-200, Laboratory for Operations and Testing in the United States (LOTUS)
The LOTUS Project will enable and support the development and deployment of advanced nuclear systems by providing the infrastructure for advanced reactor developers to securely test fueled experiments that utilize Safeguards Category I materials for operation. First-of-a-kind nuclear technology developers need a location for testing, validating, and maturing new technologies or concepts, and for validating the safety and workability of systems or components individually or as part of the overall system. Advanced reactor developers also need to generate data on key phenomena relevant to the design and safe operation of their designs to aid in future licensing and commercial deployment of these technologies. Although not required for the commercial concepts, some experiments require higher enrichment fuel to keep the size of the experiment small while ensuring that neutronics and thermal hydraulics are representative of commercial designs. The LOTUS Project will make available a robust facility that can provide the appropriate containment capabilities and supporting infrastructure. The anticipated first user of the NRIC-LOTUS test bed is the Molten Chloride Reactor Experiment (MCRE) being developed by Southern Company Services, TerraPower and INL.

On March 21, 2025, the Secretary of Energy issued a memorandum to Heads of Departmental Elements and National Laboratory Directors revising delegated project authority within DOE Order 413.3B from $50 million to $300 million specific to the National Laboratories managed under Management and Operating Contracts. Given the cost range for the LOTUS project is under $300 million, project authority was delegated to INL. DOE will continue to employ project management best practices to ensure judicious management of the project while ensuring efficiency and flexibility in successfully executing this critical project.

The FY 2026 budget request supports initiation of construction activities, and continuation of long lead procurements.

Advanced Reactor Demonstration Program
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
National Reactor Innovation Center	63,000	63,000	31,000	-32,000	-50.8%
Demonstration 1	30,000	30,000	10,000	-20,000	-66.6%
Demonstration 2	30,000	30,000	10,000	-20,000	-66.6%
Risk Reduction for Future Demonstration	137,222	137,222	72,000	-65,222	-47.5%
Regulatory Development	14,030	17,030	15,000	-2,030	-11.9%
Advanced Reactor Safeguards and Security	9,172	9,172	9,000	-172	-1.9%
Construction: 23-E-200, LOTUS	32,000	16,112	7,559	-8,553	-53.1%
Total, Advanced Reactors Demonstration Program	**315,424**	**302,536**	**154,559**	**-147,977**	**-48.9%**

Explanation of Changes for Advanced Reactor Demonstration Program

The decrease in the NRIC budget from $63 million to $31 million reflects completion of construction of the DOME test bed.

The decrease in the Demonstration 1 and Demonstration 2 project budgets from $30 million to $10 million reflects an intent to continue to apply IIJA appropriations in FY 2026.

The decrease in the Risk Reduction for Future Demonstrations budget from $137.222 million to $72 million reflects completion of funding for four of the five Risk Reduction projects, based on currently approved funding profiles.

The decrease in the Regulatory Development budget from $17.03 million to $15 million reflects resolution of some key advanced reactor policy issues as advanced reactors move to the demonstration phase.

The decrease in the Advanced Reactor Safeguards and Security budget from $9.172 million to $9 million reflects successful completion of a vendor engagement to validate program research in a real-world environment.

Advanced Reactor Demonstration Program
Construction Projects Summary ($K)

	Total	Prior Years	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted
23-E-200, LOTUS, INL						
Total Estimated Cost (TEC)	77,923	22,252	32,000	16,112	7,559	-8,553
Other Project Costs (OPC)[1]	20,277	5,557	3,000	2,000	8,500	+6,500
Total Project Cost (TPC) Project Number 23-E-200	**98,200**	**27,809**	**35,000**	**18,112**	**16,059**	**-2,053**
Total All Construction Projects						
Total Estimated Cost (TEC)	77,923	22,252	32,000	16,112	7,559	-8,553
Total Other Project Costs (OPC)	20,277	5,557	3,000	2,000	8,500	+6,500
Total Project Cost (TPC) All Construction Projects	**98,200**	**27,809**	**35,000**	**18,112**	**16,059**	**-2,053**

[1] OPC funding for 23-E-200, LOTUS is included within the National Reactor Innovation Center subprogram line.

23-E-200, Laboratory for Operations and Testing in the United States
Idaho National Laboratory
Project is for Design and Construction

1. Summary, Significant Changes, and Schedule and Cost History

Summary

The fiscal year (FY) 2026 Budget Request for the Laboratory for Operations and Testing in the United States (LOTUS) project is $7,559,000 of Total Estimated Cost (TEC) funding and $8,500,000 of Other Project Costs (OPC) funding. The Total Project Cost (TPC) range for the design and construction of LOTUS is $65,600,000 to $98,200,000 and the project completion date estimate of 2Q FY 2030. The LOTUS project will provide a dynamic test bed to support testing of fueled experiments consistent with DOE safety and security requirements.

The requested capital funding in FY 2026 supports the initiation of construction activities following approval of the performance baseline and approval of start of construction, and continuation of long lead procurements.

Significant Changes

This Construction Project Data Sheet (CPDS) is an update of the FY 2025 CPDS and does not include a new start for FY 2026.

The project achieved Approval of Alternative Selection and Cost Range on June 1, 2023. The approved alternative is to modify the existing Zero Power Physics Reactor (ZPPR) facility at the Materials and Fuels Complex, Idaho National Laboratory (INL), and the TPC range was defined as $65,600,000 to $98,200,000, with a project completion date of 2Q FY 2030, including schedule reserve and contingency. The project completed final design on September 18, 2024, and has received multiple construction subcontract bids currently under evaluation.

The final design reflects a better understanding of the increased complexity associated with modification of the existing facility, including additional requirements for meeting nuclear facility seismic requirements, establishment of the new access tunnel to support the installation of advanced reactors, and retaining the confinement capability of the structure. There was a 6-month delay in completion of preliminary/final design, primarily driven by the detailed seismic analysis and design required to ensure that the existing structure could meet current nuclear facility requirements. This delay has resulted in project cost escalation.

The received construction bids reflect increased costs associated with excavation and more extensive shoring of the new access tunnel necessary to maintain the structural integrity of immediately adjacent nuclear material storage capabilities; the installation of micro-piles to underlying basalt to provide seismic stability of the new access tunnel and hatch; additional rock removal and drainage based on improved understanding of field conditions; increased costs due to overall market demand for fabricated items, specialty nuclear components (e.g., isolation valves), and electrical/instrumentation and controls components; the higher costs associated with conducting extensive construction activities within a highly secure area; and prevailing regional construction market conditions.

Given the significantly increased costs reflected by the received construction bids, the project is not updating Total Project Costs in FY 2026. DOE is carefully reviewing and considering the construction bids, performing an Independent Cost Estimate against the received bids, and considering alternatives with respect to the May 23, 2025, Executive Order 14301 *Reforming Nuclear Reactor Testing at the Department of Energy*.

On February 27, 2025, the project received Approval of Long Lead Procurement, and initiated a phased procurement approach to mitigate risks and adequately integrate the delivery of certain items into the construction phase.

On March 21, 2025, the Secretary of Energy issued a memorandum to Heads of Departmental Elements and National Laboratory Directors revising delegated project authority within DOE Order 413.3B from $50 million to $300 million specific to the National Laboratories managed under Management and Operating Contracts. Given the cost range for the LOTUS project is under $300 million, project authority was delegated to Idaho National Laboratory. DOE will continue to employ project management best practices to ensure judicious management of the project while ensuring efficiency and flexibility in successfully executing this critical project.

Critical Milestone History

(Fiscal Quarter or Date)

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	Final Design Complete	CD-2/3	D&D Complete	CD-4
FY 2022	3/8/2022	1/13/2022	TBD	TBD	TBD	N/A	TBD
FY 2023	3/8/2022	1/13/2022	TBD	TBD	TBD	N/A	TBD
FY 2024	3/8/2022	1/13/2022	TBD	TBD	TBD	N/A	TBD
FY 2025	3/8/2022	1/13/2022	6/1/2023	3Q FY 2024	2Q FY 2025	N/A	2Q FY 2030
FY 2026	3/8/2022	1/13/2022	6/1/2023	9/18/2024	1Q FY 2026	N/A	2Q FY 2030

CD-0 – Approve Mission Need for a construction project with a conceptual scope and cost range
Conceptual Design Complete – Actual date the conceptual design was completed (if applicable)
CD-1 – Approve Alternative Selection and Cost Range
Final Design Complete – Estimated/Actual date the project design will be/was complete(d)
CD-2/3 – Approve Performance Baseline, and Approve Start of Construction
Construction Complete – Completion of construction
CD-4 – Approve Start of Operations or Project Closeout

Fiscal Year	Performance Baseline Validation	CD-3A	CD-3B
FY 2022	TBD	N/A	N/A
FY 2023	TBD	N/A	N/A
FY 2024	TBD	N/A	N/A
FY 2025	TBD	N/A	N/A
FY 2026	TBD	2/27/2025	N/A

CD-3A – Approve Long-Lead Procurements, Original Scope
CD-3B – Approve Long-Lead Procurements, Revised Scope (as needed)

Project Cost History

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Total	TPC
FY 2022	10,992	52,231	63,223	33,777	97,000
FY 2023	10,992	52,231	63,223	33,777	97,000
FY 2024	10,992	52,231	63,223	33,777	97,000
FY 2025	15,600	57,400	73,000	25,200	98,200 [a]
FY 2026	11,496	66,427	77,923	20,277	98,200 [a]

a. Project costs based on approved CD-1

No construction will be performed until the project performance baseline is validated and start of construction is approved.

2. Project Scope and Justification

Scope

Laboratory for Operations and Testing in the United States (LOTUS) will provide a dynamic test bed to support testing of fueled experiments. The test bed will be designed and constructed to meet the following minimum requirements:

- The test bed capability must have the supporting infrastructure to safely test fueled advanced reactor experiments and interface, as necessary, with reactor support systems.

- The test bed will provide approximately 10,000 square feet of new constructed area to support access roads and concrete pads, not enclosed or covered, for necessary equipment.
- The test bed capability must be able to satisfy Natural Phenomena Hazard (NPH) criteria. As a Hazard Category 2 nuclear facility, the test bed must meet the NPH requirements of DOE Order 420.1C, "Facility Safety", including seismic, wind, flood, and volcanic hazards. Design and construction must ensure that systems, structures, and components will perform safety functions during and after design basis NPH events.
- The test bed capability must be able to provide confinement capability during postulated accident and design basis events. Specifically, it must prevent or control radioactive material release to the environment either in operation or from an accident; and it must ensure air supply and exhaust are controlled, and typically filtered. Confinement may be provided by some combination of leak tightness in the structure and active ventilation to maintain a negative pressure.
- The test bed capability must have the infrastructure (physical and resource) to appropriately control safeguards category I materials.
- The test bed capability must provide the minimum features necessary to conduct an experiment to validate an advanced reactor design. The test bed capability must be available for advanced reactor testing for a minimum of 20 years from the start of operation.

Key Performance Parameters (KPPs)

A KPP is a vital characteristic, function, requirement, or design basis that, if changed, would have a major impact on the facility or system performance, scope, schedule, cost, risk, or the ability of an interfacing project to meet its mission requirements. The preliminary threshold KPPs represent the minimum acceptable scope for successful delivery of the Laboratory for Operations and Testing in the United States (LOTUS) project. Achievement of KPPs will be a prerequisite for approval of project completion. Final KPPs will be established when the project's Performance Baseline is established.

Preliminary Threshold KPPs

Performance Measure	Threshold
Provide the facility infrastructure to support the operation of experimental/test reactors that utilize fuels requiring enhanced security requirements.	Establishment of core infrastructure needed to support operation of experimental/test reactors in the test bed, with clearly defined boundaries: • Electrical supply and back-up power (as necessary) • Ventilation/exhaust for test bed cell • Support systems (e.g., compressed air, argon, fire protection, oxygen monitoring, criticality monitoring, chilled water loop system) • Establishment of control room area with appropriate data connections
Establish a Hazard Category 2 nuclear facility capable of supporting tests using safeguards category I quantities of material	Establishment of equipment access capability with required confinement and security features Approved Safety Analysis Report addressing test bed capability Completion of DOE Operational Readiness Review for the test bed capability in accordance with DOE Order 425.1E Completion of Vulnerability Assessment demonstrating compliance with applicable security requirements

Completion of operational readiness activities for first reactor tests utilizing LOTUS will not be requisite for determining successful project completion.

Funds appropriated under this data sheet may be used to provide independent assessments related to project planning and execution.

Justification

Following the advent of nuclear power generation, the United States was an international leader in the development and testing of advanced nuclear reactor technologies. DOE and its predecessor organizations appropriately provided nuclear fuels and materials development capabilities and large-scale demonstration facilities in support of currently deployed nuclear reactor technologies. However, the existing industrial and DOE test bed facilities are not currently capable of supporting fueled advanced reactor tests and international facilities are not an option due to concerns with access, transportation, and technical equivalencies. Lack of domestic advanced reactor test bed capabilities is hampering the U.S. ability to move forward in the development of next generation nuclear reactors.

The Nuclear Energy Innovation Capabilities Act of 2017 (P.L. 115-248) (NEICA), Section 958, Enabling Nuclear Energy Innovation, authorized the National Reactor Innovation Center (NRIC) as a program to enable the testing and demonstration of reactor concepts to be proposed and funded, in whole or in part, by the private sector. As a result, the DOE Office of Nuclear Energy launched the NRIC in August 2019. NRIC is charged with developing the infrastructure needed for the testing and demonstration of multiple advanced reactor concepts. To fulfill that charge, NRIC has been exploring options to develop test bed capabilities to provide industry partners the infrastructure to startup, test, and operate fueled advanced reactor experiments in a safe and economical manner.

Establishment of the LOTUS capability will provide industry with the infrastructure necessary to support development and testing of fueled experiments requiring safeguards category I materials for operation. Testing of these reactor experiments will provide real data that can be used to validate models and support subsequent licensing activities to bring the reactors to market.

Establishment of the test bed is consistent with Congressional direction provided in the joint explanatory statements accompanying the Consolidated Appropriations Acts of 2021 and 2022.

3. Financial Schedule

(Dollars in Thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 2022	2,252	2,252	0
FY 2023	8,992	8,992	1,529
FY 2024	252	252	9,967
Total, Design (TEC)	**11,496**	**11,496**	**11,496**
Construction			
FY 2023	11,008	11,008	0
FY 2024	31,748	31,748	0
FY 2025	16,112	16,112	5,000
FY 2026	7,559	7,559	46,059
Outyears	0	0	15,368
Total, Construction (TEC)	**66,427**	**66,427**	**66,427**
Total Estimated Costs (TEC)			
FY 2022	2,252	2,252	0
FY 2023	20,000	20,000	1,529
FY 2024	32,000	32,000	9,967
FY 2025	16,112	16,112	5,000
FY 2026	7,559	7,559	46,059

	Budget Authority (Appropriations)	Obligations	Costs
Outyears	0	0	15,368
Total TEC	**77,923**	**77,923**	**77,923**
Other Project Costs			
FY 2021	3,957	3,957	1,037
FY 2022	600	600	2,674
FY 2023	1,000	1,000	802
FY 2024	3,000	3,000	658
FY 2025	2,000	2,000	2,100
FY 2026	8,500	8,500	8,700
Outyears	1,220	1,220	4,306
Total OPC	**20,277**	**20,277**	**20,277**
Total Project Costs (TPC)			
FY 2021	3,957	3,957	1,037
FY 2022	2,852	2,852	2,674
FY 2023	21,000	21,000	2,331
FY 2024	35,000	35,000	10,625
FY 2025	20,748	20,748	7,100
FY 2026	16,059	16,059	54,759
Outyears	1,220	1,220	19,674
Grand Total	**98,200**	**98,200**	**98,200**

4. Details of Project Cost Estimate

(Budget Authority in Thousands of Dollars)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design			
Design	11,496	13,180	TBD
Contingency	0	2,420	TBD
Total, Design	11,496	15,600	TBD
Construction			
Site Work	2,735	2,735	TBD
Equipment	0	0	TBD
Construction	43,285	43,285	TBD
Other, as needed	0	0	TBD
Contingency	20,407	11,380	TBD
Total, Construction	66,427	57,400	TBD

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Other TEC (if any)	N/A	N/A	N/A
Cold Startup	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, Other TEC	N/A	N/A	N/A
Total Estimated Cost	77,923	73,000	TBD
Contingency, TEC	20,407	13,800	TBD
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Design/Planning	4,620	4,620	TBD
Other OPC Costs	12,757	17,680	TBD
Contingency	2,900	2,900	TBD
Total, OPC	20,277	25,200	TBD
Contingency, OPC	2,900	2,900	TBD
Total Project Cost	98,200	98,200	TBD
Total Contingency (TEC+OPC)	23,307	16,700	TBD

5. Schedule of Appropriation Requests

(Dollars in Thousands)

Request Year	Type	Prior Years	FY 2023	FY 2024	FY 2025	FY 2026	Outyears	Total
FY 2022	TEC	2,000	20,000	32,000	N/A	N/A	9,223	63,223
	OPC	4,557	1,000	8,000	N/A	N/A	20,220	33,777
	TPC	6,557	21,000	40,000	N/A	N/A	29,443	97,000
FY 2023	TEC	2,000	20,000	32,000	N/A	N/A	9,223	63,223
	OPC	4,557	1,000	8,000	N/A	N/A	20,220	33,777
	TPC	6,557	21,000	40,000	N/A	N/A	29,443	97,000
FY 2024	TEC	2,000	20,000	32,000	N/A	N/A	9,223	63,223
	OPC	4,557	1,000	8,000	N/A	N/A	20,220	33,777
	TPC	6,557	21,000	40,000	N/A	N/A	29,443	97,000
FY 2025	TEC	2,252	20,000	32,000	18,748	N/A	0	73,000
	OPC	4,557	1,000	3,000	9,000	N/A	7,643	25,200
	TPC	6,809	21,000	35,000	27,748	N/A	7,643	98,200
FY 2026	TEC	2,252	20,000	32,000	16,112	7,559	0	77,923
	OPC	4,557	1,000	3,000	2,000	8,500	1,220	20,277
	TPC	6,809	21,000	35,000	18,112	16,059	1,220	98,200

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	2Q FY 2030
Expected Useful Life (number of years)	20

Expected Future Start of D&D of this capital asset (fiscal quarter)	2Q FY 2050

Related Funding Requirements
(Budget Authority in Thousands of Dollars)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations and Maintenance	22,412	22,412	575,000	575,000

Life-cycle operations and maintenance costs include escalation.

