Science Laboratories Infrastructure

Overview

The Science Laboratories Infrastructure (SLI) program's mission is to support scientific and technological innovation at the Office of Science (SC) National Laboratories by funding enabling infrastructure that fosters safe, effective, reliable, and resilient operations to increase American competitive advantage. Robust and reliable core infrastructure—including high-capacity electrical distribution, industrial cooling, steam, and other critical utility systems—ensures that advanced scientific instruments, supercomputers, quantum testbeds, and other research platforms can operate continuously at peak performance without interruptions or safety risks, enabling the national labs to sustain intensive AI and quantum computing workloads critical to achieving the Genesis Mission's ambitious scientific and innovation goals. SLI's main priorities are to transform and modernize SC's enabling physical assets (including major utility systems) while providing modern facilities that enable innovative scientific discoveries at velocity and scale. SLI funds line-item construction projects; General Plant Projects (GPP) (minor construction less than $34 million); Payments in Lieu of Taxes (PILT) to local communities around the Argonne, Brookhaven, and Oak Ridge National Laboratories (ANL, BNL, and ORNL); nuclear operations at ORNL; landlord responsibilities across the Oak Ridge Reservation; and the Laboratory Operations Apprenticeship program.

SC manages an infrastructure portfolio worth nearly $32 billion, across 10 national laboratories, encompassing nearly 24 million gross square feet (gsf) with almost 1,600 government-owned buildings and trailers serviced by over 1,300 miles of utilities. SC assets at the national laboratories include major research and user facilities, laboratory and office buildings, support facilities, and a vast network of utilities and required support capabilities. Delivering SC mission outcomes requires thoughtful stewardship of both research facilities and the required enabling infrastructure.

SC laboratories conduct annual assessments of the condition, utilization, and mission readiness of buildings and support infrastructure. In FY 2024, the assessments rated 42 percent of the general-purpose buildings substandard or inadequate to meet mission needs. In addition, 67 percent of the utility systems were rated as substandard or inadequate while 35 percent of the remaining support infrastructure was rated as substandard or inadequate. Substandard and inadequate condition of facilities results in operational inefficiencies, reduced resiliency and reliability, unplanned outages, costly repairs, and elevated safety risks. In collaboration with SC programs and the laboratories, SLI plans and executes modernization and revitalization projects to manage risk and reduce the impact of documented deficiencies on the SC mission.

SC and the laboratories integrate the assessment results with scientific mission needs through the development of comprehensive Campus Strategies during the bi-annual laboratory planning process. To support current and future capabilities and asset life-cycle management, each laboratory's Campus Strategy[a] identifies activities and infrastructure investments, such as line-item construction and GPPs. SC leadership uses these Campus Strategies, in concert with SC evaluations of infrastructure needs, to inform the SLI budget requests.

In FY 2025, SC invested nearly $884 million in maintenance, repair, and construction to sustain and enhance its general-purpose infrastructure. These investments stemmed from a variety of funding sources, including Federal appropriations for line-item construction, GPPs, laboratory overhead funding of Institutional GPPs (IGPPs), and maintenance and repair activities. The SLI investments in line-item construction and GPPs provide the critical backbone of laboratory operations and are key elements of this overall investment strategy.

[a] https://science.osti.gov/-/media/lp/pdf/laboratory-planning-process/FY-2022-ALPs-for-Web.pdf

Highlights of the FY 2027 Request
The SLI FY 2027 Request of $217.2 million is a decrease of $8.2 million below the FY 2026 Enacted level. The FY 2027 Request continues to focus on improving infrastructure across the SC national laboratory complex and supports ongoing construction projects:

1. Critical Infrastructure Recovery & Renewal at Princeton Plasma Physics Laboratory (PPPL);
2. Argonne Utilities Upgrade project at Argonne National Laboratory (ANL);
3. Linear Assets Modernization Project at Lawrence Berkeley National Laboratory (LBNL);
4. Critical Utilities Infrastructure Revitalization Project at SLAC National Accelerator Laboratory (SLAC); and
5. Utilities Infrastructure Project at Fermi National Accelerator Laboratory (FNAL).

The FY 2027 Request will support these utilities projects that reinforce the foundational infrastructure required for the SC laboratory complex to deliver on the Genesis Mission and other key DOE priorities. Expanded and modernized electrical distribution, steam, compressed-air capacity, and other systems ensure that AI, quantum, high-performance computing, and other scientific discovery assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation.

The FY 2027 Request also includes funding for Minor Construction Projects (GPPs), which are an essential component of our infrastructure modernization portfolio. GPPs address urgent and targeted enabling infrastructure and utility needs across SC laboratories and facilities such as building HVAC systems, chilled water plants, electrical systems components (switches/transformers), fire safety capabilities, emergency generators, site security improvements, and office/laboratory modernization. Minor construction projects have a maximum cost of $34 million and fewer administrative requirements than line-item construction projects. This makes GPPs well suited to quickly address the most pressing revitalization and emergency repair needs and to avoid unplanned and disruptive interruptions. SLI evaluates GPP proposals using multiple criteria including mission impact, readiness, cost savings (including energy and water), resilience, and reliability.

SLI will select minor construction projects essential to sustaining the Laboratory's role in advancing DOE initiatives, including the Genesis Mission, fusion, and advanced computing. These projects allow SC sites to quickly address infrastructure capability gaps and will ensure resilient, mission-ready operations to drive breakthroughs in national competitiveness and energy innovation.

The FY 2027 Request will continue to support the Laboratory Operations Apprenticeship program to ensure the highly specialized skills and training needed at national laboratories to maintain and operate unique complex capabilities remain available. SC will rely on PPPL's experience running a United States Department of Labor (DOL)-registered apprenticeship program to meet the growing needs of fusion energy and engineering craft skills and will incorporate additional SC Labs to support a new generation of technicians, developing skills that apply to laboratory operations, as well as growing leading edge technology sectors critical to our national priorities.

Science Laboratories Infrastructure
Funding

(dollars in thousands)

	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
Science Laboratories Infrastructure				
Payment In Lieu of Taxes (PILT)	5,119	5,119	5,000	-119
OR Landlord	7,032	7,032	7,500	+468
Facilities and Infrastructure	42,692	40,000	50,000	+10,000
KG12 - Laboratory Operations Apprenticeship	3,000	3,000	3,000	–
Oak Ridge Nuclear Operations	46,000	46,000	46,000	–
Subtotal, Science Laboratories Infrastructure	**103,843**	**101,151**	**111,500**	**+10,349**
Construction				
21-SC-71 Princeton Plasma Innovation Center (PPIC), PPPL	30,000	34,600	–	-34,600
21-SC-72 Critical Infrastructure Recovery & Renewal (CIRR), PPPL	10,000	9,400	12,282	+2,882
20-SC-72 Seismic and Safety Modernization (SSM), LBNL	23,000	–	–	–
20-SC-73 CEBAF Renovation and Expansion (CEBAF), TJNAF	11,000	26,000	–	-26,000
20-SC-77 Argonne Utilities Upgrade (AU2), ANL	3,000	2,250	1,500	-750
20-SC-78 Linear Assets Modernization Project (LAMP), LBNL	25,000	19,000	25,000	+6,000
20-SC-79 Critical Utilities Infrastructure Revitalization (CUIR), SLAC	20,000	15,000	18,075	+3,075
20-SC-80 Utilities Infrastructure Project (UIP), FNAL	35,000	18,000	48,815	+30,815
Subtotal, Construction	**157,000**	**124,250**	**105,672**	**-18,578**
Total, Science Laboratories Infrastructure	**260,843**	**225,401**	**217,172**	**-8,229**

	(dollars in thousands) FY 2027 Request vs FY 2026 Enacted
Construction	**-18,578**
Funding supports five ongoing line-item projects at ANL, FNAL, LBNL, PPPL, and SLAC.	
Total, Science Laboratories Infrastructure	**-8,229**

Program Accomplishments

Line-Item Construction Projects

Since FY 2006, SLI invested $1.6 billion to successfully complete 20 mission-enabling line-item construction projects that provided state-of-the-art science user support facilities, renovated, and repurposed aged facilities, upgraded inadequate core infrastructure and systems, and removed excess facilities. These investments began nearly 20 years ago with an SC decision to modernize infrastructure across the SC-stewarded laboratory complex. With these investments, SLI constructed approximately 1.4 million gsf of new and modernized existing space. As a result, an estimated 3,200 laboratory users and researchers now occupy newly constructed and/or modernized buildings that better support scientific and technological innovation in a collaborative environment. SLI has been recognized with 14 DOE Secretary's Achievement Awards for its contributions to the SC mission.

GPP upgrades across SC Laboratories

From FY 2016 through FY 2025 SLI has funded nearly $341 million in 54 laboratory core infrastructure improvement projects including electrical and utility improvements, building renovations, safety upgrades, resilience and other site improvement projects. Examples of FY 2025 SLI GPP investments in core infrastructure include Substation 549 Transformer Upgrades at ANL, Building 680 Upgrade Entrance Portal at BNL, Bethel Valley Central Campus 4000 Area 2.4kv to 13.8kv Upgrade at ORNL, and Reactive Power Compensation at SLAC.

Nuclear Operations Support at Oak Ridge National Laboratory

From FY 2016 through FY 2025 SLI has funded $306 million of nuclear operations support for the Nonreactor Nuclear Facilities Division (NNFD) at ORNL, driving high performance in isotope production and other hot cell work. This funding has supported facility maintenance, equipment upgrades and replacements, utilities and facility costs, and small upgrade projects to nuclear infrastructure. ORNL recently completed a high bay crane modernization project, improving operator safety and operational efficiency.

Science Laboratories Infrastructure
Infrastructure Support

Description

The SLI Infrastructure Support subprogram invests in enabling infrastructure and specific laboratory operations. The Facilities and Infrastructure activity is critical for upgrading and replacing enabling infrastructure systems (e.g., utility systems, site-wide services, and general-purpose facilities) to improve reliability, resilience, effectiveness, and performance, as well as addressing emerging needs or end-of-life requirements. This subprogram also supports nuclear operations at ORNL, stewardship needs (e.g., roads and grounds maintenance) across the Oak Ridge Reservation, the Laboratory Operations Apprenticeship program, and Payments In Lieu of Taxes (PILT).

Facilities and Infrastructure

This activity supports urgent and emerging core infrastructure needs that are most efficiently addressed through minor construction investments (general plant projects of less than $34 million). SC laboratories conduct annual condition assessments of their core infrastructure to determine the investment needs for these basic systems that form the backbone of their campuses. SLI uses these assessments to maintain and update an integrated and prioritized list of critical core infrastructure investment priorities across all 10 laboratories. Projects are rigorously evaluated for mission criticality and readiness, cost savings (including energy and water cost savings), remediation of environmental, safety, and health issues, resilience, and reliability. The highest priority projects are selected for funding based on the totality of these criteria and availability of funds.

SLI will select minor construction projects essential to sustaining the Laboratory's role in advancing DOE initiatives, including the Genesis Mission, fusion, and advanced computing. These projects allow SC sites to quickly address infrastructure capability gaps and will ensure resilient, mission-ready operations to drive breakthroughs in national competitiveness and energy innovation.

Oak Ridge Nuclear Operations

This activity supports critical DOE nuclear operations required to safely operate ORNL's non-reactor nuclear facilities (i.e., Buildings 7920, 7930, 3525, and 3025E) and associated support facilities. These facilities support a variety of users including SC programs, the National Nuclear Security Administration, the Office of Nuclear Energy (NE), and other federal agencies. This funding provides general operations support, maintenance and repair of hot cells and supporting systems, and ensures compliance with safety standards and procedures.