7. D&D Information

The new area being constructed in this project is modifying an existing facility.

	Square Feet
New area being constructed by this project at INL	Up to 10,000
Area of D&D in this project at INL	0
Area at INL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	0
Area of D&D in this project at other sites	0
Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	0
Total area eliminated	0

Site location, building name or numbers, and square footages of existing facilities to be replaced: N/A

As an advanced reactor test bed (laboratory facility), the proposed LOTUS is not subject to Freeze the Footprint (>50% lab space).

8. Acquisition Approach

As a Hazard Category 2 nuclear facility, design, and construction of the LOTUS must be integrated with ongoing nuclear operations activities. Design and construction must also be coordinated/integrated with nuclear research and development programs. A design-bid-build project delivery method managed by the INL management and operating contractor will be used for the design and construction of LOTUS. A firm, fixed-price construction subcontract is anticipated for construction of the LOTUS test bed.

Infrastructure

Overview

Infrastructure consists of the Idaho National Laboratory (INL) Facilities Operations and Maintenance (IFM) subprogram.

The mission of the IFM subprogram is to manage the planning, acquisition, operation, maintenance, and disposition of the multi-program nuclear facilities and capabilities owned by the Office of Nuclear Energy (NE) along with the supporting infrastructure at INL. The IFM subprogram maintains the Department of Energy (DOE) mission-supporting facilities and capabilities at INL in a safe and compliant status (with DOE Orders, federal laws and regulations, and state agreements) to enable technological advancement in the existing nuclear fleet, advanced reactor pipeline, and fuel cycle missions. These facilities and capabilities support the NE research and development (R&D) necessary to revitalize and unleash nuclear energy in the United States. These key assets also support testing of naval reactor fuels, reactor core components, and a diverse range of national security technology programs for the National Nuclear Security Administration (NNSA), isotope production for the Office of Science, and other federal agencies in critical infrastructure protection, nuclear nonproliferation, and incident response. The IFM subprogram integrates and closely coordinates with research programs to ensure proper alignment and prioritization of infrastructure investments, as well as availability of infrastructure for programmatic work.

Highlights of the FY 2026 Budget Request

In FY 2026, the IFM subprogram will focus on:

- Maintaining safe and compliant operation of INL nuclear research reactors, non-reactor nuclear facilities, and radiological research facilities to support a wide range of customers while continuing investments in aging infrastructure at both the Advanced Test Reactor (ATR) Complex and Materials and Fuels Complex (MFC) to improve reliability.
- Continuing community and technical activities supporting the Agreement in Principle (AIP) with the Shoshone-Bannock Tribes, the Idaho Department of Environmental Quality, and environmental reviews and data collection to support future permits.
- Continuing compliance with Federal and State environmental laws and regulations applicable to INL as well as the 1995 Settlement Agreement with the State of Idaho, the Supplemental Agreement signed by DOE and the State of Idaho in November 2019, and the Waiver of Section K.1 of the 1995 Settlement Agreement signed in April 2025.
- In FY 2026, the Sample Preparation Laboratory (SPL) will begin operations following project completion and is accounted for under INL Non-Reactor Nuclear Research Facility Operations and Maintenance.

INL Nuclear Research Reactor Operations and Maintenance ($127,076,197)

This subcategory provides funding to support operations and maintenance of the nuclear research reactors at the ATR Complex and MFC, including the ATR, the ATR Critical Facility (ATRC), the Neutron Radiography Reactor (NRAD), and the Transient Reactor Test Facility (TREAT). ATR is the primary research reactor at INL, supporting test programs and experiments sponsored by the Office of Nuclear Energy (NE), the Naval Reactors (NR) Program, and the National Nuclear Security Administration (NNSA). ATR is also the primary scientific capability of the Nuclear Science User Facilities (NSUF) and supports universities, laboratories, and private industry. There continues to be significant R&D demand for thermal neutron irradiation at ATRC and neutron radiography and small component test irradiation at NRAD. The TREAT reactor, an air-cooled thermal spectrum test facility, continues to address technical challenges for reactor fuels related to nuclear fuel performance and qualifications. All programmatic work is funded by sponsoring federal programs, and cost to other users is determined in accordance with DOE regulations and depends upon the demands on the reactor and nature of the user

.

Activities for this subcategory in FY 2026 include:

- Maintaining ATR availability at 80% with a target of 180 irradiation days for FY 2026 to satisfy the needs of ATR users, and continuing investments to improve ATR reliability through modernization, refurbishments, and replacements of reactor systems and components, such as procuring core sets of beryllium and associated tooling.
- Continuing thermal neutron irradiation at ATRC, neutron radiography and small component testing at NRAD, and transient testing operations at TREAT consistent with approved research plans.

- Continuing evaluation and planning for modernizing or replacing end-of-life thermal neutron irradiation capabilities.

INL Non-Reactor Nuclear Research Facility Operations and Maintenance ($176,162,008)

This subcategory provides funding for operations, maintenance, and support of non-reactor nuclear and radiological research facilities primarily located at the MFC. Activities within this category sustain or improve unique nuclear and radiological capabilities essential to multiple NE R&D programs. The non-reactor nuclear research facilities support core programmatic capabilities for inspecting, fabricating, and processing a myriad of radioactive and non-radioactive materials including:

- Post Irradiation Examination (PIE) and Fresh Fuel Characterization – Receipt of irradiated fuels and materials, non-destructive examinations, destructive examinations and analyses, and mechanical testing of highly radioactive materials.
    - In FY 2026, the Sample Preparation Laboratory will begin operations following project completion and will complete the suite of facilities (along with the Hot Fuels Examination Facility and Irradiated Materials Characterization Laboratory) fulfilling near-term advanced post-irradiation examination needs that will serve as a center for advanced fuels and materials characterization, as well as development of new processes, tools, and instruments to further research. The initiation of SPL operations continues nuclear capability expansion in line with NRIC and DOE programmatic objectives and provides world-class structural material analysis capabilities focusing on non-fuel sample preparation, mechanical properties and failure modes, and micro/nano structural materials characterization.
- Experimental Fuel Fabrication – R&D on fabrication of multiple fuel types at various enrichment levels.
- Advanced Separation and Waste Form – Separation, pre-treatment technology development, electrochemical separation, and engineering scale waste form development.

This subcategory also provides funding for management of NE-owned special nuclear material (SNM) and support for Nuclear Regulatory Commission cask certifications. Activities for this subcategory in FY 2026 include:

- Operating and maintaining MFC infrastructure, facilities, and equipment to support facility availability for programmatic activities.
- Performing maintenance and refurbishment activities within MFC nuclear facilities and infrastructure consistent with the approved safety basis and continuing prioritized infrastructure investments to improve reliability and availability of key MFC facilities.
- Continuing off-site disposition of surplus NE-owned SNM consistent with the May 23, 2025, Executive Orders *Deploying Advanced Nuclear Reactor Technologies for National Security* and *Reinvigorating the Nuclear Industrial Base,* as well as programmatic needs and approved nuclear material allotment forecasts.

INL Engineering and Support Facility Operations and Maintenance ($5,132,795)

This subcategory provides funding for community and technical activities supporting the Agreement in Principle (AIP) with the Shoshone-Bannock Tribes, the Idaho Department of Environmental Quality, and environmental reviews and data collection to support future permits. This subcategory also funds Payment in Lieu of Taxes (PILT), Institute of Nuclear Power Operations, and Departmental cross-cutting infrastructure reporting requirements. Activities for this subcategory in FY 2026 include:

- Continuing to support federally funded activities to maintain operations at INL, such as PILT; environmental review and data collection to support future permits; and community support for local Shoshone-Bannock Tribes.

INL Regulatory Compliance ($17,629,000)

The subcategory provides funding for activities for continued compliance with Federal and State environmental laws and other regulations applicable to INL. Compliance activities focus on air, soil, and water monitoring and waste disposal consistent with Federal and State permit requirements and agreements such as the INL Site Treatment Plan. Regulatory activities also include efforts that support compliance with the 1995 Settlement Agreement with the State of Idaho, which governs management and disposition of spent nuclear fuel and transuranic wastes at INL. In November 2019, DOE

and the State of Idaho signed a Supplemental Agreement to the 1995 Idaho Settlement Agreement that reaffirmed DOE's and Idaho's commitment to remove Cold War legacy waste and special nuclear materials from Idaho. In April 2025, a Waiver of Section K.1 of the 1995 Settlement Agreement was signed updating the agreement. Activities for this subcategory in FY 2026 include:

- Continuing regulatory compliance program management.
- Meeting the INL Site Treatment Plan milestone for annual treatment of two cubic meters of mixed low-level waste (MLLW).
- Processing a minimum of 8 treatment batches of EBR-II fuel.
- Conducting environmental surveillance and monitoring activities.

Infrastructure
Funding ($K) (Non-Comparable)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Infrastructure					
INL Facilities Operations and Maintenance[1]	326,000	326,000	326,000	0	0%
Total, Infrastructure	**326,000**	**326,000**	**326,000**	**0**	**0%**

Explanation of Changes for Infrastructure
There is no change in total funding between INL Facilities Operations and Maintenance FY 2026 Request and FY 2025 Enacted. There are changes at the subcategory level that reflect the following shifts in funding priorities:

- The increase in funding for INL Nuclear Research Reactor Operations and Maintenance reflects continuing investments to improve ATR reliability through modernization, refurbishments, and replacements of reactor systems and components, such as procuring core sets of beryllium and associated tooling.
- The decrease in funding for INL Non-Reactor Nuclear Research Facility Operations and Maintenance reflects limiting prioritized MFC infrastructure investments to support the beginning of SPL full operations and other IFM subcategory priorities.
- The decrease in funding for INL Engineering and Support Facility Operations and Maintenance reflects decreased costs associated with activities that underpin agreements supporting work at INL.
- The increase in funding for INL Regulatory Compliance reflects continued compliance with Federal and State environmental laws and other regulations applicable to INL, including compliance with the INL Site Treatment Plan milestones and the 1995 Settlement Agreement with the State of Idaho, its 2019 Supplemental Agreement, and the April 2025 Waiver of Section K.1.

[1] Funding does not reflect the transfer of $92,800,000 in FY 2024 and FY 2025 from Naval Reactors for maintenance and operation of the Advanced Test Reactor.

Idaho Sitewide Safeguards and Security

Overview

The Idaho Sitewide Safeguards and Security (S&S) program enables Office of Nuclear Energy (NE) research and development (R&D) missions at Idaho National Laboratory (INL) by securing nuclear material, classified matter, and other vital assets from theft, diversion, espionage, unauthorized access, and other hostile acts that could cause unacceptable impacts to national security or the health and safety of the public. Located on an 890-square-mile site in eastern Idaho, INL serves as the lead nuclear energy research and development laboratory, advancing nuclear energy, national security, and other applied energy solutions in support of nuclear energy objectives. The Idaho Sitewide Safeguards and Security program supports the NE mission by providing a safe and secure environment for critical innovation and nuclear development activities.

The FY 2026 Budget Request provides direct funding for NE's S&S base program. Strategic Partnership Projects (SPP) contribute an allocable share through full cost recovery. Extraordinary security requirements, such as dedicated security for non-NE infrastructure and special projects or exercises, will be funded by SPP customers and recovered by the S&S program. Other Department of Energy (DOE) programs at INL are responsible for directly funding their S&S costs.

Highlights of the FY 2026 Budget Request

In FY 2026, the S&S program will maintain high confidence in the protection of NE-owned INL assets and provide excellent customer service through strategic, performance-based integration of advanced technologies and specialized security personnel, proactive systems maintenance, and a robust cybersecurity program. Key investment areas include protecting special nuclear material (SNM), deploying emerging security technologies, and enhancing cybersecurity capabilities to focus on the critical task of deterring, responding to, and neutralizing threats.

Program Initiatives

The Idaho Sitewide Safeguards and Security program is split into the following security disciplines:

- **Protective Forces:** Provides security personnel 24/7 across the site to deter, detect, delay, and respond to threats, ensuring asset protection during normal and emergency conditions.
- **Security Systems:** Maintains and tests physical security systems, including intrusion detection, access control, barriers, lighting, and other security equipment.
- **Information Security:** Protects and controls classified and sensitive information through various measures, including technical security counter measures and controlled unclassified information programs.
- **Cybersecurity:** Secures classified and unclassified information and electronic operations using a risk-based approach, protecting against data loss or compromise.
- **Personnel Security:** Manages access to sensitive information and positions through clearances, security awareness, U.S. citizen and foreign visitor control, the Human Reliability Program and psychological/medical assessment programs.
- **Material Control and Accountability (MC&A):** Controls and accounts for special nuclear materials to prevent diversion.
- **Program Management:** Provides policy oversight, security planning, vulnerability assessments, incident investigations, and ensures program compliance with Departmental security requirements.

Idaho Sitewide Safeguards and Security
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Idaho Sitewide Safeguards and Security					
Protective Forces	93,210	98,464	103,847	+5,383	+6%
Security Systems	14,203	14,420	15,247	+827	+6%
Information Security	4,893	3,100	-	-3,100	-100%
Cybersecurity	25,916	23,916	27,133	+3,217	+14%
Personnel Security	5,953	7,300	-	-7,300	-100%
Material Control & Accountability	7,825	7,400	8,173	+773	+10%
Program Management	8,000	5,400	5,600	+200	+4%
Total, Idaho Sitewide Safeguards and Security	**160,000**	**160,000**	**160,000**	**-**	**-%**

Explanation of Changes for Idaho Sitewide Safeguards and Security

The FY 2026 request supports investments in Protective Forces and Cybersecurity to meet operational demands and respond to complex threats. Subprogram level changes are summarized below:

- **Protective Forces:** Increase reflects costs to maintain staffing levels and associated equipment consistent with Departmental security requirements and labor wage agreements.
- **Cybersecurity:** The increase reflects investments in artificial intelligence algorithms to improve cybersecurity defense capabilities across the laboratory.
- **Information Security:** This request level represents a shift to cost recovery.
- **Personnel Security:** This request level represents a shift to cost recovery.

Idaho Sitewide Safeguard and Security Reimbursable Costs

The FY 2026 Budget Request provides direct funding for NE's S&S base program. Strategic Partnership Projects (SPP) contribute an allocable share through full cost recovery. Starting in FY 2026, the Information and Personnel Security functions will transition from direct funding to full cost recovery given the transactional nature of the work. Information regarding SPP full cost recovery estimates is provided on the table below:

($K)

	FY 2024	FY 2025	FY 2026	FY 2026 Request vs FY 2025 Enacted	
				$	%
Idaho National Laboratory	12,852	16,035	30,234	+14,199	+89%

Overview

Program Direction provides the federal staffing resources and associated costs required to support the overall direction and execution of the Office of Nuclear Energy (NE) programs. NE has staff strategically located in multiple locations: Washington, D.C. Headquarters, Nevada Field Office, and the Idaho Operations Office. Activities within the site offices support inherently federal functions that facilitate the efficient execution of Department of Energy (DOE) programs or directly execute DOE mandated safety, security, business functions, and public outreach. In addition to NE federal personnel, Program Direction supports select federal staff and support for the Office of Human Capital Service Center.

The Support Services subprogram allows the Department to cost-effectively hire the best available industry experts to support federal staff in managing the nuclear programs and complex activities. The ability to acquire expertise quickly and on an "as needed basis" provides flexibility in team composition as the needs of NE evolve. Program Direction also includes the Other Related Expenses subprogram, which provides NE's directed funding contribution to the Department's Working Capital Fund (WCF). The WCF supports specific Departmental services and activities that are shared across DOE including: employee health and testing services, and consolidated training and recruitment initiatives; all established in previous fiscal years and supported in FY 2026.

In addition to appropriated funds, NE manages approximately $450 million annually from other activities such as: reimbursable funding from the National Aeronautics and Space Administration (NASA) and the Department of Homeland Security (DHS).

The FY 2026 Request will allow the Office of Nuclear Energy to support its mission, address succession planning for critical technical positions, as well as support for the International Nuclear Energy Cooperation program focused on market access.

Highlights of the FY 2026 Budget Request

NE reflects a reduction in the workforce to support the Department's reorganization efforts and the Administration's goals and priorities. NE plans on achieving a staffing level of 251.8 in FY 2026. Program Direction provides costs associated with federal workforce staffing to include salaries, benefits, travel, training, and other related expenses. Program Direction funds also provide for costs associated with contractor services managed under the direction of the federal workforce.

Program Direction
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Salaries and Benefits	30,069	31,920	31,501
Travel	1,462	1,585	2,032
Support Services	7,548	6,033	6,033
Other Related Expenses	8,272	6,711	7,319
Total, Washington Headquarters	**47,351**	**46,249**	**45,975**
Salaries and Benefits	1,795	1,556	1,556
Travel	-	-	-
Support Services	-	-	-
Other Related Expenses	85	115	115
Total, Nevada Field Office	**1,880**	**1,671**	**1,671**
Salaries and Benefits	27,698	29,135	28,444
Travel	547	200	200
Support Services	4,544	4,085	4,085
Other Related Expenses	4,200	5,715	5,715
Total, Idaho Operations Office	**36,989**	**39,135**	**38,444**
Salaries and Benefits	59,562	62,611	61,501
Travel	2,009	1,785	2,232
Support Services	12,092	10,118	10,118
Other Related Expenses	13,337	12,486	13,149
International Nuclear Energy Cooperation	3,000	3,000	1,000
Total, Program Direction	**90,000**	**90,000**	**88,000**
Federal FTEs	**277**	**294**	**251.8**
Technical Support	2,419	2,024	2,024
Management Support	9,673	8,094	8,094
Total, Support Services	**12,092**	**10,118**	**10,118**
Working Capital Fund	7,815	7,815	7,815
Rent, Utilities, and Facilities	1,273	1,273	1,273
Training	209	209	209
Other Services	4,040	3,189	3,852
Total, Other Related Expenses	**13,337**	**12,486**	**13,149**

Program Direction
Activities and Explanation of Changes
($K)

FY 2025 Enacted	FY 2026 Request	Explanation of Changes FY 2026 Request vs FY 2025 Enacted
Program Direction		
$90,000	**$88,000**	**-$2,000**
Salaries and Benefits		
$62,611	*$61,501*	*-$1,110*
Provides salaries and benefits for 291 FTEs.	Provides salaries and benefits for 251.8 FTEs.	This decrease of 39.2 FTEs reflects the reorganization efforts for the Department of Energy.
Travel		
$1,785	*$2,232*	*+$447*
Provides for travel by the federal staff including any necessary permanent change of station (PCS) costs.	Provides for travel by the federal staff including any necessary PCS costs.	This increase is due to the estimated costs to support activities such as PCS and other travel requirements.
Support Services		
$10,118	*$10,118*	*$-*
Provides for technical and administrative support services for the NE federal staff.	Provides for technical and administrative support services for the NE federal staff.	This funding continues to provide technical and administrative support services for NE federal staff.
Other Related Expenses		
$12,486	*$13,149*	*+$663*
Provides for NE's share of goods and services procured through the Department's Working Capital Fund (WCF); rents and utilities associated with the Idaho Operations Office; federal training expenses; and other miscellaneous expenses.	Provides for NE's share of goods and services procured through the Department's Working Capital Fund (WCF); rents and utilities associated with the Idaho Operations Office; federal training expenses; and other miscellaneous expenses.	This increase supports WCF, EITS, and general training costs associated with Federal workforce expenses.
International Nuclear Energy Cooperation		
$3,000	*$1,000*	*-$2,000*
Provides for NE's International Nuclear Energy Cooperation program	Provides funding in support of NE's International Nuclear Energy Cooperation program focused on market access.	Reflects a reduction of funding to focus on market access.

DEPARTMENT OF ENERGY
Funding by Site Detail
TAS_0319 - Nuclear Energy - FY 2026
(Dollars in Thousands)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 President's Budget
Ames Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	0	184	0
Total Ames Laboratory	**0**	**184**	**0**
Argonne National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	700	555	0
Advanced Reactor Technologies	7,000	9,710	9,200
Integrated Energy Systems	0	2,056	3,000
Reactor Concepts RD&D	7,000	11,766	12,200
Materials Recovery and Waste Form Development	3,184	2,840	2,457
Accident Tolerant Fuels	30	26	26
TRISO Fuel and Graphite Qualification	120	0	0
Fuel Cycle Laboratory R&D	3,403	1,760	1,760
Advanced Nuclear Fuel Availability	250	250	0
Used Nuclear Fuel Disposition R&D	1,141	360	2,000
Integrated Waste Management System	2,848	2,000	2,000
Next Generation Fuels	0	500	400
Fuel Cycle Research & Development	10,976	7,736	8,643
Crosscutting Technology Development	6,059	0	0
Nuclear Energy Advanced Modeling and Simulation	6,474	6,785	6,800
Nuclear Science User Facilities	375	230	500
Advanced Materials and Manufacturing Technologies	0	3,500	3,500
Advanced Sensors and Instrumentation	0	265	260
Nuclear Energy Enabling Technologies	12,908	10,780	11,060
National Reactor Innovation Center	3,625	2,680	3,000
Regulatory Development	4,230	1,140	1,000
Advanced Reactor Safeguards	300	885	885
Advanced Reactors Demonstration Program	8,155	4,705	4,885
Program Direction - Nuclear Energy	335	0	0
Total Argonne National Laboratory	**40,074**	**35,542**	**36,788**
Brookhaven National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	100	200	0
Accident Tolerant Fuels	305	262	262
Fuel Cycle Laboratory R&D	1,008	521	521
Next Generation Fuels	0	500	400
Fuel Cycle Research & Development	1,313	1,283	1,183
Advanced Reactor Safeguards	350	200	200
Advanced Reactors Demonstration Program	350	200	200
Total Brookhaven National Laboratory	**1,763**	**1,683**	**1,383**
Chicago Operations Office			
Materials Recovery and Waste Form Development	7	0	0
Fuel Cycle Research & Development	7	0	0
Total Chicago Operations Office	**7**	**0**	**0**

Idaho National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	27,264	33,894	31,250
Light Water Reactor Sustainability	12,745	14,835	17,514
Advanced Reactor Technologies	27,200	46,085	36,100
Integrated Energy Systems	0	6,257	6,725
Reactor Concepts RD&D	39,945	67,177	60,339
Materials Recovery and Waste Form Development	37,114	19,763	38,127
Accident Tolerant Fuels	36,044	26,000	21,044
TRISO Fuel and Graphite Qualification	25,380	0	0
Fuel Cycle Laboratory R&D	18,672	7,072	7,072
Advanced Nuclear Fuel Availability	12,905	39,405	0
Used Nuclear Fuel Disposition R&D	1,617	6,000	7,000
Integrated Waste Management System	5,342	6,000	6,000
Next Generation Fuels	0	44,654	41,025
Fuel Cycle Research & Development	137,074	148,894	120,268
Crosscutting Technology Development	14,600	0	0
Nuclear Energy Advanced Modeling and Simulation	10,942	11,400	11,435
Nuclear Science User Facilities	31,650	32,340	32,070
Advanced Materials and Manufacturing Technologies	0	4,500	4,500
Gateway for Accelerated Innovation in Nuclear	0	6,300	4,300
Advanced Sensors and Instrumentation	0	3,580	3,020
Nuclear Energy Enabling Technologies	57,192	58,120	55,325
National Reactor Innovation Center	57,875	58,806	25,955
Risk Reduction for Future Demonstrations	20,000	22,000	6,240
Regulatory Development	3,500	4,345	1,930
Advanced Reactor Safeguards	50	1,347	1,300
23-E-200 LOTUS Project	32,000	16,112	7,559
Advanced Reactors Demonstration Program	113,425	102,610	42,984
INL Facilities Operations and Maintenance	320,611	320,755	320,942
Infrastructure	320,611	320,755	320,942
Idaho Sitewide Safeguards & Security (050)	158,600	158,600	160,000
Program Direction - Nuclear Energy	2,744	2,744	4,250
Total Idaho National Laboratory	**856,855**	**892,794**	**795,358**

Idaho Operations Office			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	63,567	76,741	605
Advanced Small Modular Reactor RD&D	10,000	0	0
Light Water Reactor Sustainability	21,955	17,825	7,636
Advanced Reactor Technologies	600	700	600
Integrated Energy Systems	0	1,001	75
Reactor Concepts RD&D	32,555	19,526	8,311
Materials Recovery and Waste Form Development	314	0	0
Accident Tolerant Fuels	64,535	57,114	56,170
TRISO Fuel and Graphite Qualification	220	0	0
Advanced Nuclear Fuel Availability	5,558	5,558	0
Used Nuclear Fuel Disposition R&D	3,500	13,955	12,500
Integrated Waste Management System	5,275	5,000	9,000
Fuel Cycle Research & Development	79,402	81,627	77,670
Nuclear Energy Advanced Modeling and Simulation	220	225	250
Nuclear Science User Facilities	220	230	230
Advanced Sensors and Instrumentation	0	60	60
Nuclear Energy Enabling Technologies	440	515	540
National Reactor Innovation Center	500	500	500
Risk Reduction for Future Demonstrations	30,000	103,622	49,560
Regulatory Development	220	225	10,220
Advanced Reactor Safeguards	0	70	75

Advanced Reactors Demonstration Program	30,720	104,417	60,355
INL Facilities Operations and Maintenance	3,459	3,808	3,558
Infrastructure	3,459	3,808	3,558
Idaho Sitewide Safeguards & Security (050)	1,400	1,400	0
Program Direction - Nuclear Energy	34,245	34,245	34,245
Total Idaho Operations Office	**245,788**	**322,279**	**185,284**
Lawrence Berkeley National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	200	400	0
Used Nuclear Fuel Disposition R&D	3,968	3,000	0
Next Generation Fuels	0	220	300
Fuel Cycle Research & Development	3,968	3,220	300
Nuclear Energy Advanced Modeling and Simulation	150	150	150
Nuclear Energy Enabling Technologies	150	150	150
Total Lawrence Berkeley National Laboratory	**4,318**	**3,770**	**450**
Lawrence Livermore National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	100	0	0
Used Nuclear Fuel Disposition R&D	359	300	0
Integrated Waste Management System	0	25	0
Fuel Cycle Research & Development	359	325	0
Total Lawrence Livermore National Laboratory	**459**	**325**	**0**
Los Alamos National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	917	326	0
Advanced Reactor Technologies	1,000	2,385	2,000
Reactor Concepts RD&D	1,000	2,385	2,000
Materials Recovery and Waste Form Development	250	250	216
Accident Tolerant Fuels	5,275	4,526	4,526
Fuel Cycle Laboratory R&D	2,848	1,473	1,473
Used Nuclear Fuel Disposition R&D	2,970	1,500	0
Next Generation Fuels	0	2,500	1,875
Fuel Cycle Research & Development	11,343	10,249	8,090
Crosscutting Technology Development	650	0	0
Nuclear Energy Advanced Modeling and Simulation	3,711	3,475	3,965
Advanced Materials and Manufacturing Technologies	0	522	700
Nuclear Energy Enabling Technologies	4,361	3,997	4,665
Advanced Reactor Safeguards	415	490	490
Advanced Reactors Demonstration Program	415	490	490
Total Los Alamos National Laboratory	**18,036**	**17,447**	**15,245**
National Renewable Energy Laboratory			
Integrated Energy Systems	0	186	200
Reactor Concepts RD&D	0	186	200
Crosscutting Technology Development	106	0	0
Nuclear Energy Enabling Technologies	106	0	0
National Reactor Innovation Center	2,000	0	0
Advanced Reactors Demonstration Program	2,000	0	0
Program Direction - Nuclear Energy	335	335	0
Total National Renewable Energy Laboratory	**2,441**	**521**	**200**
Nevada Field Office			
Program Direction - Nuclear Energy	1,880	1,674	1,674
Total Nevada Field Office	**1,880**	**1,674**	**1,674**

Oak Ridge Institute for Science and Education			
Program Direction - Nuclear Energy	171	0	0
Total Oak Ridge Institute for Science and Education	**171**	**0**	**0**
Oak Ridge National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	2,833	835	0
Light Water Reactor Sustainability	6,150	5,000	5,750
Advanced Reactor Technologies	2,500	4,770	3,000
Reactor Concepts RD&D	8,650	9,770	8,750
Materials Recovery and Waste Form Development	1,755	1,965	2,000
Accident Tolerant Fuels	11,016	9,452	9,452
TRISO Fuel and Graphite Qualification	1,580	0	0
Fuel Cycle Laboratory R&D	3,961	2,049	2,049
Advanced Nuclear Fuel Availability	485	485	0
Used Nuclear Fuel Disposition R&D	5,823	5,500	7,500
Integrated Waste Management System	9,500	9,000	8,500
Next Generation Fuels	0	15,126	12,150
Fuel Cycle Research & Development	34,120	43,577	41,651
Crosscutting Technology Development	3,443	0	0
Nuclear Energy Advanced Modeling and Simulation	4,682	4,800	4,600
Nuclear Science User Facilities	1,900	750	750
Advanced Materials and Manufacturing Technologies	0	4,300	4,300
Advanced Sensors and Instrumentation	0	1,117	1,000
Nuclear Energy Enabling Technologies	10,025	10,967	10,650
National Reactor Innovation Center	0	0	45
Risk Reduction for Future Demonstrations	0	1,800	9,800
Regulatory Development	1,600	970	1,000
Advanced Reactor Safeguards	550	825	800
Advanced Reactors Demonstration Program	2,150	3,595	11,645
Total Oak Ridge National Laboratory	**57,778**	**68,744**	**72,696**
Oak Ridge Office			
Advanced Nuclear Fuel Availability	13	13	0
Fuel Cycle Research & Development	13	13	0
Total Oak Ridge Office	**13**	**13**	**0**
Pacific Northwest National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	1,066	765	0
Advanced Reactor Technologies	3,500	2,350	2,300
Reactor Concepts RD&D	3,500	2,350	2,300
Materials Recovery and Waste Form Development	1,724	2,640	2,200
Accident Tolerant Fuels	545	468	468
Fuel Cycle Laboratory R&D	2,605	1,347	1,347
Used Nuclear Fuel Disposition R&D	4,720	6,000	6,000
Integrated Waste Management System	18,500	16,000	15,000
Next Generation Fuels	0	1,000	850
Fuel Cycle Research & Development	28,094	27,455	25,865
Crosscutting Technology Development	2,170	0	0
Nuclear Science User Facilities	75	150	150
Advanced Materials and Manufacturing Technologies	0	1,260	1,000
Advanced Sensors and Instrumentation	0	300	300
Nuclear Energy Enabling Technologies	2,245	1,710	1,450
National Reactor Innovation Center	0	14	0
Regulatory Development	200	150	150
Advanced Reactor Safeguards	400	600	600

Advanced Reactors Demonstration Program	600	764	750
Total Pacific Northwest National Laboratory	**35,505**	**33,044**	**30,365**
Portsmouth Gaseous Diffusion Plant			
Advanced Nuclear Fuel Availability	30	30	0
Fuel Cycle Research & Development	30	30	0
Total Portsmouth Gaseous Diffusion Plant	**30**	**30**	**0**
Sandia National Laboratories			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	724	100	0
Light Water Reactor Sustainability	3,250	2,695	3,700
Advanced Reactor Technologies	5,200	5,200	200
Reactor Concepts RD&D	8,450	7,895	3,900
Accident Tolerant Fuels	60	52	52
Fuel Cycle Laboratory R&D	1,103	571	571
Used Nuclear Fuel Disposition R&D	22,057	8,785	6,500
Integrated Waste Management System	5,535	5,500	5,000
Fuel Cycle Research & Development	28,755	14,908	12,123
Crosscutting Technology Development	2,410	0	0
Nuclear Energy Enabling Technologies	2,410	0	0
National Reactor Innovation Center	0	0	500
Regulatory Development	300	200	200
Advanced Reactor Safeguards	1,985	3,925	3,900
Advanced Reactors Demonstration Program	2,285	4,125	4,600
Total Sandia National Laboratories	**42,624**	**27,028**	**20,623**
Savannah River National Laboratory			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	2,313	0	0
Materials Recovery and Waste Form Development	250	0	0
Fuel Cycle Laboratory R&D	400	207	207
Advanced Nuclear Fuel Availability	810	810	0
Used Nuclear Fuel Disposition R&D	545	1,300	2,978
Integrated Waste Management System	6,500	6,475	8,000
Fuel Cycle Research & Development	8,505	8,792	11,185
Advanced Reactor Safeguards	0	200	200
Advanced Reactors Demonstration Program	0	200	200
Total Savannah River National Laboratory	**10,818**	**8,992**	**11,385**
Savannah River Site			
Advanced Nuclear Fuel Availability	2,190	2,190	0
Fuel Cycle Research & Development	2,190	2,190	0
Total Savannah River Site	**2,190**	**2,190**	**0**
Washington Headquarters			
Light Water Reactor Sustainability	900	2,895	400
Advanced Reactor Technologies	7,000	2,600	1,600
Reactor Concepts RD&D	7,900	5,495	2,000
Mining, Conversion, and Transportation	500	1,500	1,500
Materials Recovery and Waste Form Development	10,402	5,542	6,000
Accident Tolerant Fuels	2,190	0	0
TRISO Fuel and Graphite Qualification	1,780	0	0
Fuel Cycle Laboratory R&D	0	1,000	1,000
Advanced Nuclear Fuel Availability	77,759	77,759	0
Used Nuclear Fuel Disposition R&D	300	300	2,522
Integrated Waste Management System	1,500	7,500	1,500

Next Generation Fuels	0	1,000	1,000
Fuel Cycle Research & Development	94,431	94,601	13,522
Crosscutting Technology Development	2,562	0	0
Nuclear Energy Advanced Modeling and Simulation	2,321	1,665	1,400
Nuclear Science User Facilities	780	800	800
Gateway for Accelerated Innovation in Nuclear	0	700	1,700
Advanced Sensors and Instrumentation	0	360	360
Nuclear Energy Enabling Technologies	5,663	3,525	4,260
National Reactor Innovation Center	1,000	1,000	1,000
Regulatory Development	200	10,000	500
Advanced Reactor Safeguards	700	630	550
Advanced Reactors Demonstration Program	1,900	11,630	2,050
INL Facilities Operations and Maintenance	1,930	1,437	1,500
Infrastructure	1,930	1,437	1,500
Program Direction - Nuclear Energy	50,290	51,002	47,831
Total Washington Headquarters	**162,114**	**167,690**	**71,163**
Undesignated LPI			
University and Competitive Research Program (formerly NEUP, SBIR/STTR and TCF)	40,216	26,000	96,986
Light Water Reactor Sustainability	0	1,250	0
Reactor Concepts RD&D	0	1,250	0
Mining, Conversion, and Transportation	1,000	0	0
TRISO Fuel and Graphite Qualification	5,920	0	0
Fuel Cycle Research & Development	6,920	0	0
Crosscutting Technology Development	778	0	0
Gateway for Accelerated Innovation in Nuclear	0	4,000	4,000
Nuclear Energy Enabling Technologies	778	4,000	4,000
Demonstration 1	30,000	30,000	10,000
Demonstration 2	30,000	30,000	10,000
Risk Reduction for Future Demonstrations	87,222	9,800	6,400
Regulatory Development	5,750	0	0
Advanced Reactor Safeguards	1,250	0	0
Advanced Reactors Demonstration Program	154,222	69,800	26,400
Total Undesignated LPI	**202,136**	**101,050**	**127,386**
Total Funding by Site for TAS_0319 - Nuclear Energy	**1,685,000**	**1,685,000**	**1,370,000**

Nuclear Waste Disposal

Nuclear Waste Disposal
($K)

FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted
12,040	12,040	12,040	0

Proposed Appropriation Language

For Department of Energy expenses necessary for nuclear waste disposal activities to carry out the purposes of the Nuclear Waste Policy Act of 1982, Public Law 97–425, as amended, $12,040,000, to remain available until expended, which shall be derived from the Nuclear Waste Fund.