OR Landlord

This activity supports landlord responsibilities, including infrastructure, for the 24,000-acre Oak Ridge Reservation and DOE facilities in the city of Oak Ridge, Tennessee. The funding supports maintenance of roads, grounds, other infrastructure, and support and improvement of environmental protection, safety, and health.

Payment In Lieu of Taxes (PILT)

The Department is authorized to provide discretionary payments to state and local government authorities for real property that is not subject to taxation because it is owned by the United States Federal Government and operated on behalf of the Department. Under this authorization, PILT is provided to communities around ANL, BNL, and ORNL to compensate for lost tax revenues for land removed from local tax rolls. PILT payments are negotiated between the Department and local governments based on land values and tax rates.

Laboratory Operations Apprenticeship

This activity continues to support the development of SC's Laboratory Operations Apprenticeship program. SC HQ partners with the Management and Operating (M&O) contractors to develop a pipeline of highly and

uniquely skilled trade and craft employees at SC's national laboratories, to ensure continued maintenance and operations of the unique, complex capabilities that enable American energy and technological advantage.

Activities and Explanation of Changes

(dollars in thousands)

FY 2026 Enacted	FY 2027 Request	Explanation of Changes FY 2027 Request vs FY 2026 Enacted
Infrastructure Support **$101,151**	**$111,500**	**+$10,349**
Facilities and Infrastructure $40,000	$50,000	+$10,000
Funding continues to support the highest priority enabling infrastructure needs across the SC complex. Projects over $5 million being considered are: Building 510 Upgrade Electrical Substation - Phase I at BNL, Water Supply Tank 82 and Electrical Pump Upgrade at LBNL, 3410 Central Utility Plant (CUP) Cooling Tower Upgrade at PNNL, and Electrical Rehabilitation - 12kV Cable Replacement - Region 4 at SLAC.	The Request will support the highest priority enabling infrastructure needs across the SC complex. Projects over $5 million being considered are: Copper Communication Utilities Replacement and Upgrade at FNAL, Bethel Valley West Campus 2000/3000 Area 2.4kv to 13.8kV Upgrade at ORNL, and RF Roof Replacements (C40) at PPPL.	The funding will continue to support at least three new GPPs at multiple laboratories, addressing some of the highest risks and needs for operations.
Oak Ridge Nuclear Operations $46,000	$46,000	$ —
Funding supports the general operations and maintenance of ORNL's non-reactor nuclear facilities by the Office of Science.	The Request will support the general operations and maintenance of ORNL's non-reactor nuclear facilities by the Office of Science.	Funding will continue to support critical activities needed to operate and maintain the non-reactor nuclear facilities at ORNL.
OR Landlord $7,032	$7,500	+$468
Funding continues to support landlord responsibilities across the Oak Ridge Reservation and in Oak Ridge. Activities include maintenance of roads, grounds, other infrastructure, and support and improvement of environmental protection, safety, and health.	The Request will support landlord responsibilities across the Oak Ridge Reservation and in Oak Ridge. Activities include maintenance of roads, grounds, other infrastructure, and support and improvement of environmental protection, safety, and health.	Funding will continue to support OR landlord requirements.

(dollars in thousands)

FY 2026 Enacted	FY 2027 Request	Explanation of Changes FY 2027 Request vs FY 2026 Enacted
Payment In Lieu of Taxes (PILT) $5,119	$5,000	-$119
Funding supports PILT payments to communities around ANL, BNL, and ORNL.	The Request will provide funding for PILT payments to communities around ANL, BNL, and ORNL.	Funding will support the anticipated PILT requirements.
Laboratory Operations Apprenticeship $3,000	$3,000	$ —
Funding supports a program for technician- and craft-level apprenticeships in the SC complex.	The Request will support a program for technician- and craft-level apprenticeships in the SC complex.	Funding will continue development of the Laboratory Operations Apprenticeship program.

Science Laboratories Infrastructure
Construction

Description

The mission of the Science Laboratories Infrastructure (SLI) construction program is to support scientific and technological innovation at the SC national laboratories by modernizing enabling infrastructure and fostering effective operations at required velocity and scale. SLI's line-item construction projects are focused on infrastructure necessary to execute priority operations and will modernize SC's general-purpose physical assets and facilities through new construction recapitalization, and modernization that increase operational effectiveness and enable cutting edge scientific discovery and innovation.

Robust and reliable core infrastructure—including high-capacity electrical distribution, industrial cooling, steam, and other critical utility systems—ensures that advanced scientific instruments, supercomputers, quantum testbeds, and other research platforms can operate continuously at peak performance without interruptions or safety risks, enabling the national labs to sustain intensive AI and quantum computing workloads critical to achieving the Genesis Mission's ambitious scientific and innovation goals.

The FY 2027 Request includes funding for five ongoing line-item construction projects:

1. Critical Infrastructure Recovery & Renewal at PPPL;
2. Argonne Utilities Upgrade at ANL;
3. Linear Assets Modernization Project at LBNL;
4. Critical Utilities Infrastructure Revitalization at SLAC; and
5. Utilities Infrastructure Project at FNAL.

These utilities projects reinforce the foundational infrastructure required for the laboratory complex to deliver on the Genesis Mission and other key DOE priorities.

This Request includes no new line-item construction projects.

21-SC-72, Critical Infrastructure Recovery & Renewal, PPPL

The Critical Infrastructure Recovery & Renewal (CIRR) project at PPPL will revitalize critical infrastructure that supports the PPPL campus. Upgrades that may be completed as part of the CIRR project include: the electrical distribution system; standby power; chilled water generation and distribution; underground distribution networks; HVAC systems; and communication systems.

CIRR was delegated to the Laboratory Director on April 29, 2025. Prior to the delegation, CIRR received DOE Order 413.3B CD-3A approval, Approve Long-Lead Procurements and Site Preparation Activities, on April 24, 2025. Future project milestones will be finalized in accordance with PPPL's plan for project execution during FY 2026. The current preliminary TEC range for this project is $80,100,000 to $96,000,000. The preliminary TPC range for this project is $81,800,000 to $97,700,000. The preliminary TEC point estimate is $87,300,000 and the TPC point estimate for this project is $89,000,000.

20-SC-77, Argonne Utilities Upgrade, ANL

The Argonne Utilities Upgrade (AU2) project at ANL will revitalize and selectively upgrade ANL's existing major utility systems to increase the reliability, capability, and safety of ANL's infrastructure to meet the DOE's mission. The project will focus on systems such as steam, water, and chilled water.

AU2 was delegated to the Laboratory Director on April 29, 2025. Prior to the delegation, AU2 received DOE Order 413.3B CD-3A approval, Approve Site Preparation Activities, on September 14, 2023. Future project milestones will be finalized in accordance with the M&O contractor's plan for project execution. The last of

two subprojects anticipates approval of CD-2, Approve Performance Baseline, in the fourth quarter of FY 2032. This project is pre-CD-2; therefore, schedule estimates are subject to change. The preliminary TEC range for this project is $172,000,000 to $290,250,000. The preliminary TPC range for this project is $173,000,000 to $291,250,000. The preliminary TEC point estimate is $215,000,000 and the TPC point estimate for this project is $216,000,000.

20-SC-78, Linear Assets Modernization Project, LBNL

The Linear Assets Modernization Project (LAMP) at LBNL will upgrade high priority utility systems to increase the reliability, capability, resiliency, and safety of LBNL's infrastructure to meet the DOE's mission. The project will upgrade utility systems including, but not limited to, domestic water, natural gas, storm drain, sanitary sewer, electrical, and communications.

LAMP was delegated to the Laboratory Director on April 29, 2025. Prior to the delegation, LAMP received DOE Order 413.3B CD-1 approval, Approve Alternative Selection and Cost Range, on April 13, 2022. Future project milestones will be finalized in accordance with the M&O contractor's plan for project execution. The preliminary TEC range for this project is $164,000,000 to $376,000,000. The preliminary TPC range for this project is $170,000,000 to $386,000,000. The preliminary TEC is $236,000,000 and the preliminary TPC estimate for this project is $242,000,000.

20-SC-79, Critical Utilities Infrastructure Revitalization, SLAC

The Critical Utilities Infrastructure Revitalization (CUIR) project's primary objective is to close enabling infrastructure gaps to support multi-program science enablers by increasing reliability, resiliency, and service capacity in electrical, mechanical, and civil systems site-wide. The CUIR project will address the critical campus-wide utility and infrastructure deficiencies by replacing, repairing, and modernizing the highest risk water/fire protection, sanitary sewer, storm drain, electrical, and cooling water system deficiencies.

CUIR was delegated to the Laboratory Director on April 29, 2025. Prior to the delegation, CUIR received DOE Order 413.3B CD-3A approval, Approve Long-Lead Procurement and Early Site Preparation, on May 8, 2023. Future project milestones will be finalized in accordance with the M&O contractor's plan for project execution. The last of three subprojects anticipates approval of CD-2, Approve Performance Baseline, in the third quarter of FY 2029. This project is pre-CD-2; therefore, schedule estimates are subject to change. The preliminary TEC range for this project is $160,000,000 to $306,000,000. The preliminary TPC range for this project is $165,000,000 to $311,000,000. The preliminary TEC estimate is $204,000,000 and the preliminary TPC estimate for this project is $208,500,000.

20-SC-80, Utilities Infrastructure Project, FNAL

The Utilities Infrastructure Project (UIP) at FNAL will modernize selected potions with the highest risk to major utility systems across the FNAL campus. For example, this project will upgrade the industrial cooling water system, potable water distribution system, sanitary sewer and storm collection systems, natural gas distribution system, electrical distribution system, and the Central Utility Building. In doing so, upgrades will increase capacity, reliability, and personnel safety across critical services.

UIP received its most recent DOE Order 413.3B Critical Decision (CD) approval, CD-3A, Approve Long Lead Procurement, on December 6, 2024. The last of three subprojects anticipates approval of CD-2, Approve Performance Baseline, in the third quarter of FY 2031. This project is pre-CD-2; therefore, schedule estimates are subject to change. The preliminary TEC range for this project is $248,000,000 to $403,000,000 and the preliminary TPC range of $252,000,000 to $411,000,000. These cost ranges encompass the most feasible preliminary alternatives at this time. The preliminary TEC estimate is $310,000,000 and the preliminary TPC estimate for this project $314,000,000.

Activities and Explanation of Changes

(dollars in thousands)

FY 2026 Enacted	FY 2027 Request	Explanation of Changes FY 2027 Request vs FY 2026 Enacted
Construction $124,250	**$105,672**	**-$18,578**
21-SC-71, Princeton Plasma Innovation Center, PPPL $34,600	$ -	-$34,600
FY 2026 is the final year of funding for this project and supports construction activities.	No Funding is requested.	No Funding is requested.
21-SC-72, Critical Infrastructure Recovery & Renewal, PPPL $9,400	$12,282	+$2,882
Funding supports construction activities.	The Request will support construction activities.	Funding will support construction activities.
20-SC-73, CEBAF Renovation and Expansion, TJNAF $26,000	$ -	-$26,000
FY 2026 is the final year of funding for this project and supports construction activities.	No funding is requested.	No Funding is requested.
20-SC-77, Argonne Utilities Upgrade, ANL $2,250	$1,500	-$750
Funding supports construction activities.	The Request will support construction activities.	Funding will support construction activities.
20-SC-78, Linear Assets Modernization Project, LBNL $19,000	$25,000	+$6,000
Funding supports construction activities.	The Request will support construction activities.	Funding will support construction activities.
20-SC-79, Critical Utilities Infrastructure Revitalization, SLAC $15,000	$18,075	+$3,075
Funding supports construction activities.	The Request will support construction activities.	Funding will support construction activities.

(dollars in thousands)

FY 2026 Enacted	FY 2027 Request	Explanation of Changes FY 2027 Request vs FY 2026 Enacted
20-SC-80, Utilities Infrastructure Project, FNAL $18,000	$48,815	+$30,815
Funding supports construction activities.	The Request will support construction activities.	Funding will support construction activities.

Note:

- *Other Project Costs (OPC) are funded through laboratory overhead.*

Science Laboratories Infrastructure
Capital Summary

(dollars in thousands)

	Total	Prior Years	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
Capital Operating Expenses						
Minor Construction Activities						
General Plant Projects	N/A	N/A	42,692	40,000	50,000	+10,000
Total, Capital Operating Expenses	**N/A**	**N/A**	**42,692**	**40,000**	**50,000**	**+10,000**

Minor Construction Activities

(dollars in thousands)

	Total	Prior Years	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
General Plant Projects (GPP)						
GPPs (greater than $5M and $34M or less)						
Substation 549 Transformer Upgrades	9,791	–	9,791	–	–	–
Building 680, Upgrade Entrance Portal at BNL	11,200	–	11,200	–	–	–
Bethel Valley Central Campus 4000 Area 2.4kv to 13.8 kV Upgrade at ORNL	9,690	–	9,690	–	–	–
Reactive Power Compensation at SLAC	7,765	–	7,765	–	–	–
B/510 Upgrade Electrical Substation - Phase I	7,000	–	–	7,000	–	-7,000
Water Supply Tank 82 and Electric Pump Upgrade	8,000	–	–	8,000	–	-8,000
3410 Central Utility Plant (CUP) Cooling Tower Upgrade at PNNL	8,100	–	–	8,100	–	-8,100
Electrical Rehabilitation - 12kV Cable Replacement - Region 4 at SLAC	5,194	–	–	5,194	–	-5,194
Copper Communication Utilities Replacement and Upgrade at FNAL	10,000	–	–	–	10,000	+10,000
Bethel Valley West Campus 2000/3000 Area 2.4kv to 13.8kv Upgrade at ORNL	32,711	–	–	–	32,711	+32,711
RF Roof Replacements (C40)* at PPPL	7,289	–	–	–	7,289	+7,289
Total GPPs (greater than $5M and $34M or less)	116,740	N/A	38,446	28,294	50,000	+21,706
Total GPPs $5M or less	N/A	N/A	4,246	11,706	–	-11,706
Total, General Plant Projects (GPP)	**N/A**	**N/A**	**42,692**	**40,000**	**50,000**	**+10,000**

(dollars in thousands)

	Total	Prior Years	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
Total, Minor Construction Activities	**N/A**	**N/A**	**42,692**	**40,000**	**50,000**	**+10,000**

Note:

- *GPP activities $5M and less include design and construction for additions and/or improvements to land, buildings, replacements or addition to roads, and general area improvements. AIP activities $5M and less include minor construction at an existing accelerator facility.*

Science Laboratories Infrastructure
Institutional General Plant Projects (IGPP)

	Total	FY 2025 Enacted	FY 2026 Annualized CR	FY 2027 Request	FY 2027 Request vs. FY 2026 Annualized CR ($ Change)
Institutional General Plant Projects (IGPP)					
IGPPs (greater than or equal to $5M and less than $30M)					
Renovate 4500S Ground Floor Wing 1, ORNL	12,300	–	–	12,300	+12,300
Renovate 4505 High Bay, ORNL	9,000	–	–	9,000	+9,000
Modernize Building 4501 HVAC System, ORNL	18,000	–	–	18,000	+18,000
Modernize Building 3500 MEP Systems, ORNL	33,200	–	–	33,200	+33,200
B66 4th Floor Lab Upgrades, LBNL	25,000	25,000	–	–	–
Fire Alarm Panel Replacements, LBNL	8,000	–	–	8,000	+8,000
SW-A8 Power Resiliency, LBNL	30,000	–	30,000	–	-30,000
B73 Office and Laboratory Buildout	30,000	–	30,000		-30,000
B62 Space Renovation, LBNL	15,000	–	–	15,000	+15,000
B55 Space Renovation, LBNL	6,000	–	–	6,000	+6,000
B70A Space Renovation, LBNL	5,000	–	–	5,000	+5,000
B74 Space Renovation, LBNL	5,000	–	–	5,000	+5,000
Modernize Bldg., 4508 , ORNL	8,000	–	8,000	–	-8,000
Improve 7667 Low level Waste Site, ORNL	21,000	–	21,000	–	-21,000
Improve 7603 Basement and 7608 Vault, ORNL	12,500	–	12,500	–	-12,500
Improve East Security Portal Infrastructure, ORNL	6,700	–	–	6,700	+6,700
Construct Bethel Valley Support Facility, ORNL	19,000	–	19,000	–	-19,000
Construct Melton Valley Campus Support Facility, ORNL	12,000	12,000	–	–	–
Construct Melton Valley Portable Water Main, ORNL	16,000	–	–	16,000	+16,000
Construct Central Campus Support, ORNL	16,900	–	–	16,900	+16,900
Construct Laboratory Protection Training Capability, ORNL	16,900	–	–	16,900	+16,900
Construct Craft Support Services Facility, ORNL	33,500	–	–	33,500	+33,500
Construct Fabrication and Inspection Services Support Facility, ORNL	32,100	–	–	32,100	+32,100
Construct Roads & Grounds Maintenance Operations Facility, ORNL	21,400	–	–	21,400	+21,400
Construct East Campus Operations Support Facility, ORNL	16,900	–	–	16,900	+16,900
Construct Field Deployment Readiness Facility, ORNL	34,000	–	–	34,000	+34,000
Secure Computational and Data Sciences, PNNL	32,000	32,000	–	–	–
Shipping and Receiving Replacement, PNNL	15,000	15,000	–	–	–
PSL Lab Renovation, PNNL	14,000	14,000	–	–	–
Physical Access Control System Upgrade, PNNL	25,500	–	–	25,500	+25,500
318 HVAC Upgrade, PNNL	8,500	8,500	–	–	–
Building 223 Renovation, ANL	6,000	–	–	6,000	+6,000
Building 222 Service Level Renovation, ANL	10,000	–	–	10,000	+10,000
Building 362 Renovation, ANL	15,000	–	–	15,000	+15,000
Secure Space Compliance Upgrades, ANL	15,000	–	–	15,000	+15,000

High Voltage Substation Resilience and Redundancy Upgrades - Substation 551, ANL	22,000	–	22,000	–	-22,000
B/902 Power Upgrade - 3000kVA Substation, BNL	10,000	–	10,000	–	-10,000
B2 Space Renovation, LBNL	5,000	–	–	5,000	+5,000
Construct Multiprogram Office Building , ORNL	24,500	–	24,500	–	-24,500
Modernize 2000/3000 Area Utilities, ORNL	29,300	–	29,300	–	-29,300
Modernize Mechanical Utilities in East Campus, ORNL	29,900	–	29,900	–	-29,900
300 Area Storage Facility (formerly 325WSPAD Upgrade), PNNL	19,000	–	19,000	–	-19,000
NSR Collaboration Center, PNNL	10,000	–	–	10,000	+10,000
Total IGPPs (greater than or equal to $5M and less than $30M)	**754,100**	**106,500**	**255,200**	**392,400**	**+137,200**
Total IGPPs less than $5M	**74,335**	**32,326**	**20,301**	**21,708**	**+1,407**
Total, Institutional General Plant Projects (IGPP)	**828,435**	**138,826**	**275,501**	**414,108**	**+138,607**

Note:

- *Institutional General Plant Projects (IGPPs) are indirect funded minor construction activities that are general institutional in nature and address general purpose, site-wide needs.*

Science Laboratories Infrastructure
Construction Projects Summary

(dollars in thousands)

	Total	Prior Years	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
22-SC-71, Critical Infrastructure Modernization Project (CIMP) - ORNL						
Total Estimated Cost (TEC)	1,000	1,000	–	–	–	–
Other Project Cost (OPC)	2,500	2,000	–	500	–	-500
Total Project Cost (TPC)	**3,500**	**3,000**	**–**	**500**	**–**	**-500**
21-SC-71, Princeton Plasma Innovation Center (PPIC), PPPL						
Total Estimated Cost (TEC)	107,500	42,900	30,000	34,600	–	-34,600
Other Project Cost (OPC)	2,200	1,923	–	–	277	+277
Total Project Cost (TPC)	**109,700**	**44,823**	**30,000**	**34,600**	**277**	**-34,323**
21-SC-72, Critical Infrastructure Recovery & Renewal (CIRR), PPPL						
Total Estimated Cost (TEC)	87,300	16,150	10,000	9,400	12,282	+2,882
Other Project Cost (OPC)	1,700	1,392	–	–	–	–
Total Project Cost (TPC)	**89,000**	**17,542**	**10,000**	**9,400**	**12,282**	**+2,882**
20-SC-72, Seismic and Safety Modernization (SSM), LBNL						
Total Estimated Cost (TEC)	141,000	118,000	23,000	–	–	–
Other Project Cost (OPC)	4,000	3,561	–	–	–	–
Total Project Cost (TPC)	**145,000**	**121,561**	**23,000**	**–**	**–**	**–**
20-SC-73, CEBAF Renovation and Expansion (CEBAF), TJNAF						
Total Estimated Cost (TEC)	87,000	50,000	11,000	26,000	–	-26,000
Other Project Cost (OPC)	3,300	1,492	–	–	–	–
Total Project Cost (TPC)	**90,300**	**51,492**	**11,000**	**26,000**	**–**	**-26,000**
20-SC-74, Craft Resources Support Facility (CRSF), ORNL						
Total Estimated Cost (TEC)	40,000	40,000	–	–	–	–
Other Project Cost (OPC)	900	850	–	50	–	-50
Total Project Cost (TPC)	**40,900**	**40,850**	**–**	**50**	**–**	**-50**
20-SC-77, Argonne Utilities Upgrade (AU2), ANL						
Total Estimated Cost (TEC)	215,000	27,007	3,000	2,250	1,500	-750
Other Project Cost (OPC)	1,000	1,000	–	–	–	–
Total Project Cost (TPC)	**216,000**	**28,007**	**3,000**	**2,250**	**1,500**	**-750**
20-SC-78, Linear Assets Modernization Project (LAMP), LBNL						
Total Estimated Cost (TEC)	236,000	53,725	25,000	19,000	25,000	+6,000
Other Project Cost (OPC)	6,000	3,263	–	–	–	–
Total Project Cost (TPC)	**242,000**	**56,988**	**25,000**	**19,000**	**25,000**	**+6,000**

(dollars in thousands)

	Total	Prior Years	FY 2025 Enacted	FY 2026 Enacted	FY 2027 Request	FY 2027 Request vs FY 2026 Enacted
20-SC-79, Critical Utilities Infrastructure Revitalization (CUIR), SLAC						
Total Estimated Cost (TEC)	204,000	64,925	20,000	15,000	18,075	+3,075
Other Project Cost (OPC)	4,500	2,783	250	250	–	-250
Total Project Cost (TPC)	**208,500**	**67,708**	**20,250**	**15,250**	**18,075**	**+2,825**
20-SC-80, Utilities Infrastructure Project (UIP), FNAL						
Total Estimated Cost (TEC)	310,000	66,500	35,000	18,000	48,815	+30,815
Other Project Cost (OPC)	4,000	2,050	–	–	–	–
Total Project Cost (TPC)	**314,000**	**68,550**	**35,000**	**18,000**	**48,815**	**+30,815**
19-SC-74, BioEPIC, LBNL						
Total Estimated Cost (TEC)	165,000	165,000	–	–	–	–
Other Project Cost (OPC)	2,200	1,536	–	664	–	-664
Total Project Cost (TPC)	**167,200**	**166,536**	**–**	**664**	**–**	**-664**
Total, Construction						
Total Estimated Cost (TEC)	**1,593,800**	**645,207**	**157,000**	**124,250**	**105,672**	**-18,578**
Other Project Cost (OPC)	**32,300**	**21,850**	**250**	**1,464**	**277**	**-1,187**
Total Project Cost (TPC)	**1,626,100**	**667,057**	**157,250**	**125,714**	**105,949**	**-19,765**

21-SC-72, Critical Infrastructure Recovery & Renewal, PPPL
Princeton Plasma Physics Laboratory, PPPL
Project is for Design and Construction

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

Summary

The FY 2027 Request for the Critical Infrastructure Recovery & Renewal (CIRR) project is $12,282,000 of Total Estimated Cost (TEC) funding. The preliminary TEC range for this project is $80,100,000 to $96,000,000. The preliminary Total Project Cost (TPC) range for this project is $81,800,000 to $97,700,000. Currently, these cost ranges encompass the most feasible preliminary alternatives. The preliminary TPC point estimate for this project is $89,000,000.