Mission

The mission of the Nuclear Waste Fund Oversight program is to ensure the continued safety of the Yucca Mountain site through activities such as security, maintenance, and environmental requirements, and continued oversight for the Nuclear Waste Fund including the fiduciary responsibility under the Nuclear Waste Policy Act of 1982.

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.

Highlights of the FY 2026 Budget Request

The Nuclear Waste Fund Oversight program's FY 2026 Budget Request supports:

- 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;
- 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.

Nuclear Waste Fund Oversight
Funding ($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request	FY 2026 Request vs FY 2025 Enacted	
				$	%
Nuclear Waste Fund Oversight	12,040	12,040	12,040	-	-%
Total, Nuclear Waste Fund Oversight	**12,040**	**12,040**	**12,040**	**-**	**-%**

Description

The United States has generated significant quantities of spent nuclear fuel (SNF) and high-level waste (HLW) from nuclear technology applications, including electricity generation, national defense, and research and development, and this material requires safe storage and eventual disposal. Commercial power reactors have produced approximately 95,000 metric tons of initial heavy metal (MTHM) of SNF, with the potential to generate an additional 85,0000 MTHM by 2070[1]. Currently, most commercial SNF is stored at reactor sites, a quarter of which no longer have operating reactors. The United States also has an inventory of HLW from both commercial and defense activities stored in multiple states.

Under the Nuclear Waste Policy Act, the Department of Energy is responsible for the disposal of SNF and HLW. The Nuclear Waste Fund Oversight program ensures the proper management of the Nuclear Waste Fund investment portfolio and the administration of the Standard Contract for Disposal of SNF and HLW. It also supports legal services related to nuclear waste disposal activities and manages physical security at the Yucca Mountain site.

[1] Based on data from: (a) *Spent Nuclear Fuel and Reprocessing Waste Inventory*, Produced by Pacific Northwest National Laboratory (PNNL) for the U.S. Department of Energy (DOE), PNNL-33938, Rev. 1.1, December 2024; and (b) GC-859 Nuclear Fuel Data Survey Summary tables produced by PNNL for DOE, available at https://gc859.pnnl.gov, released August 9, 2024.

DEPARTMENT OF ENERGY
Funding by Site Detail
TAS_5227 - Nuclear Waste Disposal Fund - FY 2026
($K)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 Request
Idaho Operations Office			
Nuclear Waste Fund Oversight	200	500	500
Total Idaho Operations Office	**200**	**500**	**500**
Pacific Northwest National Laboratory			
Nuclear Waste Fund Oversight	250	320	320
Total Pacific Northwest National Laboratory	**250**	**320**	**320**
Sandia National Laboratories			
Nuclear Waste Fund Oversight	4,060	1,000	2,000
Total Sandia National Laboratories	**4,060**	**1,000**	**2,000**
Washington Headquarters			
Nuclear Waste Fund Oversight	7,530	9,720	8,720
Total Washington Headquarters	**7,530**	**9,720**	**8,720**
Undesignated LPI			
Nuclear Waste Fund Oversight	0	500	500
Total Undesignated LPI	**0**	**500**	**500**
Total Funding by Site for TAS_5227 - Nuclear Waste Disposal Fund	**12,040**	**12,040**	**12,040**

Fossil Energy

Office of Fossil Energy (FE)
Formerly Fossil Energy and Carbon Management (FECM)
($K)

FY 2024 Enacted	FY 2026 Request
865,000	595,000

Proposed Appropration Language

For Department of Energy expenses necessary in carrying out fossil energy research and development activities, under the authority of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition of interest, including defeasible and equitable interests in any real property or any facility or for plant or facility acquisition or expansion, and for conducting inquiries, technological investigations and research concerning the extraction, processing, use, and disposal of mineral substances without objectionable social and environmental costs (30 U.S.C. 3, 1602, and 1603), $595,000,000, to remain available until expended: *Provided*, That of such amount $65,000,000 shall be available until September 30, 2027, for program direction.

Overview

The Office of Fossil Energy (FE) advances technologies related to affordable, reliable, and secure use of fossil fuels that are important to our Nation's security and economic prosperity while developing technological solutions for the prudent and sustainable development of our domestic coal, oil, gas, and critical minerals resources. FE conducts cutting-edge research, development and demonstration (RD&D) that focuses on promoting energy security, sustaining American leadership and innovation through early-stage RD&D, and developing breakthrough technologies that will ultimately lower American energy costs.

The Budget restores the name and function of the Office of Fossil Energy to its original purpose, which is funding for the research of technologies that could produce an abundance of domestic fossil energy and critical minerals. Activities funded through this account focus on 1) strengthening the reliability of our energy system and bolstering America's competitiveness and supply chain security through demonstrating advanced energy systems; 2) advancing mineral production and processing technologies; 3) accelerating oil, natural gas, and coal conversion into value-added products and supporting carbon capture, transport, and storage with a focus on enhanced oil and gas recovery; 4) natural gas infrastructure and blue hydrogen technologies; and 5) advanced oil and gas production technologies. These activities are pursued in partnership with the National Energy Technology Laboratory (NETL), the only DOE government-owned, government-operated National Laboratory dedicated to advancing the Nation's energy future by creating innovative solutions that strengthen the security, affordability and reliability of energy systems and natural resources, which also receives funding from this account.

In FY 2026, funding for Manufacturing and Energy Supply Chains (MESC) will support FE and EERE to sustain investments and analysis in manufacturing, energy products, and critical minerals and materials.

Fossil Energy
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Coal and Carbon Utilization				
Advanced Energy Systems	91,000	75,000	-16,000	-18%
Transport and Storage	93,000	50,000	-43,000	-46%
Conversion and Value-Added Products	122,500	34,000	-88,500	-72%
Point-Source Capture	127,500	50,000	-77,500	-61%
Subtotal, Coal and Carbon Utilization	**434,000**	**209,000**	**-225,000**	**-52%**
Oil, Gas, and Critical Minerals				
Advanced Production Technologies	53,000	40,000	-13,000	-25%
Natural Gas Infrastructure and Hydrogen Technologies	78,000	40,000	-38,000	-49%
Mineral Production and Processing Technologies	70,000	100,000	+30,000	+43%
Subtotal, Oil, Gas, and Critical Minerals	**201,000**	**180,000**	**-21,000**	**-10%**
University Training, Research, and Recruitment	**11,000**	**6,000**	**-5,000**	**-45%**
Program Direction	**70,000**	**65,000**	**-5,000**	**-7%**
NETL Infrastructure	**55,000**	**55,000**	**0**	**-%**
NETL Research and Operations	**89,000**	**80,000**	**-9,000**	**-10%**
Interagency Working Group	**5,000**	**0**	**-5,000**	**-100%**
Total, Fossil Energy	**865,000**	**595,000**	**-270,000**	**-31%**

Coal and Carbon Utilization
Formerly Carbon Management Technologies
($K)

FY 2024 Enacted	FY 2026 Request
434,000	209,000

Overview

The Coal and Carbon Utilization programs support the Administration's priorities to sustain American energy leadership, focus innovation on early-stage research, development, and demonstration (RD&D), and develop breakthrough technologies to secure energy and lower American energy costs. With the FY 2026 Budget Request, FE funds technologies that support and produce an abundance of domestic fossil energy and critical minerals, with a particular focus on the following:

- RD&D on fuel flexibility for coal gasification and efficiency improvement for combustion turbine technologies firing coal-derived syngas, natural gas, hydrogen, ammonia or hydrogen/natural gas blends.
- RD&D toward production of low-cost, regionally sourced captured CO_2 for applications such as enhanced hydrocarbon recovery and mineral extraction.
- RD&D to expedite build-out of transport and storage infrastructure for purposes of enhanced oil and gas recovery, including regional geologic basin efforts and research on materials and field laboratory testing.
- Developing technologies that convert oil, natural gas, and coal by-products into valuable fuels, chemicals and products for energy security and economic impact
- Advance RD&D efforts in response to projected baseload growth largely driven by demand from electrification and data centers.

The Coal and Carbon Utilization programs will pursue the following major activities in FY 2026:

Advanced Energy Systems ($75 million)
The FY 2026 Request for the Advanced Energy Systems program is $75 million. The program comprises six activities: (1) Gasification Systems, (2) Advanced Turbines, (3) Advanced Energy Materials, (4) Sensors, Controls and Other Innovative Concepts, (5) Simulation-Based Engineering, and (6) Energy Asset Revitalization. In FY 2026, the primary focus is on power systems, efficiency improvement, and fuel flexibility. Improvements to these technologies are also applicable to other energy systems, such as nuclear and the chemical industry. Improvements to new and existing plants will also support their efforts to allow these assets to provide low-cost baseload power and resilient flexible grid services. These activities align with the Administration's priority of unleashing the great abundance of American energy required to power modern life and to achieve a durable state of American energy dominance.

Transport and Storage ($50 million)
The Request provides $50 million for the Transport and Storage program to fund basin-scale studies and field scale testing to address critical technical and operational challenges of enhanced oil and gas recovery transport and storage projects. Activities will help de-risk efforts by providing the scientific and technical information necessary to lower costs and optimize system performance and operations.

Conversion and Value-Added Products ($34 million)
The Request provides $30 million that includes efforts to exploring innovative, cutting-edge oil, natural gas, and coal by-product conversion activities that require advancement from the fundamental to the applied RD&D level. The Budget Request also provides limited funding to close out the direct air capture program and to support national lab RD&D on early-stage applied RD&D technologies that enhance American energy dominance and enable U.S. technological leadership and innovation.

Point-Source Capture ($50 million)
FY 2026 activities will focus on optimizing cost, performance, and reliability of point-source capture technologies by utilizing test centers, small mobile testing units, and Artificial Intelligence/Machine Learning (AI/ML)-based material development. The request supports mid-stage RD&D on chemical looping, oxy-combustion, and reactive capture approaches, as well as CO_2 sourcing focused on enabling technologies for low-cost precursor availability for hydrocarbon recovery.

Coal and Carbon Utilization
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Coal and Carbon Utilization				
Advanced Energy Systems				
Gasification Systems	30,000	24,000	-6,000	-20%
Advanced Turbines	30,000	25,000	-5,000	-17%
Reversible Solid Oxide Fuel Cells	5,000	0	-5,000	-100%
Advanced Energy Materials	9,000	10,000	+1,000	+11%
Sensors, Controls and Other Innovative Concepts	5,000	5,000	0	-%
Simulation-Based Engineering	6,000	6,000	0	-%
Energy Asset Revitalization	6,000	5,000	-1,000	-17%
Subtotal, Advanced Energy Systems	**91,000**	**75,000**	**-16,000**	**-18%**
Transport and Storage				
Transport and Storage Infrastructure	74,000	40,000	-34,000	-46%
Advanced Transport and Storage R&D	19,000	10,000	-9,000	-47%
Subtotal, Transport and Storage	**93,000**	**50,000**	**-43,000**	**-46%**
Conversion and Value-Added Products				
Carbon Dioxide Removal	70,000	4,000	-66,000	-94%
Carbon Utilization	52,500	30,000	-22,500	-43%
Subtotal, Conversion and Value-Added Products	**122,500**	**34,000**	**-88,500**	**-72%**
Point-Source Capture	**127,500**	**50,000**	**-77,500**	**-61%**
Total, Coal and Carbon Utilization	**434,000**	**209,000**	**-225,000**	**-52%**

Coal and Carbon Utilization
Advanced Energy Systems
($K)

FY 2024 Enacted	FY 2026 Request
91,000	75,000

Overview

The Advanced Energy Systems (AES) program invests in six areas: (1) Gasification Systems, (2) Advanced Turbines, (3) Advanced Energy Materials, (4) Sensors, Controls, and Other Innovative Concepts, (5) Simulation-Based Engineering, and (6) Energy Asset Revitalization (EAR). In FY 2026, the EAR program will be incorporated into AES as a sub-program.

This program provides a platform for developing advanced energy systems capable of increasing electricity production to meet growing demand. The primary focus is on power systems, efficiency improvement and fuel flexibility. Improvements to new and existing plants may allow these assets to provide low-cost baseload power and resilient flexible grid services. These activities support the Administration's priority of increasing American energy production.

Gasification Systems ($24 million)

Gasification technologies can play a key role in securing American energy dominance by converting feedstock into a variety of products. Gasification systems may provide affordable, reliable, and secure power, blue hydrogen, fuels, or chemicals to meet growing demand. These products can be generated from any carbonaceous fuel or mixtures thereof, including the vast domestic coal reserves, municipal solid waste, waste plastic, and biomass. Systems can be tailored to meet regional or local needs. For example, ammonia produced could be used to support regional fertilizer needs.

The FY 2026 Budget Request provides $24 million for research, demonstration, and development (RD&D) to partner with industry, universities, and DOE National Laboratories to develop technologies to advance the deployment of gasification-based plants. The request will enable technology development to increase flexibility of feedstocks and improve processes (increase intensity and reduce costs):

- Innovative Technologies for Power, Fuels and Chemicals to advance and mature technologies capable of producing low-cost syngas from co-gasification of blended coal, biomass, and wastes, including municipal solid waste, legacy coal waste, and unrecyclable plastics that can be efficiently converted into power, fuels, and chemicals.
- Tar Mitigation, Management, and Conversion to investigate and manage tars produced during the gasification of blended feedstocks to increase syngas production rate through tar destruction and reduce the deleterious effect of tar on the process train that could hinder the ability to carry out long duration runs due to tar accumulation.
- Using emerging approaches such as microwave heating of the catalyst/reactants and pretreatment techniques for blended feedstocks (coal, biomass, mixed wastes, municipal solid waste, unrecyclable plastics, etc.) to increase process intensity and decrease the cost of syngas used as turbine fuel or as feedstock for chemicals and other valuable products

Advanced Turbines ($25 million)

The FY 2026 Budget Request provides $25 million in funding to develop innovative efficiency improvement technologies for gas turbine combustion systems that can also accommodate carbon-based syngas, natural gas, ammonia, and hydrogen-natural gas fuel blends while maintaining machine efficiency. RD&D investments will also support efficiency goals of 67 percent (lower heating value (LHV) natural gas) and 50 percent (LHV natural gas) for combined cycle and simple cycle machines, respectively. The program will also invest in RD&D to achieve a 70 percent efficient combined cycle machine (LHV natural gas).

Investments will be made in the application of advanced manufacturing and artificial intelligence and machine learning (AI/ML) to develop turbine components using innovative manufacturing techniques for application at higher firing

temperatures and thus higher efficiency. The activity will be executed in cost-shared collaboration with equipment manufacturers, the secondary market supporting turbine technology, U.S. universities, and the DOE National Labs.

The Advanced Turbines sub-program supports three key technologies to advance abundant, low-cost power production. These key technologies include:

- Advanced Combustion Turbines will support an investment in the development of fuel flexible systems for syngas, natural gas/hydrogen blends and hydrogen carriers like ammonia for retrofit applications and new gas turbines. The request will also support new designs for gas turbine components, advanced cooling techniques, aerodynamics, sealing, combustion systems and materials to achieve higher efficiency through higher combustion temperatures, lowering the cost of electricity from gas turbine systems.
- Pressure Gain Combustion has the potential to significantly increase gas turbine efficiency performance by 2-3 percent through realizing a pressure increase versus a pressure loss through the combustor of the turbine.
- University Turbine Systems Research supports turbine research at U.S. universities. This cost-shared activity, with industry endorsement, supports fundamental and applied RD&D projects that improve the efficiencies of turbines and related turbine technologies.

Advanced Energy Materials ($10 million)

The Advanced Energy Materials sub-program focuses primarily on material discovery and development that will strengthen the nation's manufacturing capabilities for advanced energy materials that are critical to more efficient power generation, fuels, and chemicals processes that support a competitive U.S. industry base and help unleash American energy dominance. The sub-program has three main activities:

- **Advanced Materials Development**: This activity focuses on creating cost-effective structural and functional materials for a wide range of advanced energy technologies, including traditional power generation and emerging energy systems. The goal is to reduce the cost and time required to develop and commercialize new materials for applications in extreme operating environments. Development efforts emphasize advanced manufacturing methods for high-performance materials and computational materials modeling as enabling technologies. The National Energy Technology Lab (NETL) leads a National Laboratory consortium, Extreme Environment Materials (eXtremeMAT or XMAT), dedicated to accelerating materials innovation.
- **Advanced Materials Manufacturing Development**: Building upon the successes of the Advanced Ultra-Supercritical (AUSC) consortium, this activity focuses on strengthening domestic manufacturing capabilities for high-temperature alloys and technologies used in advanced energy applications, including natural gas combined cycles and high efficiency supercritical CO_2 plants. Ongoing development efforts include large-scale component manufacturing, forming and machining enhancements for high-temperature alloys developed under the AUSC program. This activity also supports the development of ceramic matrix composite material formulations for turbine applications (thermal barrier coatings or turbine blade materials) and advanced manufacturing methods to reduce fabrication costs and improve cyclic durability, ensuring the reliability and efficiency of American energy infrastructure.
- **High-Performance Computing for Materials (HPC4Mat)**: This activity leverages the high-performance computing (HPC) resources of DOE's National Laboratories to assist American power generation industry in developing new or improved materials and resolve materials challenges for their applications.

Sensors, Controls, and Other Innovative Concepts (formerly Sensors, Controls, and Other Novel Concepts) ($5 million)

This sub-program provides $5 million to fund early-stage RD&D on technologies to provide real-time information and controls critical to the operation, reliability and efficiency of next generation power systems. Focus areas include the following:

- **Sensor development:** Early-stage RD&D on low-cost and reliable multi-sensing wired and wireless technologies to conduct process monitoring and measure component health by sensing critical process parameters that are currently unmeasurable due to high process temperatures or pressures.
- **Quantum Sensing:** Quantum sensors are highly precise sensors that can measure at lower detection limits not previously attainable. This has important ramifications and synergies with other FE priorities such as critical minerals extraction.

- **Cyber-physical systems:** Enables deployment of integrated energy systems that maintain generation stability, reliability, and security while minimizing energy costs.
- **Novel concepts:** This includes researching promising energy concepts such as direct power extraction and using AI for screening and design of functional sensing materials.

Simulation-Based Engineering ($6 million)

The Simulation-Based Engineering sub-program includes computational software development, high performance computing, advanced process optimization, technoeconomic analysis and AI/ML. Simulations generate information beyond the reach of experiments alone and do so rapidly and inexpensively. They enable the optimization/troubleshooting of novel devices and complex process systems. This sub-program also comprises modeling to resolve challenges and optimize power plants as they integrate with a dynamic, evolving electricity grid. Key objectives include improving the reliability, flexibility, and economics of the next generation fleet, with applicability to the industrial and manufacturing sectors.

In FY26, the Budget Request for Simulation-Based Engineering provides $6 million to continue funding for the Institute for the Design of Advanced Energy Systems (IDAES) and the Computational Fluid Dynamics for Advanced Reactor Design (CARD) program. IDAES activities will focus on developing process systems engineering tools for conceptual design and process intensification of innovative systems. The CARD element will support computational efforts to gain deep insight into plant operation to improve performance outcomes and reduce unexpected, forced outages.

Energy Asset Revitalization ($5 million)

The Energy Asset Revitalization sub-program supports the revitalization, re-start, or continued operation of decommissioned and retiring energy assets across the U.S. by providing technical and financial assistance and developing publicly available tools and resources.

The FY 2026 Request will fund:

- Targeted assistance, provided through project funding and technical support, related to energy assets revitalization to ensure continued economic contributions.
- Support for revitalization activities and the development of innovative concepts through competitive solicitations and technical assistance, fostering efforts that lead to further support for pre-front-end engineering and design (FEED) studies.
- Development of publicly available tools and resources, including analyses supported by the Department of Energy headquarters, the National Labs, industry, and academia. Funded research and case studies will focus on ensuring the safety, reliability, and efficiency of energy assets, particularly in response to evolving operational demands and to maximize their continued economic contributions.

Advanced Energy Systems (AES)
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Gasification Systems	30,000	24,000	-6,000	-20%
Advanced Turbines	30,000	25,000	-5,000	-17%
Reversible Solid Oxide Fuel Cells	5,000	0	-5,000	-100%
Advanced Energy Materials	9,000	10,000	+1,000	+11%
Sensors, Controls and Other Innovative Concepts	5,000	5,000	0	-%
Simulation-Based Engineering	6,000	6,000	0	-%
Energy Asset Revitalization	6,000	5,000	-1,000	-17%
Total, Advanced Energy Systems	**91,000**	**75,000**	**-16,000**	**-18%**

Coal and Carbon Utilization
Transport and Storage
($K)

FY 2024 Enacted	FY 2026 Request
93,000	50,000

Overview

In FY 2026, the Transport and Storage program will play an important role in advancing next-generation, cutting edge technologies intended to lower the cost of storage facility development, improve operational performance, and help de-risk existing and future projects including those that incorporate enhanced oil or gas recovery. The request provides $50 million for initiatives that support technology validation of early-stage RD&D in operational transport and injection sites and basin-scale studies with cross-cutting benefits to subsurface energy activities aligned with energy market demands including enhanced recovery, and infrastructure routing near data centers. The transport and storage program prioritizes early-stage research in technology areas that both support energy security and for which there is a clear and unique Federal role. Concentration areas include leveraging artificial intelligence and machine learning technologies to enhance efficiency and quality of subsurface investigations, fast-tracking validation of novel technologies for energy activities in the subsurface and demonstrating approaches for advanced operational control and decision support.

Transport and Storage Infrastructure ($40 million)
The FY 2026 Budget Request provides $40 million in funding to support basins with multiple subsurface projects where knowledge gained will support activities such as enhanced oil and gas recovery, rapid development of storage sites to support data centers, and mining activities. A key outcome will be tools and approaches for resource managers to define and utilize subsurface pore and pressure space efficiently and safely.

Advanced Transport and Storage Research and Development ($10 million)
The Transport and Storage Request includes $10 million for Advanced Transport and Storage R&D that will advance technologies targeting enhanced plume imaging/tracking, high-temporal and high-spatial resolution monitoring, improved geomechanical stress/strain characterization and measurement, high fidelity sensing, and automation and intelligent systems inclusive of AI-enabling/supporting technologies. Targeted research by national laboratories and other research institutions includes efficient utilization of oil, gas, and CO_2 production infrastructure, intelligent monitoring systems, and developing approaches/methods for adaptive reservoir management.

Transport and Storage
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Storage Infrastructure	74,000	40,000	-34,000	-46%
Advanced Storage R&D	19,000	10,000	-9,000	-47%
Total, Transport and Storage	**93,000**	**50,000**	**-43,000**	**-46%**

Coal and Carbon Utilization
Conversion and Value-Added Products
($K)

FY 2024 Enacted	FY 2026 Request
122,500	34,000

Overview

In FY 2026, the Conversion and Value-Added Products program will bolsters domestic energy security and resilience via oil, natural gas, and coal-derived fuels and chemicals, while also generating an opportunity for new export markets for oil, natural, gas and coal-derived products Activities will focus on enabling early-stage conversion technologies and overcoming fundamental barriers to real-world operations. Reduction for CDR activities represents the closing out of the DAC activities.

Carbon Dioxide Removal (CDR) ($4 million)
The FY 2026 Budget Request of $4 million provides limited funding to the NETL Direct Air Capture (DAC) Test Center which is designed to accommodate the rapidly evolving DAC technological landscape and has now commenced material-scale operations.

Carbon Utilization ($30 million)
The Conversion to Value-Added products request includes $30 million for Carbon Utilization activities. This sub-program will support RD&D for the critical technical challenges associated with the cost-effective and selective upgrading of oil, natural gas and coal by-products to facilitate U.S. leadership in energy innovation.

Conversion and Value-Added Products
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Carbon Dioxide Removal	70,000	4,000	-66,000	-94%
Carbon Utilization	52,500	30,000	-22,500	-43%
Total, NETL Research and Operations	**122,500**	**34,000**	**-88,500**	**-72%**

Coal and Carbon Utilization
Point-Source Capture
($K)

FY 2024 Enacted	FY 2026 Request
127,500	50,000

Overview

Advancements in Point-Source Capture technologies will support U.S. efforts to produce low-cost, regionally sourced CO_2 for enhanced energy production through hydrocarbon recovery, incorporation into revenue generating products, as well as mineral extraction. The FY 2026 Budget Request provides $50 million to fund research, development, and demonstration (RD&D) of point-source capture transformational technologies that can significantly improve efficiency, effectiveness, costs, and performance of coal and natural gas use in power, manufacturing and industrial facilities. These investments will foster U.S. energy dominance, continue energy security, and enable U.S. competitiveness in global markets.

In FY 2026, RD&D efforts will target optimized cost, performance, and reliability to provide economical sources, quantities, and purities required for enhanced hydrocarbon recovery, incorporation into products such as building materials, and use in processes such as mineral extraction. Key RD&D elements include lab scale approaches for cost effective CO_2 purification methods as well as conceptual designs of CO_2 central processing facilities to enable low-cost CO_2 availability for enhanced oil and gas recovery. RD&D associated with industrial applications will be focused on those sectors with the potential to supply the greatest quantities of CO_2 at the lowest cost, such as hydrogen production, petrochemicals, and cement manufacturing.

These transformational technologies will be designed to adapt to the operational demands of current and future power systems including the increasing need for coal and natural gas electric generation facilities to power data centers. RD&D activities will be focused on the integration of capture technologies with data centers serviced by behind the meter, reliable electric generation for improved fuel and operational flexibility while maintaining performance, reliability, and cost targets. Furthermore, activities will investigate approaches to optimize the capture process for coal and natural gas-based load-following/demand-responsive electricity generators.

The Point-Source Capture program will also support the development of transformational capture technologies that utilize high-performance computing, artificial intelligence, advanced manufacturing and engineering tools which result in enhanced co-benefits from installing point-source capture at coal- and natural gas-based electric generation facilities. These efforts will include artificial intelligence approaches to developing materials and processes that offer the potential for step-change improvements in cost and performance. FY 2026 funding will also support development of digital twin models powered by thermodynamic analysis and artificial intelligence to optimize thermal efficiencies and operating performance of existing coal and natural gas electric generation facilities. This element will leverage the expertise at national laboratories to drive innovation.

Point-Source Capture
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Total, Point Source Capture	**127,500**	**50,000**	**-77,500**	**-61%**

Oil, Gas, and Critical Minerals
($K)

FY 2024 Enacted	FY 2026 Request
201,000	180,000

Overview

The Oil, Gas, and Critical Minerals program works to ensure American Energy and Mineral Dominance through the development of our Nation's abundant domestic fossil energy and minerals potential. The program's research, development, and demonstration (RD&D) could enable affordable, reliable and secure fossil energy resources and robust domestic supply chains for critical minerals and materials (CMM). The Office of Oil, Gas, and Critical Minerals consists of three programs: Advanced Production Technologies, Natural Gas Infrastructure and Hydrogen Technologies, and Mineral Production and Processing Technologies.

The Oil, Gas, and Critical Minerals program will pursue the following major activities in FY 2026:

Advanced Production Technologies ($40 million)
The Advanced Production Technologies program focuses on developing technologies and solutions that accelerate oil and natural gas exploration and production. The program will conduct RD&D to increase oil and natural gas production, water management, and offshore efficiency, safety, and spill prevention. In addition, the program will conduct research using field laboratories to explore carbon dioxide enhanced oil and gas recovery (CO_2-EOR and EGR) in unconventional reservoirs.

Natural Gas Infrastructure and Hydrogen Technologies ($40 million)
The Natural Gas Infrastructure and Hydrogen Technologies program will conduct research to develop technologies and solutions to improve the reliability, safety, and security of oil and natural gas pipelines. This research will include advanced materials, innovative sensors, and innovative more efficient compressors, drive engines, and infrastructure components. Additionally, the program will utilize existing natural gas infrastructure for high volume hydrogen and blended fuels transport, and demonstrate large-scale underground hydrogen storage capabilities.

Mineral Production and Processing Technologies ($100 million)
The Mineral Production and Processing Technologies program will support American minerals dominance by advancing technologies to support development of the domestic supply chain networks required for the economically sustainable and geopolitically secure production and processing of critical minerals and materials (CMM). This mission will be accomplished by prioritizing research on the use of unconventional resources such as coal, coal production and combustion wastes, and other waste streams such as acid mine drainage, mine tailings, and produced water from oil and gas production for domestic CMM and rare earth elements; and through research to create products such as graphite from coal. The program will also focus on utilizing waste materials from currently mined and previously mined resources outside of traditional thermal and metallurgical markets. The program will also develop advanced mining technologies and solutions that can enable more "laparoscopic" approaches to mining, which will enable at least a tenfold reduction in the amount of waste material produced on the surface at a mine site.

Oil, Gas, and Critical Minerals
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Oil, Gas, and Critical Minerals				
Advanced Production Technologies				
Gas Hydrates	15,000	2,000	-13,000	-87%
Advanced Oil and Gas Production Research	28,000	30,000	+2,000	+7%
Water Management Technologies	10,000	8,000	-2,000	-20%
Subtotal, Advanced Production Technologies	**53,000**	**40,000**	**-13,000**	**-25%**
Natural Gas Infrastructure and Hydrogen Technologies				
Natural Gas - Infrastructure	55,000	30,000	-25,000	-46%
Natural Gas - Hydrogen Technologies	23,000	10,000	-13,000	-57%
Subtotal, Natural Gas Infrastructure and Hydrogen Technologies	**78,000**	**40,000**	**-38,000**	**-49%**
Mineral Production and Processing Technologies				
Critical Minerals Processing	17,000	28,000	+11,000	+65%
Carbon Ore Processing	14,000	17,000	+3,000	+21%
Resource Characterization Technologies	39,000	15,000	-24,000	-62%
Advanced Critical Material Recovery Technologies	0	40,000	+40,000	N/A
Subtotal, Mineral Production and Processing Technologies	**70,000**	**100,000**	**+30,000**	**+43%**
Total, Oil, Gas, and Critical Minerals	**201,000**	**180,000**	**-21,000**	**-10%**

Oil, Gas, and Critical Minerals
Advanced Production Technologies
($K)

FY 2024 Enacted	FY 2026 Request
53,000	40,000

Overview

Fossil fuels are critical to unleashing American energy and creating an affordable, secure, and reliable energy sector. Oil and natural gas provide fuel for vehicles, heat for homes, industrial goods, plastics, and other important products. The Advanced Production Technologies program conducts research and development of technologies and solutions to responsibly increase oil and natural gas production with a particular focus on unconventional reservoirs. Research areas include enhanced oil recovery, water management, offshore production efficiency and safety, and gas hydrates.

In the FY 2026 Budget Request:

The Gas Hydrates sub-program in FY 2026 will support modeling and analysis activities from data collected from field projects, including the Alaska Methane Hydrates project, the longest gas hydrates production test to-date.

The Advanced Oil and Gas Production Research sub-program will conduct research, development, and demonstration (RD&D) to increase the productivity of unconventional oil and gas wells while continuing research efforts to ensure offshore safety and spill prevention. The sub-program will conduct research in lab and field environments (Field Laboratories/Test Sites) to enhance/increase production of unconventional oil and gas resources (e.g., CO_2-EOR, optimized hydraulic fracturing design), and will Include artificial intelligence and machine learning (AI/ML) efforts in support of these objectives.

The Water Management Technologies sub-program will conduct RD&D to improve produced water management, aimed at reducing demands on freshwater resources and indirectly addressing induced seismicity issues from disposal in injection wells. This RD&D will include produced water treatment and reuse as well as characterization for critical mineral and rare earth elements.

Descriptions of the Advanced Production Technologies sub-programs are presented below:

Gas Hydrates ($2 million)
The Gas Hydrates sub-program will evaluate the potential of hydrates as a future energy source. This funding supports laboratory based modeling and analysis of data and results accumulated from field projects, including from the completed production test on the Alaska North Slope.

Advanced Oil and Gas Production Research ($30 million)
The Advanced Oil and Gas Production Research sub-program will focus on advanced oil and gas production research, including unconventional oil and gas development, offshore safety, and spill prevention. The sub-program continues to build on previous research conducted by, and data collected from, the Department of Energy's original 17 field laboratory projects, which resulted in a substantial body of knowledge about the geochemistry, geomechanics, and geophysics of oil and gas reservoirs.

The Field Test Sites activity will focus on 1) research to enhance/increase production of existing unconventional oil and gas resources (e.g. CO_2-EOR, optimized hydraulic fracturing design); and 2) support research to understand the potential to develop new and emerging oil and gas plays/zones (e.g. residual oil zones). This will include AI/ML efforts in support of Field Test Sites objectives.

The sub-program's offshore safety and spill prevention research will focus on identifying and mitigating risks from ocean currents and seafloor hazards, such as landslides; reducing risks associated with infrastructure used to deliver chemicals to the well and to bring produced fluids to the platform; and assessing, predicting, and mitigating the risks associated with an aging offshore infrastructure. DOE is working with the Department of the Interior, under a Memorandum of Collaboration, to pursue collaborative offshore research to increase offshore safety.

Water Management Technologies ($8 million)

The Water Management Technologies sub-program will focus on the characterization, treatment and management of water produced during oil and gas operations to increase both recycling of reservoir water for oil field activities (e.g. hydraulic fracture), and beneficial reuse of treated produced water for uses outside of the oil fields. Research will also characterize produced water for critical minerals and rare earth elements and evaluate the potential for extraction. Improved produced water management will reduce demands on freshwater resources and indirectly address induced seismicity issues.