Princeton Plasma Physics Laboratory's (PPPL's) increasingly unreliable and antiquated utility infrastructure is negatively impacting laboratory operations. Scientific productivity is dependent on a capable, available, flexible, maintainable, reliable, and resilient support infrastructure. This project will provide critical infrastructure needed to operate the laboratory missions safely and efficiently. These systems will be modern and energy efficient, reducing the operating cost and improving the resilience of the facilities.

This utilities project reinforces the foundational infrastructure for PPPL to support the Genesis Mission and other key DOE priorities. Primarily, expanded and modernized chilled water to ensure scientific discovery assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation.

Significant Changes

On April 29, 2025, CIRR was delegated to Laboratory Director. Prior to that delegation, the project received DOE Order 413.3B Critical Decision (CD)-3, Approve Long-Lead Procurements and Site Preparation Activities, on April 24, 2025.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2027	9/16/19	2/23/21	2/23/21	TBD	3Q FY 2025	TBD	TBD

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; **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; **D&D Complete** – Completion of D&D work; **CD-4** – Approve Start of Operations or Project Closeout.

Fiscal Year	Performance Baseline Validation	CD-3A
FY 2027	TBD	4/24/25

CD-3A – Approve Long-Lead Procurements and Site Preparation Activities

Project Cost History

(dollars in thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2026	9,680	77,620	87,300	1,700	1,700	89,000
FY 2027	9,680	77,620	87,300	1,700	1,700	89,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

2. Project Scope and Justification

Scope

The CIRR project at PPPL will revitalize critical infrastructure that supports the PPPL campus to ensure reliability and resilience. Upgrades that are completed as part of the CIRR project include: the electrical distribution system; standby power; chilled water generation and distribution; HVAC systems; and communication systems. The scientific activities that require reliable and resilient utilities include National Spherical Torus Experiment-Upgrade (NSTX-U), Facility for Laboratory Reconnection Experiments (FLARE), and Lithium Tokamak Experiment-Beta (LTX-β).

The long-lead equipment procurement was approved on April 24, 2025.

Justification

PPPL is a key DOE contributor to plasma science and directly supports the DOE mission to make fusion energy a practical reality and further U.S. economic competitiveness. To maintain system operability, it is essential to have reliable infrastructure in place. The current systems are past their useful life, obsolete, unreliable, and inefficient. Portions of the current system are part of the original infrastructure built in 1958. To maintain current missions and enable future ones, the infrastructure must be upgraded with modern, efficient, and reliable systems.

CIRR will deliver modern and resilient general-purpose infrastructure which will be more reliable, efficient, and sustainable and meet current industry standards. For example, replacing the obsolete hot deck/cold deck HVAC system will not only result in repair savings, but will generate energy savings as well. This project is being designed to consider the best available and most efficient technology to enhance operations and maintenance of new systems and equipment.

Upgrading these utility systems directly enhances the Laboratory's ability to advance DOE's flagship initiatives such as the Genesis Mission, fusion energy development, and expanded computing needs. Modern, resilient infrastructure provides the stable power, chilled water, industrial HVAC, etc. systems necessary for the continuous operation of advanced scientific instruments and high-demand computing resources that position the U.S. as a global technology leader.

The project is being conducted in accordance with Office of Science delegated authority using sound project management principles.

Key Performance Parameters (KPPs)

The KPPs are preliminary and may change as the project matures. The KPPs will be finalized in accordance with M&O contractor's plan for project execution. The Threshold KPPs represent the minimum acceptable performance that the project must achieve. The Objective KPPs represent the desired project performance. Achievement of the Threshold KPPs will be a prerequisite for approval of project completion.

Performance Measure	Threshold	Objective
Chilled Water Generation	▪ Install new Central Chilled Water Plant equipment and cooling tower cells to ensure distribution of 2,000 tons of cooling capacity to the site.	
Communications Distribution Network	▪ Complete redundant fiber optic connection between Princeton University's High-Performance Computing Research Center and the PPPL Computer Center (PPLCC). ▪ Replace 10,000 linear feet of legacy fiber optic cable between PPLCC and network distribution closets across site.	▪ Provide redundant fiber optic connections between redundant PPLCC network core and critical network distribution closets. ▪ Provide fully divergent pathway for new service provider connection to the PPLCC.
Electrical Distribution & Standby Power	▪ Improve mission readiness of the primary electrical distribution system in the 138 kV Yard by replacing XQT-2, XVT-1 transformers. ▪ Provide 2600kW generator for C-Site. ▪ Replace Q1 Switchgear and shift Q6 switchgear loads to Q1. ▪ Upgrade 2 Substations for priority buildings and facilities.	▪ Replace existing 26 kV OCB VB-1 to improve resilience of back-up power source. ▪ Replace 1 substation for priority buildings and facilities.
HVAC Systems	▪ Upgrade 2 HVAC system equipment for priority buildings on C-Site.	▪ Upgrade up to 5 HVAC system equipment priority buildings on C-Site.

Performance Measure	Threshold	Objective
Underground Distribution Network	▪ Replace 800 L.F. of chilled water main piping that has exceeded its useful life expectancy and is prone to failure.	

3. Financial Schedule

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (TEC)			
Prior Years	9,680	9,680	3,213
FY 2025	—	—	6,467
Total, Design (TEC)	**9,680**	**9,680**	**9,680**
Construction (TEC)			
Prior Years	6,470	6,470	—
FY 2025	10,000	10,000	1,950
FY 2026	9,400	9,400	8,400
FY 2027	12,282	12,282	13,000
Outyears	39,468	39,468	54,270
Total, Construction (TEC)	**77,620**	**77,620**	**77,620**
Total Estimated Cost (TEC)			
Prior Years	16,150	16,150	3,213
FY 2025	10,000	10,000	8,417
FY 2026	9,400	9,400	8,400
FY 2027	12,282	12,282	13,000
Outyears	39,468	39,468	54,270
Total, Total Estimated Cost (TEC)	**87,300**	**87,300**	**87,300**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Cost (OPC)			
Prior Years	1,392	1,392	1,392
Outyears	308	308	308
Total, Other Project Cost (OPC)	**1,700**	**1,700**	**1,700**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
Prior Years	17,542	17,542	4,605
FY 2025	10,000	10,000	8,417
FY 2026	9,400	9,400	8,400
FY 2027	12,282	12,282	13,000
Outyears	39,776	39,776	54,578
Total, TPC	**89,000**	**89,000**	**89,000**

4. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design	7,510	7,510	**N/A**
Design - Contingency	2,170	2,170	**N/A**
Total, Design (TEC)	**9,680**	**9,680**	**N/A**
Construction_No_Detail	60,230	60,230	**N/A**
Construction Contingency	17,390	17,390	**N/A**
Total, Construction (TEC)	**77,620**	**77,620**	**N/A**
Total, TEC	**87,300**	**87,300**	**N/A**
Contingency, TEC	*19,560*	*19,560*	***N/A***
Other Project Cost (OPC)			
Conceptual Planning	200	200	**N/A**
Conceptual Design	1,300	1,300	**N/A**
OPC - Contingency	200	200	**N/A**
Total, Except D&D (OPC)	**1,700**	**1,700**	**N/A**
Total, OPC	**1,700**	**1,700**	**N/A**
Contingency, OPC	*200*	*200*	***N/A***
Total, TPC	**89,000**	**89,000**	**N/A**
Total, Contingency (TEC+OPC)	***19,760***	***19,760***	***N/A***

5. Schedule of Appropriations Requests

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2026	TEC	16,150	10,000	9,400	—	51,750	87,300
	OPC	1,392	—	—	—	308	1,700
	TPC	17,542	10,000	9,400	—	52,058	89,000

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2027	TEC	16,150	10,000	9,400	12,282	39,468	87,300
	OPC	1,392	—	—	—	308	1,700
	TPC	17,542	10,000	9,400	12,282	39,776	89,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	TBD
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	N/A

Related Funding Requirements
(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations	1,100	1,100	55,000	55,000
Utilities	N/A	N/A	N/A	N/A
Maintenance and Repair	1,000	1,000	50,000	50,000
Total, Operations and Maintenance	2,100	2,100	105,000	105,000

7. D&D Information

This project replaces critical infrastructure components; no new construction area is anticipated to be constructed in this project, and it will not replace existing facilities.

	Square Feet
New area being constructed by this project at PPPL	None
Area of D&D in this project at PPPL	None
Area at PPPL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Area of D&D in this project at other sites	None
Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Total area eliminated	None

8. Acquisition Approach

The PPPL Management and Operating (M&O) Contractor, Princeton University, is performing the acquisition for this project, overseen by the Princeton Site Office. The M&O contractor is responsible for awarding and managing all subcontracts related to this project.

The Office of Science delegated Project Management Executive responsibilities to the National Laboratory Director. The project will be managed and delivered by the M&O Contractor. SC will evaluate the M&O contractor's performance through the annual laboratory performance appraisal process.

20-SC-77, Argonne Utilities Upgrade, ANL
Argonne National Laboratory, ANL
Project is for Design and Construction

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

Summary

The FY 2027 Request for the Argonne Utilities Upgrade (AU2) project is$1,500,000 of Total Estimated Cost (TEC) funding. The preliminary TEC range for this project is $172,000,000 to $290,250,000. The preliminary Total Project Cost (TPC) range for this project is $173,000,000 to $291,250,000. Currently, these cost ranges encompass the most feasible preliminary alternatives. The preliminary TPC point estimate for this project is $216,000,000.

This utilities project reinforces the foundational infrastructure for ANL to support the Genesis Mission and other key DOE priorities. Primarily, expanded and modernized chilled water to ensure scientific discovery assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation.

On April 29, 2025, AU2 was delegated to the Laboratory Director. Prior to the delegation, the project received DOE Order 413.3B Critical Decision (CD)-3A, Approve Site Preparation, on September 14, 2023.

Significant Changes

This Construction Project Data Sheet (CPDS) is an update to the FY 2026 CPDS and does not include a new start for FY 2026. FY 2027 funds will support construction activities.

Critical Milestone History

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
AU2 - Overall, ANL	5/17/19	10/30/20	7/1/21	4Q FY 2032	1Q FY 2030	4Q FY 2032	3Q FY 2035
AU2 - Chilled Water Plant , ANL	–	–	–	3Q FY 2030	3/15/24	3Q FY 2030	2Q FY 2034
AU2 - Steam Plant and Utility Piping, ANL	–	–	–	4Q FY 2032	4Q FY 2029	4Q FY 2032	3Q FY 2035

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; **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; **D&D Complete** – Completion of D&D work; **CD-4** – Approve Start of Operations or Project Closeout.

	Performance Baseline Validation	CD-3A
AU2 - Overall, ANL	4Q FY 2029	9/14/23
AU2 - Chilled Water Plant , ANL	3Q FY 2030	9/14/23
AU2 - Steam Plant and Utility Piping, ANL	4Q FY 2032	1Q FY 2032

CD-3A – Long Lead Procurements and Site Preparation Activities.

Project Cost History

(dollars in thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2026	15,000	200,000	215,000	1,000	1,000	216,000
FY 2027	15,000	200,000	215,000	1,000	1,000	216,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

2. Project Scope and Justification

Scope

The preliminary scope of the AU2 project includes upgrading failing 1940s-era utilities across the ANL campus. These utilities include steam, water, and chilled water. To facilitate its execution, the AU2 project is comprised of two subprojects consisting of scope needed to achieve complete and usable assets. Subproject 1 is the Chilled Water and Utility Piping Upgrades and consists of site preparation and demolition, which was completed via CD-3A and will be followed by construction of a new chilled water plant when construction is authorized. Subproject 2 is the Steam and Utility Piping Upgrades and consists of modernization such as an existing boiler, replacement and modernization of several major utility systems, including steam and condensate, domestic water, canal water, and sewer systems.

Justification

An efficient, maintainable, and reliable infrastructure is critical to the success and mission capability of ANL's research facilities. Revitalizing and upgrading the near century old major utility systems including steam, water, and chilled water systems is a mission need for ANL to overcome current limitations in meeting modern demands. For example, steam is a critical infrastructure for Argonne facilities; the Advanced Photon Source (APS) is dependent on the steam utility for holding extremely tight temperature and humidity ranges required for beam line operations and stability.

Improving the performance and resilience of utilities would allow major pieces of scientific equipment to operate more efficiently and effectively with modern engineered controls. Upgrading these utility systems directly enhances the Laboratory's ability to advance DOE's flagship initiatives such as the Genesis Mission and expanded computing needs. Modern, resilient infrastructure provides the steam, chilled water, etc. systems necessary for the continuous operation of advanced scientific instruments and high-demand computing resources that position the U.S. as a global technology leader.

AU2 will reduce operational risks in critical infrastructure and utility support systems and provide more resilient, efficient, and sustainable general-purpose infrastructure. The project will include installation of a combination of data collection and monitoring systems that enable predicting failures and making adjustments that minimize impacts to mission critical scientific operations.

The project is being conducted in accordance with Office of Science delegated authority using sound project management principles.

Key Performance Parameters (KPPs)

The KPPs are preliminary and may change as the project matures. The KPPs will be finalized in accordance with the M&O contractor's plan for project execution. The Threshold KPPs comprise the minimum scope required to fulfill the Mission Need. The Objective KPPs indicate potential project scope enhancements, consistent with the project's Mission Need, which could be executed if the project experiences favorable cost and schedule performance. Achievement of the Threshold KPPs will be a prerequisite for project completion.

Performance Measure	Threshold	Objective
Chilled Water and Utility Piping Upgrades (Cooling Systems).	▪ Construct a new 6,300-ton chilled water plant with N+1 reliability. ▪ Modernize, replace, or construct new distribution piping for 5,000 linear feet of utility piping.	▪ Equipment and controls upgrades at the 371 and 528 chilled water plants. ▪ Modernize five domestic water tanks. ▪ Potential capacity upgrades, new equipment, equipment replacements, and various other utility system reliability projects to increase reliability of laboratory internal utilities.
Steam and Utility Piping Upgrades (Steam & Condensate, Water Supply, Sewer).	▪ Recapitalize one (1) existing boiler in Building 108. ▪ Modernize, replace or construct new distribution piping for 2,500 linear feet of utility piping.	▪ Recapitalize one additional boiler in Building 108. ▪ Modernize, replace or construct new distribution piping for up to 15,000 linear feet of utility piping and support structures (e.g., vaults, pipe supports, valves, culverts, etc.). ▪ Install between 50 and 250 new smart meters.

3. Financial Schedule

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (TEC)			
Prior Years	11,000	11,000	7,270
FY 2025	—	—	199
FY 2026	—	—	275
FY 2027	—	—	275
Outyears	4,000	4,000	6,981
Total, Design (TEC)	**15,000**	**15,000**	**15,000**
Construction (TEC)			
Prior Years	16,007	16,007	1,468

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
FY 2025	3,000	3,000	—
FY 2026	2,250	2,250	—
FY 2027	1,500	1,500	—
Outyears	177,243	177,243	198,532
Total, Construction (TEC)	**200,000**	**200,000**	**200,000**
Total Estimated Cost (TEC)			
Prior Years	27,007	27,007	8,738
FY 2025	3,000	3,000	199
FY 2026	2,250	2,250	275
FY 2027	1,500	1,500	275
Outyears	181,243	181,243	205,513
Total, Total Estimated Cost (TEC)	**215,000**	**215,000**	**215,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Cost (OPC)			
Prior Years	1,000	1,000	1,000
Total, Other Project Cost (OPC)	**1,000**	**1,000**	**1,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
Prior Years	28,007	28,007	9,738
FY 2025	3,000	3,000	199
FY 2026	2,250	2,250	275
FY 2027	1,500	1,500	275
Outyears	181,243	181,243	205,513
Total, TPC	**216,000**	**216,000**	**216,000**

4. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design	13,400	13,400	**N/A**
Design - Contingency	1,600	1,600	**N/A**
Total, Design (TEC)	**15,000**	**15,000**	**N/A**
Construction_No_Detail	162,600	162,600	**N/A**
Construction Contingency	37,400	37,400	**N/A**
Total, Construction (TEC)	**200,000**	**200,000**	**N/A**
Total, TEC	**215,000**	**215,000**	**N/A**
Contingency, TEC	*39,000*	*39,000*	***N/A***
Other Project Cost (OPC)			
Conceptual Planning	1,000	1,000	**N/A**
Total, Except D&D (OPC)	**1,000**	**1,000**	**N/A**
Total, OPC	**1,000**	**1,000**	**N/A**
Contingency, OPC	***N/A***	*N/A*	***N/A***
Total, TPC	**216,000**	**216,000**	**N/A**
Total, Contingency (TEC+OPC)	***39,000***	***39,000***	***N/A***

5. Schedule of Appropriations Requests

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2026	TEC	27,007	3,000	1,500	—	183,493	215,000
	OPC	1,000	—	—	—	—	1,000
	TPC	28,007	3,000	1,500	—	183,493	216,000
FY 2027	TEC	27,007	3,000	2,250	1,500	181,243	215,000
	OPC	1,000	—	—	—	—	1,000
	TPC	28,007	3,000	2,250	1,500	181,243	216,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	SP-1: 2Q FY 2034 SP-2: 3Q FY 2035
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	SP-1: 2Q FY 2084 SP-2: 3Q FY 2085

Related Funding Requirements
(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	**Current Total Estimate**	**Previous Total Estimate**	**Current Total Estimate**
Operations	2,955	2,955	147,750	147,750
Utilities	4,423	4,423	221,150	221,150
Maintenance and Repair	739	739	36,950	36,950
Total, Operations and Maintenance	8,117	8,117	405,850	405,850

7. D&D Information

The new area being constructed in this project does not replace existing facilities.

	Square Feet
New area being constructed by this project at ANL	20,221
Area of D&D in this project at ANL	10,473
Area at ANL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None[b]
Area of D&D in this project at other sites	None
Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Total area eliminated	None

8. Acquisition Approach

The ANL Management and Operating (M&O) Contractor, UChicago Argonne, LLC, is performing the acquisition for this project, overseen by the Argonne Site Office. The M&O contractor is responsible for awarding and managing all subcontracts related to this project.

The Office of Science delegated Project Management Executive responsibilities to the National Laboratory Director. The project will be managed and delivered by the M&O Contractor. SC will evaluate the M&O contractor's performance through the annual laboratory performance appraisal process.

[b] With the implementation of OMB's Reduce the Footprint initiative, DOE no longer maintains the space bank. Footprint is managed using the Facility Information Management System, with the decisions on additions and offsets made in accordance with the DOE Real Property Efficiency Plan.

20-SC-78, Linear Assets Modernization Project, LBNL
Lawrence Berkeley National Laboratory, LBNL
Project is for Design and Construction

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

Summary

The FY 2027 Request for the Linear Assets Modernization Project is $25,000,000 of Total Estimated Cost (TEC) funding. The preliminary TEC range for this project is $164,000,000 to $376,000,000. The preliminary Total Project Cost (TPC) range for this project is $170,000,000 to $386,000,000. Currently, these cost ranges encompass the most feasible preliminary alternatives. The preliminary TPC estimate for this project is $242,000,000.

LAMP will upgrade high priority utility systems to increase the reliability, capability, resilience, and safety of LBNL's infrastructure to meet DOE's mission. The project will upgrade utility systems, including, but not limited to, domestic water, natural gas, electrical, and communication.

This utilities project reinforces the foundational infrastructure for LBNL to support the Genesis Mission and other key DOE priorities. Primarily, expanded and modernized chilled water to ensure scientific discovery assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation.
On April 29, 2025, LAMP was delegated to the Laboratory Director. Prior to that delegation, the project received DOE Order 413.3B Critical Decision (CD) for LAMP, CD-1, Approve Alternative Selection and Cost Range, was approved on April 13, 2022.

Significant Changes

The M&O has executed the award with the design-build contractor.

Critical Milestone History

Fiscal Year	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
FY 2027	5/17/19	4/13/22	4/13/22	TBD	TBD	TBD	TBD

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; **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; **D&D Complete** – Completion of D&D work; **CD-4** – Approve Start of Operations or Project Closeout.

Fiscal Year	Performance Baseline Validation	CD-3A
FY 2027	TBD	TBD

CD-3A – Approve Long-Lead Procurements and Site Preparation Activities.

Project Cost History

(dollars in thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2026	43,800	192,200	236,000	6,000	6,000	242,000
FY 2027	43,800	192,200	236,000	6,000	6,000	242,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

2. Project Scope and Justification

Scope

LAMP will upgrade the highest priority utility systems to increase the reliability, capability, and safety of LBNL's infrastructure to meet the DOE's mission. The utility systems include, but are not limited to, domestic water, natural gas, storm drain, sanitary sewer, electrical, and communication.

The project will aim to upgrade the most critical utility components considering operational risk and efficiencies, redundancy, utility bundling, and capacity needed for strategic growth, including expanding the primary electrical substation capacity at Grizzly Peak to power advanced supercomputing capability (NERSC-10) to full capacity and meet future lab power needs. LAMP will also implement a multi-system approach for the renewal and improvement of LBNL's utility assets, considering geographical limitations as well as potential synergies with nearby sustainment and improvement projects, that provide opportunities for enhancement. In addition to electrical expansion, the LAMP scope will upgrade multiple utility systems providing for overall increased reliability and ease of maintenance.

Justification

SC uses the capabilities of LBNL to execute 23 of the 24 core capabilities and the mission of multiple SC program offices, including ASCR, BER, BES, and HEP. The SC mission and multiple scientific programs require increased reliability, capability, and safety of LBNL's utility infrastructure. Utility infrastructure represents almost half of LBNL's large, deferred maintenance backlog and represents a significant capability gap in LBNL's ability to provide reliable and safe services to meet DOE's mission needs. Existing infrastructure is insufficient to support planned facility modernization and growth. Without a modern utility infrastructure backbone, future growth of the science mission at LBNL may not be achievable. For these reasons, direct infrastructure investment is necessary to address deferred maintenance reduction, restore operational reliability, increase resiliency, and provide the backbone necessary for scientific advancements.

LAMP will deliver modern and resilient general-purpose infrastructure which will be more efficient and sustainable. It will be designed to consider the best available and most efficient technology to enhance operations and maintenance of new systems and equipment and includes installation of a combination of data collection and monitoring systems that enable predicting failures and extreme weather events and adjusting in real time to minimize impacts to mission critical scientific operations. The initial stages of the project will enable an optimized NERSC-10 upgrade, which will play a central role in breakthrough science.