Advanced Production Technologies
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Gas Hydrates	15,000	2,000	-13,000	-87%
Advanced Oil and Gas Production Research	28,000	30,000	+2,000	+7%
Water Management Technologies	10,000	8,000	-2,000	-20%
Total, Advanced Production Technologies	**53,000**	**40,000**	**-13,000**	**-25%**

Oil, Gas, and Critical Minerals
Natural Gas Infrastructure and Hydrogen Technologies
($K)

FY 2024 Enacted	FY 2026 Request
78,000	40,000

Overview

Fossil fuel infrastructure is critical to providing affordable, reliable, and secure energy for American consumers and industry. The Natural Gas Infrastructure and Hydrogen Technologies (NGI-HT) program focuses on comprehensive solutions to improve reliability, safety, and security; and to minimize product loss across the entire oil and natural gas supply chain. The NGI-HT program is focused on improving the operational resiliency and efficiency of oil and natural gas infrastructure through advanced technology development and field validation. The program will also leverage natural gas infrastructure in the development of hydrogen production, transport, and storage to strengthen the U.S. energy landscape.

A description of each Natural Gas Infrastructure and Hydrogen Technologies sub-program is presented below:

Natural Gas – Infrastructure ($30 million)
The Natural Gas – Infrastructure sub-program develops cost-effective and scalable technologies that improve the efficiency, integrity, and reliability associated with the production, processing, transportation, storage, and export of domestic oil and natural gas resources.

The sub-program supports RD&D focused on advanced materials; innovative sensors; and more efficient natural gas compressors, drive engines, and other infrastructure components, along with analytical technologies (including artificial intelligence (AI) applications) that enable rapid detection and mitigation of methane leakage along the oil and natural gas value chain. The sub-program also addresses utilization of natural gas that would be otherwise stranded or flared through the development of field-deployable, modular technologies to capture and convert natural gas into high-value, readily transportable products. Each of these research thrusts will improve the reliability of natural gas production, transmission, distribution, storage, and export facilities.

The Natural Gas – Infrastructure sub-program will pursue the following major activities in FY 2026:

- Developing technologies in advanced pipeline materials, pipeline sensors and systems, pipeline data management and computational tools, and in-pipe inspection and repair technologies.
- Developing advanced modular natural gas conversion technologies, capable of being deployed near wellheads, natural gas processing facilities, and transportation infrastructure.
- Development and deployment of efficient solutions that can be utilized by U.S. oil and natural gas operators and service companies to economically reduce natural gas leakage from engine combustion slip, natural gas gathering and pressure boosting stations, storage tanks, pipeline blowdowns, subsurface natural gas storage, and other point sources.
- Support the development and deployment of innovative technologies, tools, and processes to optimize liquified natural gas (LNG) transport.

Natural Gas - Hydrogen Technologies ($10 million)
The Natural Gas - Hydrogen Technologies (NG-HT) sub-program develops safe, reliable, and domestically derived hydrogen. The sub-program will conduct research on utilizing natural gas infrastructure for high volume hydrogen and blended fuels transport, and demonstrate large-scale underground hydrogen storage capabilities.

The NG-HT sub-program leverages domestic resources towards the development of natural gas technologies to produce, transport, store, and utilize low-cost hydrogen and valorized solid carbon products. The FY 2026 Budget Request for the Natural Gas – Hydrogen Technologies program will focus on near-term research and development that emphasizes advancing technologies for:

- Low-cost, blue and gray hydrogen, fuels, and carbon production pathways derived from geologic and fossil energy resources;
- Resilient natural gas and hydrogen infrastructure development;

- Secure and cost-effective underground hydrogen storage; and
- Safe hydrogen utilization.

Programmatic activities will be conducted in support of and coordination within the Office of Fossil Energy and other offices in the U.S. Department of Energy in support of Administration goals.

Natural Gas Infrastructure and Hydrogen Technologies
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Natural Gas - Infrastructure	55,000	30,000	-25,000	-45%
Natural Gas - Hydrogen Technologies	23,000	10,000	-13,000	-57%
Total, Natural Gas Infrastructure and Hydrogen Technologies	**78,000**	**40,000**	**-38,000**	**-49%**

Oil, Gas, and Critical Minerals
Mineral Production and Processing Technologies
($K)

FY 2024 Enacted	FY 2026 Request
70,000	100,000

Overview

American industries have become reliant on foreign countries for many of the most critical minerals and materials (CMM) needed for advanced energy and defense technologies due to decades of underinvestment in domestic mineral production. This over-reliance on foreign sources of minerals is an urgent national priority for investment, as malign foreign actors are exploiting their now-dominant market position over certain critical materials to diminish the competitiveness of American industry. The risks born by the American public due to over-reliance on foreign sources of minerals are acute.

The Mineral Production and Processing Technologies program (MPPT) directly addresses the impediments to domestic mineral production by investing in technologies and approaches associated with mineral extraction, processing, reduction to metal, perceptions of impacts of mining, and refining. The program focuses on approaches to accelerate mineral developments that are likely to secure local drive for minerals projects and it catalyzes collaboration and characterization of diverse mineral production options in regions across the U.S.

The program will support resilient domestic mineral supply chains by prioritizing the use of immediately available domestic resources such as those associated with permitted mineral mines, impoundments, or secondary and unconventional resources. These include abundant domestic resources, like coal, coal waste and by-products from industry feedstocks for domestic critical materials.

The Office of Fossil Energy's Mineral Production and Processing Technologies program is coordinated with complementary investments in other DOE offices through the DOE-wide Critical Materials Collaborative (CMC) to ensure future American mineral dominance across critical mineral and material (CMM) supply chains.

In FY 2026, the program will focus on the following:

- Further advance facilities to produce large quantities of high purity, commercial grade rare earth elements (REE) and other CMM through front-end engineering and design (FEED) studies and large-scale pilots, which is the next stage of development to broadly enable extraction of REE and other CMM from unconventional feedstocks (such as coal refuse and acid mine drainage) towards a commercial industry. The program will take advantage of existing pilot facilities, where applicable.
- Support the maturation of transformational separation and extraction technologies, potentially through laboratory and/or bench-scale innovative process concept development, as well as modeling and validation of models for optimization and efficiency improvements that would improve process economics.
- Develop technologies for creating new products such as synthetic graphite that are useful for the domestic economy or have better lifetime performance characteristics than current materials, as well as provide economic value in the co-production of other CMM.
- Work with the U.S. Geological Survey (USGS) to improve exploration and characterization technologies to reduce time, cost, and environmental impact, thereby enabling more rapid new upstream CMM projects from secondary and unconventional feedstocks to proceed.
- Initiate research, and development programs centered on developing next-generation mining and extraction technologies, using surgical precision to target and recover critical minerals from the subsurface. Such technologies would include advanced drilling technologies, novel geophysics, digital subsurface applications (autonomous operations, robotics, real-time extraction), in-situ mineral extraction, tailings management, marine mineral production, and novel processing.
- Begin development of a capability for mineral traceability throughout the supply chain, enabling transparency and validation of claims made by sources, processors, and manufacturers.

Critical Minerals Processing ($28 million)
The Critical Minerals Processing sub-program focuses on next-generation processing technologies with the potential to transform the recovery, purification, and reduction to metal of critical minerals sourced from abundant domestic feedstocks. These feedstocks include: domestic ores, mine tailings, impounded energy waste, industrial process streams, and other metal and mineral production streams.

The Critical Minerals Processing sub-program activities will continue to advance technologies toward large scale pilots while investing in novel advances throughout the supply chain of critical materials. This sub-program will focus on technologies to improve the economics of future projects through the evaluation of co-production of other valuable products to minimize waste generation. This focus will also accelerate industry adoption of transformative processes to recover minerals as part of domestic mineral and energy operations. The primary RD&D focus areas will include mineral beneficiation, extractive metallurgy (hydrometallurgical, and pyrometallurgical process technologies), and waste management technologies. All efforts will be associated with domestic feedstocks that have the potential for significant market impacts to diminish domestic reliance on foreign imports.

Carbon Ore Processing ($17 million)
The Carbon Ore Processing sub-program develops technologies to produce high-value carbon-based materials from coal. Materials like graphite, carbon fibers, and pitch are necessary precursors for many of the most important technologies in modern life. By focusing on transformational technologies to enable domestic manufacturing of strategic carbon materials and superior building products, the Carbon Ore Processing sub-program can enable secure critical material supplies from an abundant domestic coal resource base at competitive market prices.

RD&D will focus on the following areas: High-value carbon products, especially those needed for the industrial economy, such as graphite electrodes, battery anodes, and supercapacitor materials from carbon ore, as well as graphene, quantum dots, activated carbon, and conductive inks; universal infrastructure components (e.g., components for mass transit, sewers and tunnels, roads and bridges); and continuous industrial processes improvements to reduce capital and operating costs for future carbon products.

Resource Characterization Technologies ($15 million)
The Resource Characterization Technologies sub-program focuses on accelerating the identification and estimation of tonnage, grade, and recoverability of U.S. domestic critical mineral resources. The urgency of domestic mineral production requires a renewed focus on materials that can be accessed and processed quickly, so continued focus on unconventional mineral resources, such as mine tailings, waste impoundments, and process wastes are a high priority.

The Resource Characterization sub-program leverages the success of former FE RD&D, including the technologies and the capability to assess and characterize unconventional and secondary feedstocks. Building on this success, this sub-program will target high-value likely commercial opportunities to accelerate project development.
This approach will be accomplished through technology development and validation, including machine learning and artificial intelligence, and will leverage the regional-phase of CORE-CM production with less intensive processing steps required to produce REE from conventional ores.

The primary focus areas are:

- Resource Characterization Methods Development – Technology development for prospecting and validation for environmentally-sustainable exploration and production from various sources. This includes regional opportunities and assessments, the economic recovery of CMM through identification (including physical and chemical properties), mineral assays, prediction and assessment of resources and volumes of CMM/REE from various feedstocks. This work is coordinated with the Department of Interior (USGS) and the Environmental Protection Agency.
- Sensors and data connection and analysis – This includes development of new technologies for assessment of recoverable resources (drones, real time sensing and analytics, and micro drilling technologies) and of technologies and methods for rapidly analyzing data. This work is coordinated with the USGS.
- International Engagements, Standards, Supply Chain Development, and Characterization Technology Development – Ensure American mineral dominance by prioritizing leadership among international allies to address sustainable practices throughout the world, across the supply chain, from exploration through manufacturing, including certification approaches and methods for traceability throughout supply chains.

Advanced Critical Material Recovery Technologies ($40 million)

The Advanced Critical Material Recovery Technologies sub-program will identify innovative technologies that can substantially reduce costs, waste, and resource use from new mining. A primary focus area for research and development will be novel mining technology – RD&D of technologies that can enable more "laparoscopic" approaches to mining, targeted to enabling at least a tenfold reduction in the amount of waste material produced on the surface at a mine site.

Mineral Production and Processing Technologies
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Critical Minerals Processing	17,000	28,000	+11,000	+65%
Carbon Ore Processing	14,000	17,000	+3,000	+21%
Resource Characterization Technologies	39,000	15,000	-24,000	-62%
Advanced Critical Material Recovery Technologies	0	40,000	+40,000	+100%
Total, Mineral Production and Processing Technologies	**70,000**	**100,000**	**+30,000**	**+43%**

NETL Infrastructure
($K)

FY 2024 Enacted	FY 2026 Request
55,000	55,000

Overview

The National Energy Technology Laboratory (NETL) Infrastructure program supports the fixed costs of NETL's laboratory footprint in three geographic locations: Morgantown, WV; Pittsburgh, PA; and Albany, OR. Table 1 provides information on the size of each site.

The NETL Infrastructure program comprises the following subprograms:

(1) **High-Performance Computer (Super Computer) ($6 million)** provides funding for the lease of Joule 3, NETL's Supercomputer. The FY 2026 Budget Request includes $6 million for the continuation of a 4-year lease.
(2) **Laboratory & Site-wide Facilities ($39 million)** include repairs to existing laboratory facilities, general-purpose buildings, and sitewide infrastructure and the continued management of deferred maintenance balances. Priorities for funding are established to ensure compliance with life safety standards, critical laboratory research facilities and infrastructure, and compliance with High Performance Sustainable Building (HPSB) goals.
(3) **Safeguards and Security ($8 million)** provides funds to ensure protection of workers (physical and cyber), the public, the environment, facilities, and operations in performing the Office of Fossil Energy (FE) mission.
(4) **Environmental Restoration ($2 million)** supports NETL's obligations to the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) across all NETL sites and one off-site location in Wyoming.

The FY 2026 Budget Request for NETL Infrastructure is $55 million. The most significant component is Laboratory & Site-wide Facilities with a total of $39 million, as follows: (1) $17 million for Minor Construction Projects (MCP), prioritizing investments in infrastructure reliability and managing deferred maintenance balances; and (2) $21 million for fixed operational costs such as building and grounds maintenance, utilities, fleet management, and information technology (IT) licenses and agreements. In addition, $6 million is requested for NETL's high performance computer (HPC) lease. HPC is an essential element in more than 50% of NETL's research projects. The balance of the request is for safeguards and security ($8 million), environmental compliance and remediation ($2 million).

Funding supports implementing zero trust architectures, improving incident detection and response capabilities, addressing supply chain risks, and increasing automation across IT infrastructure operation/maintenance (O&M), portfolio management, cybersecurity risk management.

Table 1[1]
Comparison of Physical Footprint, Workforce, and Value of Assets by Campus and in Total, National Energy Technology Laboratory as of May 5, 2025.

	Morgantown	Pittsburgh	Albany	Total NETL
Buildings	40	30	56	**126**
Sq. Ft. of Building Space (1,000s)	437	433	250	**1,120**
Acres	136.0	57.4	47.4	**240.8**
Assets Replacement Value	$426.5 million	$391.3 million	$289.7 million	**$1,107.5 million**

NETL Infrastructure
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Super Computer	6,000	6,000	0	0%
Laboratory & Site-wide Facilities	39,000	39,000	0	0%
Safeguards and Securities	8,000	8,000	0	0%
Environmental Restoration	2,000	2,000	0	0%
Total, NETL Infrastructure	**55,000**	**55,000**	**0**	**0%**

[1] Table 1 compares physical footprint, workforce, and value of assets as of May 5, 2025.

NETL Research and Operations
($K)

FY 2024 Enacted	FY 2026 Request
89,000	80,000

Overview

The National Energy Technology Laboratory (NETL) is an integral part of the U.S. Department of Energy (DOE) national laboratory system. There are 17 National Laboratories in the DOE laboratory system; NETL is the only government-owned, government-operated laboratory (GOGO). NETL supports the DOE mission by addressing energy and related challenges through transformative science and technology solutions. NETL is recognized for its capabilities in applied material science, computation science, chemical and systems engineering, subsurface science, decision science, and government contract and project management.

The NETL Research and Operations program comprises three sub-programs:

(1) **Research, Development, Demonstration, and Deployment ($51 million)** supports Federal researcher salaries and benefits, travel, personal protective equipment, and other employee costs for the NETL staff of scientists and engineers who conduct research activities for FE RD&D programs. This sub-program also funds the salaries, benefits, travel, and other employee costs for the NETL staff of engineers and technical professionals who conduct project management for FE RD&D programs. This sub-program also funds partnership, technology transitions, and other collaborative research activities with industry, other National Laboratories, and state and local governments as well as strategic energy analysis and research data management.

(2) **Site Operations ($19 million)** includes funding for: (a) building operations and maintenance such as non-capital repairs and routine upkeep; (b) grounds maintenance including parking lot repair, lighting, groundskeeping, snow removal, etc.; and (c) information technology operations.

(3) **Program Oversight ($10 million)** includes funding for Federal employees and contractors performing research-enabling functions such as planning and managing financial assistance activities and providing oversight of research grants and awards.

The NETL Research and Operations request is $80 million. The request includes $69.5 million to fully fund federal salaries and benefits at the requested full-time equivalent (FTE) level. An additional $6.1 million is for contractor support in the areas of information technology operations, technology transitions and business outreach, research data management, and strategic energy analysis. The balance of the request funds travel, training, material, supplies, and other employee costs for the federal staff and NETL's Laboratory-Directed Research and Development contribution.

NETL Research and Operations
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
RDD&D	57,000	51,000	-6,000	-11%
Site Operations	21,000	19,000	-2,000	-10%
Program Oversight	11,000	10,000	-1,000	-9%
Total, NETL Research and Operations	**89,000**	**80,000**	**-9,000**	**-10%**

Interagency Working Group
($K)

FY 2024 Enacted	FY 2026 Request
5,000	0

Overview

No funding is being requested for this account in FY 2026.

Program Direction
($K)

FY 2024 Enacted	FY 2026 Request
70,000	65,000

Overview

Program Direction (PD) provides funding for salaries and benefits for federal staff and associated costs to support the overall direction and execution of the Office of Fossil Energy (FE), including oversight and administration, monitoring activities for the FE's research, development, and demonstration (RD&D) portfolio. Funding also supports the National Energy Technology Laboratory (NETL) technical staff who perform acquisition, finance and legal functions, and federal staff for management of the laboratory. PD also funds the contractor support for budget, communications, workforce management, mission Information Technology (IT) and cybersecurity, and workforce Environment, Safety, Security and Health (ESS&H) activities. Federal NETL scientific researchers and project managers are not funded by Program Direction. They are funded by the NETL Research and Operations control point.

The FY 2026 Program Direction Request of $65 million will provide support for the projected FY 2026 average federal salaries and benefits for the requested full-time equivalent (FTE) level, travel, support services and other related expenses. This funding reflects a reduction in the workforce to support the Department's reorganization efforts and the Administration's goals and priorities.