Upgrading these utility systems directly enhances the Laboratory's ability to advance DOE's flagship initiatives such as the Genesis Mission and expanded computing needs. Modern, resilient infrastructure provides the stable

power and other systems necessary for the continuous operation of advanced scientific instruments and high-demand computing resources that position the U.S. as a global technology leader.

The project is being conducted in accordance with Office of Science delegated authority using sound project management principles.

Key Performance Parameters (KPPs)

The KPPs are preliminary and may change as the project matures. The KPPs will be finalized in accordance with the M&O contractor's plan for project execution. The Threshold KPPs represent the minimum acceptable performance that the project must achieve. The Objective KPPs represent the desired project performance. Achievement of the baselined Threshold KPPs will be a prerequisite for project completion.

Performance Measure	Threshold	Objective
Storm Drainage System, Hydrauger/ Slope Stability	Install 1,000 Linear Feet of hydraugers.	Install up to 5,500 Linear Feet of hydraugers.
Sanitary Sewer	Install 150 Linear Feet of pipe.	Install up to 7,000 Linear Feet of pipe.
High Pressure City Water	Install new 12" ductile iron pipe (DIP) water main and remove existing main in the East Canyon Corridor.	Install new 12" DIP water main and remove existing main in the McMillan Corridor.
Communications & Data	Install 2,600 Linear Feet of ductbank.	Install up to 14,500 Linear Feet of ductbank with manholes and cables. (Lawrence Corridor).
Electrical Distribution/Grizzly Substation	Expand the Grizzly Substation to 70 MW capacity.	Expand the Grizzly Substation up to 150 MW capacity with two redundant lines with SCADA for new equipment.
		Provide a new SCADA Control Building.
		Provide two remote SCADA Control Rooms.
		Provide SCADA remote control and monitoring of existing and new circuit breakers.
		Install up to 400 Linear Feet of electrical feeders segregating lines 1 and 2 for SW-A1.
		Install SCADA for existing 115kV equipment.
	Install 2,700 Linear Feet of electrical feeders segregating lines 1 and 2.	Install up to 8,300 Linear Feet of electrical feeders segregating lines 1 and 2.
		Feed B59 (NERSC-10) with up to 80 MW of electrical power with 3,500 Linear Feet of redundant and segregated lines.

Performance Measure	Threshold	Objective
		Install up to 14,000 Linear Feet of electrical feeders and Pad Mounted Switches for electrical distribution loops, segregating lines 1 and 2.
		Provide up to 3 SCADA remote controls and monitoring of existing and new circuit breakers.
Natural Gas	Install 200 Linear Feet of pipe.	Install up to 5,500 Linear Feet of pipe. (Lawrence Corridor).
Compressed Air	Not Applicable	Install up to 7,500 Linear Feet of pipe.
Controls	Not Applicable	Install up to 150 Smart Meters for new wet utility construction.
		Provide integration with SCADA.
		Provide integration with Microgrid enhancement.

3. Financial Schedule

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (TEC)			
Prior Years	30,400	30,400	8,990
FY 2025	13,400	13,400	6,021
FY 2026	—	—	16,000
FY 2027	—	—	12,789
Total, Design (TEC)	**43,800**	**43,800**	**43,800**
Construction (TEC)			
Prior Years	23,325	23,325	—
FY 2025	11,600	11,600	—
FY 2026	19,000	19,000	25,000
FY 2027	25,000	25,000	35,000
Outyears	113,275	113,275	132,200
Total, Construction (TEC)	**192,200**	**192,200**	**192,200**
Total Estimated Cost (TEC)			
Prior Years	53,725	53,725	8,990
FY 2025	25,000	25,000	6,021
FY 2026	19,000	19,000	41,000
FY 2027	25,000	25,000	47,789
Outyears	113,275	113,275	132,200

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Total, Total Estimated Cost (TEC)	**236,000**	**236,000**	**236,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Cost (OPC)			
Prior Years	3,263	3,263	3,263
Outyears	2,737	2,737	2,737
Total, Other Project Cost (OPC)	**6,000**	**6,000**	**6,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
Prior Years	56,988	56,988	12,253
FY 2025	25,000	25,000	6,021
FY 2026	19,000	19,000	41,000
FY 2027	25,000	25,000	47,789
Outyears	116,012	116,012	134,937
Total, TPC	**242,000**	**242,000**	**242,000**

4. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design	37,250	37,250	**N/A**
Design - Contingency	6,550	6,550	**N/A**
Total, Design (TEC)	**43,800**	**43,800**	**N/A**
Construction_No_Detail	165,135	165,135	**N/A**
Construction Contingency	27,065	27,065	**N/A**
Total, Construction (TEC)	**192,200**	**192,200**	**N/A**
Total, TEC	**236,000**	**236,000**	**N/A**
Contingency, TEC	*33,615*	*33,615*	***N/A***
Other Project Cost (OPC)			
Conceptual Planning	2,610	2,610	**N/A**

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Conceptual Design	2,190	2,190	**N/A**
OPC - Contingency	1,200	1,200	**N/A**
Total, Except D&D (OPC)	**6,000**	**6,000**	**N/A**
Total, OPC	**6,000**	**6,000**	**N/A**
Contingency, OPC	*1,200*	*1,200*	***N/A***
Total, TPC	**242,000**	**242,000**	**N/A**
Total, Contingency (TEC+OPC)	***34,815***	***34,815***	***N/A***

5. Schedule of Appropriations Requests

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2026	TEC	53,725	25,000	13,100	—	144,175	236,000
	OPC	3,263	—	—	—	2,737	6,000
	TPC	56,988	25,000	13,100	—	146,912	242,000
FY 2027	TEC	53,725	25,000	19,000	25,000	113,275	236,000
	OPC	3,263	—	—	—	2,737	6,000
	TPC	56,988	25,000	19,000	25,000	116,012	242,000

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	4Q FY 2031
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	N/A

Related Funding Requirements
(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations	1,200	1,200	60,000	60,000
Utilities	12	12	600	600
Maintenance and Repair	3,000	3,000	150,000	150,000
Total, Operations and Maintenance	4,212	4,212	210,600	210,600

7. D&D Information

This project replaces critical infrastructure components; no new construction area is anticipated to be constructed in this project and it will not replace existing facilities.

	Square Feet
New area being constructed by this project at LBNL	None
Area of D&D in this project at LBNL	None
Area at LBNL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None[c]
Area of D&D in this project at other sites	None
Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Total area eliminated	None

8. Acquisition Approach

The LBNL Management and Operating (M&O) Contractor, University of California, is performing the acquisition for this project, overseen by the Berkeley Site Office. The M&O contractor is responsible for awarding and managing all subcontracts related to this project.

The Office of Science delegated Project Management Executive responsibilities to the National Laboratory Director. The project will be managed and delivered by the M&O Contractor. SC will evaluate the M&O contractor's performance through the annual laboratory performance appraisal process.

[c] With the implementation of OMB's Reduce the Footprint initiative, DOE no longer maintains the space bank. Footprint is managed using the Facility Information Management System, with the decisions on additions and offsets made in accordance with the DOE Real Property Efficiency Plan.

20-SC-79, Critical Utilities Infrastructure Revitalization, SLAC
SLAC National Accelerator Laboratory, SLAC
Project is for Design and Construction

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

Summary

The FY 2027 Request for the Critical Utilities Infrastructure Revitalization (CUIR) project is $18,075,000 of Total Estimated Cost (TEC) funding. The preliminary Total Estimated Cost (TEC) range for this project is $160,000,000 to $306,000,000. The preliminary Total Project Cost (TPC) range for this project is $165,000,000 to $311,000,000. Currently, these cost ranges encompass the most feasible preliminary alternatives. The preliminary TPC point estimate for this project is $208,500,000.

The primary objective of this project is to close utilities infrastructure gaps, risks, and impediments, such as utility piping breaks, power fluctuations, faults, and cooling water interruptions, to support multi-program science missions at SLAC. Evolving technologies, instruments, experimental parameters, sensitivities, and complexity require increased reliability, resiliency, and service levels in electrical, mechanical, and civil systems site wide. The CUIR project will address the critical campus-wide utility and infrastructure issues by recapitalizing and modernizing the highest risk water/fire protection, sanitary sewer, storm drain, electrical, and cooling water system deficiencies. These needs have been identified through condition assessments, inspections, and recommendations from subject matter experts responsible for stewardship of the systems.

This utilities project reinforces the foundational infrastructure for SLAC to support the Genesis Mission and other key DOE priorities. Expanded and modernized electrical distribution, water/fire protection, etc. systems ensure that high-performance computing assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation at required velocity and scale to support mission execution.

On April 29, 2025, CUIR was delegated to the Laboratory Director. Prior to that delegation, the project received DOE Order 413.3B approved Critical Decision (CD) is CD-3A, Approve Long-Lead Procurement and Early Site Preparation, which was approved on May 8, 2023. After being delegated, the M&O officially baselined (similar to DOE Order 413.3B CD-2, Approve Performance Baseline) Subproject 1 on June 25, 2025.

Significant Changes

This Construction Project Data Sheet (CPDS) is an update to the FY 2026 CPDS and does not include a new start for FY 2027. The FY 2027 Request will support activities in accordance with SLAC's plan for project execution.

Critical Milestone History

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
CUIR - Overall, SLAC	5/17/19	4/15/21	1/21/22	3Q FY 2029	1Q FY 2029	3Q FY 2029	1Q FY 2035
CUIR - Critical Electrical Work, SLAC	–	–	–	6/18/25	6/18/25	6/18/25	4Q FY 2031
CUIR - Linac Utilities and Equipment, SLAC	–	–	–	1Q FY 2029	4Q FY 2028	1Q FY 2029	4Q FY 2032

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
CUIR - Sitewide Utilities, SLAC	–	–	–	3Q FY 2029	1Q FY 2029	3Q FY 2029	1Q FY 2035

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; **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; **D&D Complete** – Completion of D&D work; **CD-4** – Approve Start of Operations or Project Closeout.

	Performance Baseline Validation	CD-3A
CUIR - Overall, SLAC	3Q FY 2029	5/8/23
CUIR - Critical Electrical Work, SLAC	6/18/25	5/8/23

CD-3A – Approve Long-Lead Procurements and Site Preparation Activities.

Project Cost History

(dollars in thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2026	26,045	177,955	204,000	4,500	4,500	208,500
FY 2027	48,227	155,773	204,000	4,500	4,500	208,500

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

2. Project Scope and Justification

Scope

CUIR's preliminary scope is to update major electrical gear and instrumentation for the two-mile long klystron gallery and accelerator housing constructed in 1962. Additionally, it will upgrade underground domestic water/fire protection, sanitary sewer, and storm drain systems site-wide. To facilitate its execution, CUIR is comprised of 3 subprojects to achieve complete and usable assets:

- Critical Electrical System Improvements: Subproject to replace and upgrade electrical components that present the greatest risk of failure or substandard performance of the Linac and associated Science projects.
- Critical Civil Utilities Replacement and Upgrade Subproject: Subproject to upgrade the storm drain, sanitary sewer and domestic/fire water piping along the Linac.
- Critical Mechanical Utilities Upgrade: Subproject will replace waveguide water heat exchangers, controls and pumps.

Justification

SLAC is currently implementing a Campus Strategy designed to support the DOE Science Mission, increase reliability, and minimize costs through safe, effective, resilient, and efficient operations.

Disruptions caused by power fluctuations, faults, and cooling water interruptions, and utility piping breaks have frequently impacted science research site wide. Electrical systems, pumps, and motors fail, valves on piping systems freeze, and there are inoperable or unsafe electrical components that require broad outages to respond and repair. Workarounds and administrative controls have been placed on existing equipment and systems because they are underrated, not operating as intended, or not designed/operational for today's science needs, which results in create tremendous inefficiencies and safety concerns, and sub-optimized operations.

The objective of the CUIR project is to reduce risks and close the capability gaps identified in SLAC's infrastructure assessments and surveys as they relate to storm water, sanitary sewer, domestic water/fire protection, electrical, and cooling water systems. The CUIR project will reduce operational risks in critical infrastructure and utility support systems for all science programs and aims to retire an estimated $18,000,000 in deferred maintenance. These existing reliability gaps will continue to impede operational efficiency, resilience, reliability, productivity, and competitive viability in science programs and other related science research breakthroughs until they are filled. The project will include installation of a combination of data collection and monitoring systems that enable predicting failures and other events affecting operations, to make adjustments that minimize impacts to mission critical scientific operations.

Upgrading these utility systems directly enhances the Laboratory's ability to advance DOE's flagship initiatives such as the Genesis Mission and expanded computing needs. Modern, resilient infrastructure provides the electrical, water/waste water, fire protection, and other systems necessary for the continuous operation of advanced scientific instruments and high-demand computing resources that position the U.S. as a global technology leader.

The project is being conducted in accordance with Office of Science delegated authority using sound project management principles.

Key Performance Parameters (KPPs)

The KPPs are preliminary and may change as the project matures. The KPPs will be finalized in accordance with the M&O contractor's plan for project execution. The Threshold KPPs comprise the minimum scope required to fulfill the Mission Need. The Objective KPPs indicate potential project scope enhancements, consistent with the project's Mission Need, which could be executed if the project experiences favorable cost and schedule performance. Achievement of the Threshold KPPs will be a prerequisite for project completion.

Performance Measure	Threshold	Objective
Subproject 1: Critical Electrical System Improvements		
	Install four (4) 12kV feeder cables and connect two feeders to final loads.*	Install eight (8) 12kV feeder cables and connect eight feeders to final loads.
	Install two (2) medium voltage switchgear at the Master Substation (MSS) to allow feeder cable selection. *	None

Performance Measure	Threshold	Objective
	Install one (1) 230kV 60MVA (or larger) transformer. *	Install two (2) 230kV 65MVA transformers and four (4) fault current limitation equipment.**
	Install one (1) substation to provide 3.5MVA power*	None
	Install one (1) medium voltage switchgear at Sector 4 to allow feeder cable selection. *	None
	Replace monitoring equipment to provide monitoring and supervisory control input at eight (8) cubicles with one (1) integration hub, and one (1) Circuit Breaker Operating Remote Panel.	Replace monitoring equipment to provide monitoring and supervisory control input at fourteen (14) cubicles with one (1) integration hub, and one (1) Circuit Breaker Operating Remote Panel.
** Electrical equipment required to deliver noted threshold scope will be acquired upon approval of CD-3A.* *** Electrical equipment necessary to deliver noted objective scope, which may be acquired after approval of CD-3A to provide project team adequate time to integrate objective scope into Subproject 1 outage planning and construction schedule development.*		
Subproject 2: Critical Civil Utilities Replacement and Upgrades		
	Replace 12,000 linear feet of domestic/fire water piping. Install submeters, flow and pressure sensors at two (2) domestic water main branches.	Replace 18,000 linear feet of domestic/fire water piping. Install submeters, flow and pressure sensors at four (4) domestic water main branches.
	Replace 2,700 linear feet of water main, laterals, and valves. Install five (5) backflow preventors and five (5) fire hydrants. Install submeter flow and pressure sensors at one (1) domestic water key node.	None
	Replace 1,000 linear feet of sanitary sewer piping. Install sensors to measure sewage flow, Total Dissolved Solids (TDS) at two (2) effluent stations.	Install sensors to measure sewage flow, Total Dissolved Solids (TDS) at five (5) existing effluent stations.

Performance Measure	Threshold	Objective
	Replace or re-line 5,000 linear feet of storm drain piping.	Replace or re-line 10,000 linear feet of storm drain piping.
	Data Analytics Plan to enhance monitoring and operation performance for utility systems.	Data Analytics Plan to integrate substation and water-cooling system monitor output into recommended data-analytics platform.
Subproject 3: Subproject 3: Critical Mechanical Utilities Upgrades		
	Replace eleven (11) Waveguide water heat exchangers, controls, and pumps.	None
	Replace four (4) Klystron water heat exchangers, four (4) controls, and four (4) pumps.	Replace 1,000 LF of Klystron piping system.
	Replace eleven (11) Accelerator, Klystron, and Waveguide monitoring devices.	None
	Install two (2) natural gas main meters, replace six (6) existing BTU energy meter, and integrate each into data analytics platform.	Install four (4) main meters and eight (8) submeters for natural gas, replace twelve (12) energy BTU meters and integrate each into the data analytics platform.
	None	Replace ten (10) programmable logic controller (PLC) to provide Data Analytics input.
	None	Integrate substation and water-cooling system monitor output into data-analytics platform.

3. Financial Schedule

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (TEC)			

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Prior Years	18,895	18,895	5,472
FY 2025	-15,237	-15,237	4,125
FY 2026	3,925	3,925	5,628
FY 2027	2,195	2,195	5,688
Outyears	38,449	38,449	27,314
Total, Design (TEC)	**48,227**	**48,227**	**48,227**
Construction (TEC)			
Prior Years	46,030	46,030	8,887
FY 2025	35,237	35,237	9,121
FY 2026	11,075	11,075	39,366
FY 2027	15,880	15,880	9,794
Outyears	47,551	47,551	88,605
Total, Construction (TEC)	**155,773**	**155,773**	**155,773**
Total Estimated Cost (TEC)			
Prior Years	64,925	64,925	14,359
FY 2025	20,000	20,000	13,246
FY 2026	15,000	15,000	44,994
FY 2027	18,075	18,075	15,482
Outyears	86,000	86,000	115,919
Total, Total Estimated Cost (TEC)	**204,000**	**204,000**	**204,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Cost (OPC)			
Prior Years	2,783	2,783	2,783
FY 2025	250	250	250
FY 2026	250	250	250
Outyears	1,217	1,217	1,217
Total, Other Project Cost (OPC)	**4,500**	**4,500**	**4,500**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
Prior Years	67,708	67,708	17,142

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
FY 2025	20,250	20,250	13,496
FY 2026	15,250	15,250	45,244
FY 2027	18,075	18,075	15,482
Outyears	87,217	87,217	117,136
Total, TPC	**208,500**	**208,500**	**208,500**

Notes:

- *In FY 2025, prior year budget authority, obligations, and costs were reallocated between sub-projects following the completion of design activities.*

4. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design	40,929	24,600	**N/A**
Design - Contingency	7,298	3,106	**N/A**
Total, Design (TEC)	**48,227**	**27,706**	**N/A**
Construction_No_Detail	129,810	139,144	**N/A**
Construction Contingency	25,963	37,150	**N/A**
Total, Construction (TEC)	**155,773**	**176,294**	**N/A**
Total, TEC	**204,000**	**204,000**	**N/A**
Contingency, TEC	*33,261*	*40,256*	***N/A***
Other Project Cost (OPC)			
Conceptual Planning	N/A	4,500	**N/A**
Lab Overhead (OPC)	4,500	N/A	**N/A**
Total, Except D&D (OPC)	**4,500**	**4,500**	**N/A**
Total, OPC	**4,500**	**4,500**	**N/A**
Contingency, OPC	***N/A***	*N/A*	***N/A***
Total, TPC	**208,500**	**208,500**	**N/A**
Total, Contingency (TEC+OPC)	***33,261***	***40,256***	***N/A***

5. Schedule of Appropriations Requests

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2026	TEC	64,925	20,000	10,000	—	109,075	204,000
	OPC	2,783	250	250	—	1,217	4,500
	TPC	67,708	20,250	10,250	—	110,292	208,500
FY 2027	TEC	64,925	20,000	15,000	18,075	86,000	204,000
	OPC	2,783	250	250	—	1,217	4,500
	TPC	67,708	20,250	15,250	18,075	87,217	208,500

Notes:
- *Funding estimates are preliminary as a formal baseline has not been established.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	1Q FY 2035
Expected Useful Life	Average 30 years (based system)
Expected Future Start of D&D of this capital asset	N/A

Related Funding Requirements
(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations	8,673	8,673	260,176	260,176
Utilities	10,487	10,487	314,624	314,624
Maintenance and Repair	8,461	8,461	253,833	253,833
Total, Operations and Maintenance	27,621	27,621	828,632	828,632

7. D&D Information

The new area being constructed in this project is not replacing existing facilities.

	Square Feet
New area being constructed by this project at SLAC	3000 gsf
Area of D&D in this project at SLAC	None

Area at SLAC to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None[d]
Area of D&D in this project at other sites	None
Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Total area eliminated	None

8. Acquisition Approach

The SLAC Management and Operating (M&O) contractor, Stanford University, is performing the acquisition for this project, overseen by the Stanford Site Office. The M&O contractor is responsible for awarding and managing all subcontracts related to this project.

The Office of Science delegated Project Management Executive responsibilities to the National Laboratory Director. The project will be managed and delivered by the M&O Contractor. SC will evaluate the M&O contractor's performance through the annual laboratory performance appraisal process.

[d] With the implementation of OMB's Reduce the Footprint initiative, DOE no longer maintains the space bank. Footprint is managed using the Facility Information Management System, with decisions on additions and offsets made in accordance with the DOE Real Property Efficiency Plan.

20-SC-80, Utilities Infrastructure Project, FNAL
Fermi National Accelerator Laboratory, FNAL
Project is for Design and Construction

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

Summary

The FY 2027 Request for the Utilities Infrastructure Project (UIP) is $48,815,000 of Total Estimated Cost (TEC) funding. The preliminary Total TEC range for this project is $248,000,000 to $403,000,000. The preliminary Total Project Cost (TPC) range for this project is $252,000,000 to $411,000,000. Currently, these cost ranges encompass the most feasible preliminary alternatives. The preliminary TPC point estimate for this project is $314,000,000.

This project will modernize and upgrade obsolete and deteriorated utilities infrastructure at Fermi National Accelerator Laboratory (FNAL) and provide resiliency, reliability, and increased safety of operations to ensure the infrastructure can continue supporting the DOE's scientific missions. This utilities project reinforces the foundational infrastructure for FNAL to support the Genesis Mission and other key DOE priorities. Primarily, expanded and modernized chilled water to ensure scientific discovery assets can operate reliably to drive breakthroughs in national competitiveness and energy innovation.

A Federal Project Director with the appropriate certification level has been assigned to this project.

Significant Changes

This Construction Project Data Sheet (CPDS) is an update to the FY 2026 CPDS and is not a new start for FY2027. The FY 2027 Request will support construction activities after the appropriate CD approvals.

The most recent DOE Order 413.3B approved Critical Decision (CD) is CD-3A, Approve Long-Lead Procurements and Site Preparation Activities, which was approved for subprojects 1 and 2 on December 6, 2024.

Critical Milestone History

	CD-0	Conceptual Design Complete	CD-1	CD-2	Final Design Complete	CD-3	CD-4
UIP - Overall, FNAL	5/17/19	–	2/23/22	3Q FY 2031	2Q FY 2031	3Q FY 2031	3Q FY 2035
UIP - New Chill Water Plant, Cent Utility Buil d Upgrades, FNAL	–	–	–	4Q FY 2027	2Q FY 2026	4Q FY 2027	4Q FY 2031
UIP - Kautz Road Substation Replacement, FNAL	–	–	–	4Q FY 2027	2Q FY 2026	4Q FY 2027	4Q FY 2031
UIP - Linear Utilities, FNAL	–	–	–	3Q FY 2031	2Q FY 2031	3Q FY 2031	3Q FY 2035

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; **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; **D&D Complete** – Completion of D&D work; **CD-4** – Approve Start of Operations or Project Closeout.