Program Direction
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
Washington Headquarters				
Salaries and Benefits	27,662	25,810	-1,852	-7%
Travel	420	420	0	0%
Support Services	3,070	2,770	-300	-10%
Other Related Expenses	8,948	8,200	-748	-8%
Total, Washington Headquarters	**40,100**	**37,200**	**-2,900**	**-7%**
National Energy Technology Laboratory				
Salaries and Benefits	19,300	18,200	-1,100	-6%
Travel	400	350	-50	-13%
Support Services	7,100	6,150	-950	-13%
Other Related Expenses	3,100	3,100	0	0%
Total, National Energy Technology Laboratory	**29,900**	**27,800**	**-2,100**	**-7%**
Total – Program Direction				
Salaries and Benefits	46,962	44,010	-2,952	-6%
Travel	820	770	-50	-6%
Support Services	10,170	8,920	-1,250	-12%
Other Related Expenses	12,048	11,300	-748	-6%
Total, Program Direction	**70,000**	**65,000**	**-5,000**	**-7%**

University Training, Research, and Recruitment
($K)

FY 2024 Enacted	FY 2026 Request
11,000	6,000

Overview

Through the University Training, Research, and Recruitment (UTRR) program, the FY 2026 Request includes funding for foundational research and development (RD&D) at U.S. academic Institutions of Higher Education and trade and vocational schools. The program focuses on introducing students to research topics pursued in support of the Office of Fossil Energy (FE) mission and preparing them for jobs in related fields such as extraction, processing, use of fossil energy; critical minerals and rare earth elements; artificial intelligence and machine learning; petroleum engineering; and supporting skills.

The Special Recruitment Program prepares students through hands-on educational programs. The program includes FE's flagship Mickey Leland Energy Fellowship (MLEF) and other DOE intern and fellowship programs, that offer undergraduate and graduate students majoring in STEM disciplines opportunities. Students learn about the DOE and FE missions through participation in hands-on research projects and gain insight into the challenges and opportunities in providing clean, affordable energy for future generations.

Consistent with EO 14283, the University Fossil Research (UFR) program and the Historically Black Colleges and Universities (HBCUs), Education, and Training programs will enable principal investigators to competitively apply for funding in a restricted eligibility Notice of Funding Opportunity (NOFO) and facilitate training students in key RD&D areas.

Highlights of the FY 2026 Request

In FY 2026, FE will support educational fellowship opportunities at DOE for students through the UTRR program. In addition, FE will recruit and select undergraduate and graduate students in STEM majors to participate in MLEF and other DOE educational programs. Recruitment will focus on attracting students from across the U.S. to participate in DOE programs.

University Training, Research, and Recruitment
($K)

	FY 2024 Enacted	FY 2026 Request	FY 2026 Request vs FY 2024 Enacted	
			$	%
University Fossil Research	4,000	2,000	-2,000	-50%
HBCUs, Education, and Training	6,000	3,000	-3,000	-50%
Special Recruitment Programs	1,000	1,000	0	0%
Total, University Training, Research, and Recruitment	**11,000**	**6,000**	**-5,000**	**-45%**

Facilities Maintenance and Repair
($K)

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

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

	FY 2024 Actual Cost	FY 2024 Planned Cost	FY 2026 Planned Cost
National Energy Technology Laboratory	18,222	19,000	17,000
Total, Direct-Funded Maintenance and Repair	**18,222**	**19,000**	**17,000**

Total Costs for Maintenance and Repair

	FY 2024 Actual Cost	FY 2024 Planned Cost
National Energy Technology Laboratory	18,222	19,000
Total, Direct-Funded Maintenance and Repair	**18,222**	**19,000**

Excess Facilities
($K)

Excess Facilities are facilities no longer required to support the Department's needs, present or future missions or functions, or the discharge of its responsibilities. This table reports the funding to deactivate and dispose of excess infrastructure, including stabilization and risk reduction activities at high-risk excess facilities, resulting in surveillance and maintenance cost avoidance and reduced risk to workers, the public, the environment, and programs. This includes maintenance of excess facilities (including high-risk excess facilities) necessary to minimize the risk posed by those facilities prior to disposition.

Costs for Direct-Funded Excess Facilities

	FY 2024 Actual Cost	FY 2024 Planned Cost	FY 2026 Planned Cost
National Energy Technology Laboratory (All)	132	40	30
NA	0	0	0
Total, Direct-Funded Excess Facilities	**54**	**40**	**30**

Capital Summary
($K)

	Total	Prior Years	FY 2024 Enacted	FY 2026 Request	FY 2026 vs FY 2024
Capital Operating Expenses Summary (including Major Items of Equipment (MIE))					
Capital Equipment >$500,000 (including MIE)	n/a	0	0	0	0
Minor Construction Project (>$5 million)	25,000	25,000	0	0	0
Total, Capital Operating Expenses	**25,000**	**25,000**	**0**	**0**	**0**
Capital Equipment > $500,000 (including MIE)					
Total Non-MIE Capital Equipment	n/a	0	0	0	0
Total, Capital Equipment (including MIE)	**n/a**	**0**	**0**	**0**	**0**

DEPARTMENT OF ENERGY
Funding by Site Detail
TAS_0213 - Fossil Energy - FY 2026
(Dollars in Thousands)

	FY 2024 Enacted	FY 2025 Enacted	FY 2026 President's Budget
Ames Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	1,965
Hydrogen with Carbon Management	2,284	2,284	0
Coal and Carbon Utilization (formerly Carbon Management Technologies)	2,284	2,284	1,965
Total Ames Laboratory	**2,284**	**2,284**	**1,965**
Argonne National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	2,711
Hydrogen with Carbon Management	3,151	3,151	0
Transport and Storage (formerly Carbon Transport and Storage)	361	357	194
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	11,330
Carbon Dioxide Removal	475	0	0
Carbon Utilization	25,846	25,846	0
Point-Source Capture (formerly Carbon Capture)	334	262	131
Coal and Carbon Utilization (formerly Carbon Management Technologies)	30,167	29,616	14,366
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	5
Methane Mitigation Technologies	9	9	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	8,997	17,994	12,853
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	9,021	18,026	12,870
Program Direction - Fossil Energy	27	27	25
Total Argonne National Laboratory	**39,215**	**47,669**	**27,261**
Brookhaven National Laboratory			
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	559
Carbon Utilization	1,283	1,283	0
Coal and Carbon Utilization (formerly Carbon Management Technologies)	1,283	1,283	559
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	30
Methane Mitigation Technologies	57	57	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	72	80	42
Total Brookhaven National Laboratory	**1,355**	**1,363**	**601**

Chicago Operations Office			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	1
Hydrogen with Carbon Management	2	2	0
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	70
Carbon Utilization	160	160	0
Coal and Carbon Utilization (formerly Carbon Management Technologies)	162	162	71
Total Chicago Operations Office	**162**	**162**	**71**
Fermi National Accelerator Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	69
Hydrogen with Carbon Management	80	80	0
Coal and Carbon Utilization (formerly Carbon Management Technologies)	80	80	69
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	267
Methane Mitigation Technologies	511	511	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	292	584	417
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	803	1,095	684
Total Fermi National Accelerator Laboratory	**883**	**1,175**	**753**
Golden Field Office			
NETL Infrastructure	36	36	36
Total Golden Field Office	**36**	**36**	**36**
Idaho National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	1,047
Hydrogen with Carbon Management	1,131	1,131	0
Point-Source Capture (formerly Carbon Capture)	1,167	915	458
Coal and Carbon Utilization (formerly Carbon Management Technologies)	2,298	2,046	1,505
Advanced Production Technologies (formerly Advanced Remediation Technologies)	232	352	175
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	556
Methane Mitigation Technologies	858	858	0
Natural Gas Decarbonization and Hydrogen Technologies	220	220	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	1,310	1,430	731
Energy Asset Transformation (funded in Advanced Energy Systems in FY 2026)	239	239	0
Program Direction - Fossil Energy	179	179	166
Total Idaho National Laboratory	**4,026**	**3,894**	**2,402**
Kansas City National Security Complex (KCNSC)			
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	15	23	12
Total Kansas City National Security Complex (KCNSC)	**15**	**23**	**12**

Lawrence Berkeley National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	938
Hydrogen with Carbon Management	1,091	1,091	0
Transport and Storage (formerly Carbon Transport and Storage)	73	72	39
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	115
Carbon Dioxide Removal	490	0	0
Carbon Utilization	84	84	0
Point-Source Capture (formerly Carbon Capture)	733	575	287
Coal and Carbon Utilization (formerly Carbon Management Technologies)	2,471	1,822	1,379
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	1,017
Methane Mitigation Technologies	1,484	1,484	0
Natural Gas Decarbonization and Hydrogen Technologies	493	493	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	1,977	1,977	1,017
NETL Infrastructure	326	326	326
NETL Research and Operations	918	918	825
Total Lawrence Berkeley National Laboratory	**5,692**	**5,043**	**3,547**
Lawrence Livermore National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	203
Hydrogen with Carbon Management	236	236	0
Transport and Storage (formerly Carbon Transport and Storage)	1,657	1,639	891
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	4,202
Carbon Dioxide Removal	22,903	0	0
Carbon Utilization	1,281	1,281	0
Point-Source Capture (formerly Carbon Capture)	1,742	1,366	683
Coal and Carbon Utilization (formerly Carbon Management Technologies)	27,819	4,522	5,979
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	1,953
Methane Mitigation Technologies	1,887	1,887	0
Natural Gas Decarbonization and Hydrogen Technologies	1,971	1,971	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	3,858	3,858	1,953
Total Lawrence Livermore National Laboratory	**31,677**	**8,380**	**7,932**
Los Alamos National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	2,657
Hydrogen with Carbon Management	3,088	3,088	0
Transport and Storage (formerly Carbon Transport and Storage)	46	45	25
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	415
Carbon Dioxide Removal	88	0	0
Carbon Utilization	921	921	0
Point-Source Capture (formerly Carbon Capture)	1,179	924	462

Coal and Carbon Utilization (formerly Carbon Management Technologies)	5,322	4,978	3,559
Advanced Production Technologies (formerly Advanced Remediation Technologies)	62	94	47
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	775
Methane Mitigation Technologies	1,484	1,484	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	133	266	190
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	1,679	1,844	1,012
Total Los Alamos National Laboratory	**7,001**	**6,822**	**4,571**
National Energy Technology Lab			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	52,004
Hydrogen with Carbon Management	58,359	58,359	0
Transport and Storage (formerly Carbon Transport and Storage)	87,858	86,915	47,235
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	10,360
Carbon Dioxide Removal	30,142	0	0
Carbon Utilization	12,776	12,776	0
Point-Source Capture (formerly Carbon Capture)	111,897	87,765	43,881
Coal and Carbon Utilization (formerly Carbon Management Technologies)	301,032	245,815	153,480
Advanced Production Technologies (formerly Advanced Remediation Technologies)	50,397	76,548	38,036
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	29,712
Methane Mitigation Technologies	43,687	43,687	0
Natural Gas Decarbonization and Hydrogen Technologies	14,074	14,074	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	56,724	113,449	81,034
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	164,882	247,758	148,782
Energy Asset Transformation (funded in Advanced Energy Systems in FY 2026)	5,761	5,761	0
University Training, Research and Recruitment (combines Univ & Recruit Programs)	0	0	5,539
University Training and Research	10,000	11,000	0
Program Direction - Fossil Energy	29,832	29,832	27,701
NETL Infrastructure	54,628	54,628	54,628
NETL Research and Operations	88,075	88,075	79,168
Interagency Working Group (formerly NETL Interagency Working Group)	5,000	5,000	0
Total National Energy Technology Lab	**659,210**	**687,869**	**469,298**
National Renewable Energy Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	2,979
Hydrogen with Carbon Management	3,463	3,463	0
Transport and Storage (formerly Carbon Transport and Storage)	409	404	220
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	2,485
Carbon Dioxide Removal	3,166	0	0

Carbon Utilization	4,552	4,552	0
Point-Source Capture (formerly Carbon Capture)	1,157	907	454
Coal and Carbon Utilization (formerly Carbon Management Technologies)	12,747	9,326	6,138
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	220
Methane Mitigation Technologies	316	316	0
Natural Gas Decarbonization and Hydrogen Technologies	113	113	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	27	53	38
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	456	482	258
Total National Renewable Energy Laboratory	**13,203**	**9,808**	**6,396**
Nevada National Security Site			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	21
Hydrogen with Carbon Management	23	23	0
Coal and Carbon Utilization (formerly Carbon Management Technologies)	23	23	21
NETL Infrastructure	7	7	7
Total Nevada National Security Site	**30**	**30**	**28**
Oak Ridge Institute for Science and Education			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	890
Hydrogen with Carbon Management	1,035	1,035	0
Transport and Storage (formerly Carbon Transport and Storage)	245	242	132
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	558
Carbon Dioxide Removal	1,501	0	0
Carbon Utilization	733	733	0
Point-Source Capture (formerly Carbon Capture)	818	641	321
Coal and Carbon Utilization (formerly Carbon Management Technologies)	4,332	2,651	1,901
Advanced Production Technologies (formerly Advanced Remediation Technologies)	357	542	269
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	329
Methane Mitigation Technologies	631	631	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	3,388	6,776	4,840
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	4,376	7,949	5,438
University Training, Research and Recruitment (combines Univ & Recruit Programs)	0	0	461
Special Recruitment Programs	1,000	1,000	0
NETL Infrastructure	3	3	3
Total Oak Ridge Institute for Science and Education	**9,711**	**11,603**	**7,803**
Oak Ridge National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	5,057
Hydrogen with Carbon Management	5,877	5,877	0
Transport and Storage (formerly Carbon Transport and Storage)	1,129	1,117	607

Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	2,210
Carbon Dioxide Removal	9,140	0	0
Carbon Utilization	1,734	1,734	0
Point-Source Capture (formerly Carbon Capture)	2,224	1,745	872
Coal and Carbon Utilization (formerly Carbon Management Technologies)	20,104	10,473	8,746
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	278
Methane Mitigation Technologies	150	150	0
Natural Gas Decarbonization and Hydrogen Technologies	409	409	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	574	582	290
Program Direction - Fossil Energy	43	43	40
NETL Research and Operations	7	7	7
Total Oak Ridge National Laboratory	**20,728**	**11,105**	**9,083**
Pacific Northwest National Laboratory			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	2,753
Hydrogen with Carbon Management	3,200	3,200	0
Transport and Storage (formerly Carbon Transport and Storage)	1,222	1,209	657
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	1,117
Carbon Dioxide Removal	342	0	0
Carbon Utilization	2,440	2,440	0
Point-Source Capture (formerly Carbon Capture)	4,724	3,705	1,853
Coal and Carbon Utilization (formerly Carbon Management Technologies)	11,928	10,554	6,380
Advanced Production Technologies (formerly Advanced Remediation Technologies)	697	1,059	526
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	3,098
Methane Mitigation Technologies	2,406	2,406	0
Natural Gas Decarbonization and Hydrogen Technologies	3,749	3,749	0
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	6,852	7,214	3,624
Total Pacific Northwest National Laboratory	**18,780**	**17,768**	**10,004**
Princeton Plasma Physics Laboratory			
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	15	23	12
Total Princeton Plasma Physics Laboratory	**15**	**23**	**12**
Sandia National Laboratories			
Advanced Energy Systems (combines H2 w Carbon Mgmt & Energy Asset Transport)	0	0	1,705
Hydrogen with Carbon Management	1,980	1,980	0
Conversion and Value-Added Products (combines CO2 Removal & Carbon Util.)	0	0	579
Carbon Dioxide Removal	1,753	0	0

Carbon Utilization	690	690	0
Point-Source Capture (formerly Carbon Capture)	1,014	795	398
Coal and Carbon Utilization (formerly Carbon Management Technologies)	5,437	3,465	2,682
Advanced Production Technologies (formerly Advanced Remediation Technologies)	1,165	1,767	875
Natural Gas Infrastructure & Hydrogen Technologies (combines Methane & Nat Gas)	0	0	1,760
Methane Mitigation Technologies	1,520	1,520	0
Natural Gas Decarbonization and Hydrogen Technologies	1,971	1,971	0
Mineral Production & Processing Technologies (formerly Minerals Sustainability)	439	878	628
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	5,095	6,136	3,263
Total Sandia National Laboratories	**10,532**	**9,601**	**5,945**
Savannah River National Laboratory			
Point-Source Capture (formerly Carbon Capture)	511	400	200
Coal and Carbon Utilization (formerly Carbon Management Technologies)	511	400	200
Total Savannah River National Laboratory	**511**	**400**	**200**
SLAC National Accelerator Laboratory			
Advanced Production Technologies (formerly Advanced Remediation Technologies)	15	23	12
Oil, Gas, and Critical Minerals (formerly Resource Sustainability)	15	23	12
Total SLAC National Accelerator Laboratory	**15**	**23**	**12**
Washington Headquarters			
Program Direction - Fossil Energy	39,919	39,919	37,068
Total Washington Headquarters	**39,919**	**39,919**	**37,068**
Total Funding by Site for TAS_0213 - Fossil Energy	**865,000**	**865,000**	**595,000**

General Provisions - Department of Energy
(Including transfers of funds)

SEC. 301.

(a) No appropriation, funds, or authority made available by this title for the Department of Energy shall be used to initiate or resume any program, project, or activity or to prepare or initiate Requests For Proposals or similar arrangements (including Requests for Quotations, Requests for Information, and Funding Opportunity Announcements) for a program, project, or activity if the program, project, or activity has not been funded by Congress.

(b)

(1) Unless the Secretary of Energy notifies the Committees on Appropriations of both Houses of Congress at least 3 full business days in advance, none of the funds made available in this title may be used to—

(A) make a grant allocation or discretionary grant award totaling $1,000,000 or more;

(B) make a discretionary contract award or Other Transaction Agreement totaling $1,000,000 or more, including a contract covered by the Federal Acquisition Regulation;

(C) issue a letter of intent to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B); or

(D) announce publicly the intention to make an allocation, award, or Agreement in excess of the limits in subparagraph (A) or (B).

(2) The Secretary of Energy shall submit to the Committees on Appropriations of both Houses of Congress within 15 days of the conclusion of each quarter a report detailing each grant allocation or discretionary grant award totaling less than $1,000,000 provided during the previous quarter.

(3) The notification required by paragraph (1) and the report required by paragraph (2) shall include the recipient of the award, the amount of the award, the fiscal year for which the funds for the award were appropriated, the account and program, project, or activity from which the funds are being drawn, the title of the award, and a brief description of the activity for which the award is made.

(c) The Department of Energy may not, with respect to any program, project, or activity that uses budget authority made available in this title under the heading "Department of Energy—Energy Programs", enter into a multiyear contract, award a multiyear grant, or enter into a multiyear cooperative agreement unless—

(1) the contract, grant, or cooperative agreement is funded for the full period of performance as anticipated at the time of award; or

(2) the contract, grant, or cooperative agreement includes a clause conditioning the Federal Government's obligation on the availability of future year budget authority and the Secretary notifies the Committees on Appropriations of both Houses of Congress at least 3 days in advance.

(d) Except as provided in subsections (e), (f), and (g), the amounts made available by this title shall be expended as authorized by law for the programs, projects, and activities specified in the "Final Bill" column in the "Department of Energy" table included under the heading "Title III—Department of Energy" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act).

(e) The amounts made available by this title may be reprogrammed for any program, project, or activity, and the Department shall notify the Committees on Appropriations of both Houses of Congress at least 30 days prior to the use of any proposed reprogramming that would cause any program, project, or activity funding level to increase or decrease by more than $5,000,000 or 10 percent, whichever is less, during the time period covered by this Act.

(f) None of the funds provided in this title shall be available for obligation or expenditure through a reprogramming of funds that—

(1) creates, initiates, or eliminates a program, project, or activity;

(2) increases funds or personnel for any program, project, or activity for which funds are denied or restricted by this Act; or

(3) reduces funds that are directed to be used for a specific program, project, or activity by this Act.

(g)

(1) The Secretary of Energy may waive any requirement or restriction in this section that applies to the use of funds made available for the Department of Energy if compliance with such requirement or restriction would pose a substantial risk to human health, the environment, welfare, or national security.

(2) The Secretary of Energy shall notify the Committees on Appropriations of both Houses of Congress of any waiver

under paragraph (1) as soon as practicable, but not later than 3 days after the date of the activity to which a requirement or restriction would otherwise have applied. Such notice shall include an explanation of the substantial risk under paragraph (1) that permitted such waiver.

(h) The unexpended balances of prior appropriations provided for activities in this Act may be available to the same appropriation accounts for such activities established pursuant to this title. Available balances may be merged with funds in the applicable established accounts and thereafter may be accounted for as one fund for the same time period as originally enacted.

SEC. 302. None of the funds made available in this title shall be used for the construction of facilities classified as high-hazard nuclear facilities under 10 CFR Part 830 unless independent oversight is conducted by the Office of Enterprise Assessments to ensure the project is in compliance with nuclear safety requirements.

SEC. 303. None of the funds made available in this title may be used to approve critical decision–2 or critical decision–3 under Department of Energy Order 413.3B, or any successive departmental guidance, for construction projects where the total project cost exceeds $100,000,000, until a separate independent cost estimate has been developed for the project for that critical decision.

SEC. 304. None of the funds made available in this title may be used to support a grant allocation award, discretionary grant award, or cooperative agreement that exceeds $100,000,000 in Federal funding unless the project is carried out through internal independent project management procedures.

SEC. 305. No funds shall be transferred directly from "Department of Energy—Power Marketing Administration—Colorado River Basins Power Marketing Fund, Western Area Power Administration" to the general fund of the Treasury in the current fiscal year.

SEC. 306. Title III of division B of Public Law 112–74 is amended by striking section 304.

SEC. 307. Title VI of Public Law 95–619 is amended by striking Part 3.

SEC. 308. Of the funds appropriated to the Department of Energy by the Infrastructure Investment and Jobs Act (the Act; Public Law 117–58), the following are hereby permanently cancelled from the following accounts and programs in the specified amounts:

(1) $1,588,655,377 from unobligated balances made available for fiscal years 2022 through 2026 in the "Electricity" account provided for Preventing Outages and Enhancing the Resilience of the Electric Grid, as authorized under section 40101 of division D of such Act.

(2) $986,464,360 from unobligated balances made available for fiscal years 2022 through 2026 in the "Office of Clean Energy Demonstrations" account provided for grants for the Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency, as authorized under section 40103(b) of division D of such Act.

(3) $473,653,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Office of Clean Energy Demonstrations" account provided for the Energy Improvement in Rural and Remote Areas Program, as authorized under section 40103(c) of division D of such Act.

(4) $41,143,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Electricity" account provided for the Transmission Facilitation Program, as authorized under section 40106 of division D of such Act.

(5) $667,730,525 from unobligated balances made available for fiscal years 2022 through 2026 in the "Electricity" account provided for the Smart Grid Investment Matching Program, as authorized under section 40107 of division D of such Act.

(6) $47,148,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the State Energy Program, as authorized under section 40109 of division D of such Act.

(7) $166,171,162 from unobligated balances made available for fiscal years 2022 through 2026 in the "Cybersecurity, Energy Security, and Emergency Response" account provided for the Rural and Municipal Utility Advanced

Cybersecurity Grant and Technical Assistance Program, as authorized under section 40124 of division D of such Act.

(8) $107,446,314 from unobligated balances made available for fiscal years 2022 through 2026 in the "Cybersecurity, Energy Security, and Emergency Response" account provided for the Cybersecurity For the Energy Sector Research, Development, and Demonstration Program, as authorized under section 40125(b) of division D of such Act.

(9) $19,450,000 from unobligated balances in the "Electricity" account provided to carry out an advanced energy security program to secure energy networks, as authorized under section 40125(d) of division D of such Act.

(10) $633,042,559 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for Battery Manufacturing and Recycling Grants, as authorized under section 40207(c) of division D of such Act.

(11) $694,270 from unobligated balances available in the "Energy Efficiency and Renewable Energy" account provided for the Lithium-Ion Battery Recycling Prize Competition, as authorized under section 40207(e) of division D of such Act.

(12) $36,620,326 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided to carry out activities authorized under section 40207(f) of division D of such Act.

(13) $72,298,954 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the Electric Drive Vehicle Battery Recycling and Second-Life Applications Program, as authorized under subsection (k) of section 641 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17231), as amended by section 40208(1) of division D of the Act.

(14) $277,702,772 from unobligated balances made available for fiscal years 2022 through 2026 in the "Fossil Energy and Carbon Management" account provided for the Carbon Utilization Program, as authorized under section 40302 of division D of such Act.

(15) $68,640,068 from unobligated balances made available for fiscal years 2022 through 2026 in the "Fossil Energy and Carbon Management" account provided for the Front-End Engineering and Design, Carbon Capture Technology Program, as authorized under section 962 of the Energy Policy Act of 2005 (42 U.S.C. 16292), as amended by section 40303 of division D of the Act.

(16) $2,084,700,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Carbon Dioxide Transportation Infrastructure Finance and Innovation Program Account" provided for the Carbon Dioxide Transportation Infrastructure Finance and Innovation Program, as authorized by subtitle J of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16181 et seq.), as amended by section 40304 of division D of the Act.

(17) $1,163,735,574 from unobligated balances made available for fiscal years 2022 through 2026 in the "Fossil Energy and Carbon Management" account provided for Carbon Storage Validation and Testing, as authorized under section 963 of the Energy Policy Act of 2005 (42 U.S.C. 16293), as amended by section 40305 of division D of the Act.

(18) $2,002,474,357 from unobligated balances made available for fiscal years 2022 through 2026 in the "Fossil Energy and Carbon Management" account provided for Regional Direct Air Capture Hubs, as authorized under section 969D of the Energy Policy Act of 2005 (42 U.S.C. 16298d), as amended by section 40308 of division D of the Act.

(19) $92,000,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Office of Clean Energy Demonstrations" account provided for Regional Clean Hydrogen Hubs, as authorized under section 813 of the Energy Policy Act of 2005 (42 U.S.C. 16151 et seq.), as amended by section 40314 of division D of the Act.

(20) $184,198,304 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for the Clean Hydrogen Technology Recycling Research, Development, and Demonstration Program, as authorized under section 815 of the Energy Policy Act of 2005 (42 U.S.C. 16151 et seq.), as amended by section 40314 of division D of the Act.

(21) $350,084,449 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for activities for the Clean Hydrogen Electrolysis Program, as

authorized under section 816 of the Energy Policy Act of 2005 (42 U.S.C. 16151 et seq.), as amended by section 40314 of division D of the Act.

(22) $981,479,556 from unobligated balances made available for fiscal year 2026 in the "Nuclear Energy" account provided for the Civil Nuclear Credit Program, as authorized under section 40323 of division D of such Act.

(23) $69,617,632 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities under section 242 of the Energy Policy Act of 2005 (42 U.S.C. 15881), as amended by section 40331 of division D of the Act.

(24) $1,097,435 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities under section 243 of the Energy Policy Act of 2005 (42 U.S.C. 15882), as amended by section 40332 of division D of the Act.

(25) $52,628,890 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for activities for Hydroelectric Incentives, as authorized under section 247 of the Energy Policy Act of 2005 (Public Law 109–58; 119 Stat. 674), as amended by section 40333 of division D of the Act.

(26) $964,421 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for activities for the Pumped Storage Hydropower Wind and Solar Integration and System Reliability Initiative, as authorized under section 3201 of the Energy Policy Act of 2020 (42 U.S.C. 17232), as amended by section 40334 of division D of the Act.

(27) $9,500,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Office of Clean Energy Demonstrations" account provided for the Clean Energy Demonstration Program on Current and Former Mine Land, as authorized under section 40342 of division D of such Act.

(28) $10,691,071 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the Energy Auditor Training Grant Program, as authorized under section 40503 of division D of such Act.

(29) $54,462,256 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for grants for implementing of updated building energy codes, as authorized under section 309 of the Energy Conservation and Production Act (42 U.S.C. 6831 et seq.), as amended by section 40511(a) of division D of the Act.

(30) $670,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for Building, Training, and Assessment Centers, as authorized under section 40512 of division D of such Act.

(31) $1,205,411 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for Career Skills Training, as authorized under section 40513 of division D of such Act.

(32) $36,519,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for Industrial Research and Assessment Centers, as authorized under section 40521(b) of division D of such Act.

(33) $233,901,000 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for Industrial Research and Assessment Center Implementation Grants, as authorized under section 457(i) of the Energy Independence and Security act of 2007 (42 U.S.C. 17111 et seq.), as amended by section 40521(b) of division D of the Act.

(34) $4,533,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the Manufacturing Leadership program, as authorized under section 40534 of division D of such Act.

(35) $195,807,333 from unobligated balances made available for fiscal years 2022 through 2026 in the "Energy Efficiency and Renewable Energy" account provided for Grants for Energy Efficiency Improvements and Renewable Improvements at Public School Facilities, as authorized under section 40541 of division D of such Act.

(36) $1,146,529 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the

Energy Efficiency Materials Pilot Program, as authorized under section 40542 of division D of such Act.

(37) $138,040,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities for the Weatherization Assistance Program, as authorized under part A of title IV of the Energy Conservation and Production Act (42 U.S.C. 6861 et seq.).

(38) $91,850,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities for the Energy Efficiency and Conservation Block Grant Program, as authorized under section 542(a) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17152(a)).

(39) $8,407,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for Extended Product System Rebates, as authorized under section 1005 of the Energy Act of 2020 (42 U.S.C. 6311 note; Public Law 116–260).

(40) $8,877,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for Energy Efficient Transformer Rebates, as authorized under section 1006 of the Energy Act of 2020 (42 U.S.C. 6317 note; Public Law 116–260).

(41) $116,385,099 from unobligated balances in the "Office of Clean Energy Demonstrations" account provided to carry out the Energy Storage Demonstration Projects Pilot Grant Program, as authorized under section 3201(c) of the Energy Act of 2020 (42 U.S.C. 17232(c)).

(42) $36,398,247 from unobligated balances in the "Office of Clean Energy Demonstrations" account provided to carry out the Long-Duration Demonstration Initiative and Joint Program, as authorized under section 3201(d) of the Energy Act of 2020 (42 U.S.C. 17232(d)).

(43) $573,319,000 from unobligated balances in the "Office of Clean Energy Demonstrations" account provided to carry out the Carbon Capture Large-Scale Pilot Projects, as authorized under section 962(b)(2)(B) of the Energy Policy Act of 2005 (42 U.S.C. 16292(b)(2)(B).

(44) $1,400,655,719 from unobligated balances in the "Office of Clean Energy Demonstrations" account provided for the Carbon Capture Demonstration Projects Program, as authorized under section 962(b)(2)(C) of the Energy Policy Act of 2005 (42 U.S.C. 16292(b)(2)(C).

(45) $6,630,000 from unobligated balances in the "Fossil Energy and Carbon Management" account provided for Precommercial Direct Air Capture Technologies Prize Competitions, as authorized under section 969D(e)(2)(A) of the Energy Policy Act of 2005 (42 U.S.C. 16298d(e)(2)(A)).

(46) $66,705,000 from unobligated balances in the "Fossil Energy and Carbon Management" account provided for Commercial Direct Air Capture Technologies Prize Competitions, as authorized under section 969D(e)(2)(B) of the Energy Policy Act of 2005 (42 U.S.C. 16298d(e)(2)(B)).

(47) $5,989,570 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities as authorized under section 634 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17213).

(48) $5,946,822 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities as authorized under section 635 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17214).

(49) $2,186,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities for the National Marine Energy Centers, as authorized under section 636 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17215).

(50) $19,551,040 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities authorized under section 615(d) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17194(d)).

(51) $14,484,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities for the Wind Energy Technology Program, as authorized under section 3003(b)(2) of the Energy Act of 2020 (42 U.S.C. 16237(b)(2)).
(52) $24,775,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the Wind Energy Technology Recycling Research, Development, and Demonstration Program, as authorized under section 3003(b)(4) of the Energy Act of 2020 (42 U.S.C. 16237(b)(4)).

(53) $2,868,000 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities authorized under section 3004(b)(2) of the Energy Act of 2020 (42 U.S.C. 16238(b)(2)).

(54) $3,169,027 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for carrying out activities authorized under section 3004(b)(3) of the Energy Act of 2020 (42 U.S.C. 16238(b)(3)).

(55) $1,565,197 from unobligated balances in the "Energy Efficiency and Renewable Energy" account provided for the Solar Energy Technology Recycling Research, Development, and Demonstration Program, as authorized under section 3004(b)(4) of the Energy Act of 2020 (42 U.S.C. 16238(b)(4)).

(56) $1,000,000 from unobligated balances in the "Construction, Rehabilitation, Operation and Maintenance, Western Area Power Administration" account provided for the purchase of power and transmission services, as authorized under division J of such Act.

SEC. 309.

(a) None of the funds made available by this Act may be used by the Secretary of Energy to award any grant, contract, cooperative agreement, or loan of $10,000,000 or greater to an entity of concern as defined in section 10114 of division B of Public Law 117–167.
(b) The Secretary shall implement the requirements under subsection (a) using a risk-based approach and analytical tools to aggregate, link, analyze, and maintain information reported by an entity seeking or receiving such funds made available by this Act.
(c) This section shall be applied in a manner consistent with the obligations of the United States under applicable international agreements.
(d) The Secretary shall have the authority to require the submission to the agency, by an entity seeking or receiving such funds made available by this Act, documentation necessary to implement the requirements under subsection (a).
(e) Chapter 35 of title 44, United States Code (commonly known as the "Paperwork Reduction Act"), shall not apply to the implementation of the requirements under this section.
(f) The Secretary and other Federal agencies shall coordinate to share relevant information necessary to implement the requirements under subsection (a).

SEC. 310.

(a) Subject to subsection (b), none of the funds made available to the Department of Energy in this or any other Act, including prior Acts and Acts other than appropriations Acts, may be used to pay the salaries and expenses of any contractor detailed to a Congressional Committee or Member Office or to the Executive Branch for longer than a 24-month period, to perform a scope of work, or participate in any matter, with the intent to influence decisions or determinations regarding a Department of Energy National Laboratory, or participate in any matter that may have a direct and predictable effect on the contractor's employer or personal financial interest: Provided, That with respect to contractors detailed to a Congressional Committee or Member Office or to the Executive Branch as of the date of enactment of this Act, the initial 24-month period described in this subsection shall be deemed to have begun on the later of the date on which such contractor was detailed or the date that is 12 months before the date of enactment of this Act.
(b) For the purposes of this section, the term "contractor" is defined to mean any contracted employee of a Department of Energy National Laboratory, as defined by section 2 (3) of the Energy Policy Act of 2005 (42 U.S.C. 15801).

Title V - General Provisions

SEC. 501. None of the funds appropriated by this Act may be used in any way, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913.

SEC. 502.

(a) None of the funds made available in this Act may be used to maintain or establish a computer network unless such network blocks the viewing, downloading, and exchanging of pornography.

(b) Nothing in subsection (a) shall limit the use of funds necessary for any Federal, State, Tribal, or local law enforcement agency or any other entity carrying out criminal investigations, prosecution, or adjudication activities.