	Performance Baseline Validation	CD-3A	CD-3B
UIP - Overall, FNAL	–	12/6/24	2Q FY 2026
UIP - New Chill Water Plant, Cent Utility Build Upgrades, FNAL	3Q FY 2026	12/6/24	2Q FY 2026
UIP - Kautz Road Substation Replacement, FNAL	3Q FY 2026	12/6/24	2Q FY 2026
UIP - Linear Utilities, FNAL	3Q FY 2031	4Q FY 2029	–

CD-3A – Approve Long-Lead Procurements and Site Preparation Activities.

Project Cost History

(dollars in thousands)

Fiscal Year	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, Total	TPC
FY 2026	45,980	264,020	310,000	4,000	4,000	314,000
FY 2027	48,424	261,576	310,000	4,000	4,000	314,000

Notes:
- *This project has not received CD-2 approval; therefore, funding estimates are preliminary.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

2. Project Scope and Justification

Scope

UIP's preliminary scope includes upgrading the highest risk major utility systems across the FNAL campus. Specifically, this project will first evaluate and identify the condition and risks of failure and inadequate performance of the industrial cooling water system, potable water distribution system, sanitary sewer and storm collection systems, natural gas distribution system, electrical distribution system, Kautz Road Substation, and the Central Utility Building. Selected portions of the systems with the highest risk of impact to operations will then be replaced or upgraded to assure safe, reliable, and efficient service to mission critical facilities. As such, the project will perform upgrades to obsolete, end-of-life components, which will increase capacity, reliability, and personnel safety for critical utilities. Long-lead procurements (e.g., mechanical, and electrical equipment) and site preparation was approved via a CD-3A, on 12/6/2024. A CD-3B for additional long-lead procurements is planned for second quarter FY2026.

To facilitate its execution, UIP is comprised of three subprojects consisting of scope needed to achieve complete and usable assets.

- Subproject 1: the New Chilled Water Plant and Central Utility Plant Upgrades Subproject plans to (a) expand the existing Central Utility Building to provide chilled water capacity to support current and

future loads, and (b) modernize the existing section of the Central Utility Building systems such as hot water and low conductivity water systems.
- Subproject 2: the Kautz Road Substation Replacement Subproject plans to enhance the reliability of the Kautz Road Substation and reduce safety risks to personnel by replacing aging infrastructure, facilitating energy control, and reducing arc-flash incident energies.
- Subproject 3: the Linear Utilities Replacement Subproject plans to revitalize aging linear utilities across the FNAL site including sanitary sewers, domestic water, industrial cooling water, natural gas, and electrical feeders and equipment. These improvements will enhance system reliability and reduce deferred maintenance.

The primary construction phase of Subprojects 1 and 2 need to occur during FNAL's FY 2028–2030 Long Accelerator Shutdown to minimize disruption to the accelerator complex.

Justification

DOE's Office of Science (SC) advances new experiments, international partnerships, and research programs to transform the understanding of nature and to advance U.S. energy, economic and national security interests. This mission requires the modernization and upgrades of obsolete and severely deteriorated utilities infrastructure at FNAL. SC has identified recapitalization of FNAL's Central Utilities Building and distributed site utility infrastructure to as a priority need ensure the stewardship of SC's investments and to provide modern, world-class facilities for scientific experiments and research.

Although there has been substantial investment in recent years to modernize and construct new research facilities at FNAL, much of FNAL's utility infrastructure serving these facilities is over 50 years old, is beyond useful life and suffering from failures, decreased reliability, lack of redundancy, and limitations in capacity. As such, there is an urgent need to revitalize and selectively upgrade FNAL's existing major utility systems to ensure reliable service, meet capacity requirements, and enable readiness of facilities critical to the research mission.

Upgrading these utility systems directly enhances the Laboratory's ability to advance DOE's flagship initiatives such as the Genesis Mission and expanded computing needs. Modern, resilient infrastructure provides the electrical, water, and other systems necessary for the continuous operation of advanced scientific instruments and high-demand computing resources that position the U.S. as a global technology leader.

The UIP will reduce operational risks in critical enabling infrastructure and utility support systems and increase resilience, efficiency, reliability, productivity, and competitive viability in science programs. The project includes installation of a combination of data collection and monitoring systems that enable predicting failures and other events affecting operations and making adjustments to minimize impacts to mission critical scientific operations.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

Key Performance Parameters (KPPs)

The KPPs are preliminary and may change as the project continues towards CD-2. At CD-2 approval, the KPPs will be baselined. The Threshold KPPs comprise the minimum scope required to fulfill the Mission Need. The Objective KPPs indicate potential project scope enhancements, consistent with the project's Mission Need, which could be executed if the project experiences favorable cost and schedule performance. Achievement of the Threshold KPPs will be a prerequisite for approval of CD-4, Project Completion.

Performance Measure	Threshold	Objective
Chilled Water Plant and CUB Upgrades	• Construct an addition to CUB for chilled water production (5,000 tons cooling capacity) • Install chillers • Install arc-resistant switchgear • Install boilers to cover historical heating load of 11.4 MMBH, with natural gas boilers for emergency backup • Provide vibration monitoring of chillers, cooling towers, and pumps integrated with AI/ML predictive analytics	▪ Increase chilled water production to 6,000 tons cooling capacity. ▪ Upgrade chillers to magnetic bearing chillers ▪ Install heat recovery chillers to provide heating to Wilson Hall with electric boiler backup
Kautz Road Substation	▪ Replace the KRS Control House to improve arc flash safety requirements ▪ Replace bus duct ▪ Replace T-85 Transformer ▪ Replace 345kV Circuit Breaker	• Replace Harmonic Filter Components • Replace CCVTs, metering transformers
Linear Utilities Replacement	▪ Revitalize 5 miles of the Industrial Cooling Water system.	▪ Revitalize 16 miles of the Industrial Cooling Water system.
	▪ Revitalize 5 miles of the Domestic Water System (DWS).	▪ Revitalize 19 miles of the Domestic Water System (DWS).
	▪ Revitalize 3.5 miles of the Sanitary Sewer systems.	▪ Revitalize 11 miles of the Sanitary Sewer System.
	▪ Revitalize 2 miles of underground Natural Gas lines.	▪ Revitalize 22 miles of underground Natural Gas lines.
	▪ Revitalize 2 miles of electrical distribution feeders and associated unit substations, transformers, etc.	▪ Revitalize 65 miles of electrical distribution feeders and associated unit substations, transformers, etc. ▪ Provide Electrical Code upgrades to Master Substation ▪ Revitalize 100 percent of the High-Pressure Sodium exterior lights along

Performance Measure	Threshold	Objective
		sidewalks, roads, and parking lots with LED.

3. Financial Schedule

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Estimated Cost (TEC)			
Design (TEC)			
Prior Years	22,280	22,280	11,275
FY 2025	21,144	21,144	6,148
FY 2026	—	—	2,077
Outyears	5,000	5,000	28,924
Total, Design (TEC)	**48,424**	**48,424**	**48,424**
Construction (TEC)			
Prior Years	44,220	44,220	—
FY 2025	13,856	13,856	4,427
FY 2026	18,000	18,000	18,000
FY 2027	48,815	48,815	52,711
Outyears	136,685	136,685	186,438
Total, Construction (TEC)	**261,576**	**261,576**	**261,576**
Total Estimated Cost (TEC)			
Prior Years	66,500	66,500	11,275
FY 2025	35,000	35,000	10,575
FY 2026	18,000	18,000	20,077
FY 2027	48,815	48,815	52,711
Outyears	141,685	141,685	215,362
Total, Total Estimated Cost (TEC)	**310,000**	**310,000**	**310,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Other Project Cost (OPC)			
Prior Years	2,050	2,050	2,050
Outyears	1,950	1,950	1,950
Total, Other Project Cost (OPC)	**4,000**	**4,000**	**4,000**

(dollars in thousands)

	Budget Authority (Appropriations)	Obligations	Costs
Total Project Cost (TPC)			
Prior Years	68,550	68,550	13,325
FY 2025	35,000	35,000	10,575
FY 2026	18,000	18,000	20,077
FY 2027	48,815	48,815	52,711
Outyears	143,635	143,635	217,312
Total, TPC	**314,000**	**314,000**	**314,000**

Note:
- *In FY 2025, prior year budget authority, obligations, and costs were reallocated between sub-projects following the completion of design activities.*

4. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design	44,022	42,750	**N/A**
Design - Contingency	4,402	6,200	**N/A**
Total, Design (TEC)	**48,424**	**48,950**	**N/A**
Construction_No_Detail	214,997	215,700	**N/A**
Construction Contingency	46,579	45,350	**N/A**
Total, Construction (TEC)	**261,576**	**261,050**	**N/A**
Total, TEC	**310,000**	**310,000**	**N/A**
Contingency, TEC	*50,981*	*51,550*	***N/A***
Other Project Cost (OPC)			
Conceptual Planning	880	880	**N/A**
Conceptual Design	1,170	1,170	**N/A**
OPC - Contingency	1,950	1,950	**N/A**
Total, Except D&D (OPC)	**4,000**	**4,000**	**N/A**
Total, OPC	**4,000**	**4,000**	**N/A**
Contingency, OPC	*1,950*	*1,950*	***N/A***
Total, TPC	**314,000**	**314,000**	**N/A**
Total, Contingency (TEC+OPC)	***52,931***	***53,500***	***N/A***

5. Schedule of Appropriations Requests

(dollars in thousands)

Fiscal Year	Type	Prior Years	FY 2025	FY 2026	FY 2027	Outyears	Total
FY 2026	TEC	66,500	35,000	12,000	—	196,500	310,000
	OPC	2,050	—	—	—	1,950	4,000
	TPC	68,550	35,000	12,000	—	198,450	314,000
FY 2027	TEC	66,500	35,000	18,000	48,815	141,685	310,000
	OPC	2,050	—	—	—	1,950	4,000
	TPC	68,550	35,000	18,000	48,815	143,635	314,000

Notes:
- *This project has not received CD-2 approval; therefore, funding estimates are preliminary.*
- *Other Project Costs (OPC) are funded through laboratory overhead.*

6. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	3Q FY 2035
Expected Useful Life	30 years
Expected Future Start of D&D of this capital asset	N/A

Related Funding Requirements
(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Previous Total Estimate	Current Total Estimate	Previous Total Estimate	Current Total Estimate
Operations	287	287	8,610	8,610
Utilities	577	577	17,310	17,310
Maintenance and Repair	287	287	8,610	8,610
Total, Operations and Maintenance	1,151	1,151	34,530	34,530

7. D&D Information

The new area being constructed in this project is not replacing existing facilities.

	Square Feet
New area being constructed by this project at FNAL	10,000 – 30,000
Area of D&D in this project at FNAL	None
Area at FNAL to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None[e]
Area of D&D in this project at other sites	None

[e] With the implementation of OMB's Reduce the Footprint initiative, DOE no longer maintains the space bank. Footprint is managed using the Facility Information Management System, with decisions on additions and offsets made in accordance with the DOE Real Property Efficiency Plan.

Area at other sites to be transferred, sold, and/or D&D outside the project, including area previously "banked"	None
Total area eliminated	None

8. Acquisition Approach

The FNAL Management and Operating (M&O) contractor, Fermi Forward Discovery Group, LLC (FFDG) FNAL Research Alliance LLC, will perform the acquisition for this project, overseen by the FNAL Site Office. The M&O contractor is responsible for awarding and managing all subcontracts related to this project. Project performance metrics will be performed by in-house management and Project Controls. SC will evaluate the M&O contractor's performance through the annual laboratory performance appraisal process

SC and the M&O contractor will draw from lessons learned from other SC projects and other similar facilities in planning and executing the project.