Science Laboratories Infrastructure
Funding Profile by Subprogram and Activity

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR*	FY 2014 Request
Infrastructure Support			
Oak Ridge Landlord	5,493	5,527	5,951
Payments in Lieu of Taxes	1,385	1,393	1,385
Facilities and Infrastructure	0	0	900
Total, Infrastructure Support	6,878	6,920	8,236
Construction			
Utilities Upgrade at FNAL (13-SC-70)	0	0	34,900
Utility Infrastructure Modernization at TJNAF (13-SC-71)	0	0	29,200
Science and User Support Building at SLAC (12-SC-70)	12,086	12,160	25,482
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	12,024	12,098	0
Energy Sciences Building at ANL (10-SC-71)	40,000	40,245	0
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	15,500	15,595	0
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	12,975	13,054	0
Technology and Engineering Development Facility at TJNAF (09-SC-74)	12,337	12,413	0
Total, Construction	104,922	105,565	89,582
Total, Science Laboratories Infrastructure	111,800	112,485	97,818

*FY 2013 amounts shown reflect the P.L. 112-175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level a dash (—) is shown.

Public Law Authorizations

Public Law 95-91, "Department of Energy Organization Act", 1977
Public Law 102-468, "Energy Policy Act of 1992"
Public Law 109-58, "Energy Policy Act of 2005"
Public Law 110-69, "America COMPETES Act of 2007"
Public Law 111-358, "America COMPETES Reauthorization Act of 2010"

Overview

The Science Laboratories Infrastructure (SLI) program mission is to support scientific and technological innovation at the Office of Science (SC) laboratories by funding and sustaining mission-ready infrastructure and fostering safe and environmentally responsible operations. The program provides the infrastructure necessary to support world leadership by the SC national laboratories in the area of basic scientific research now and in the future.

SLI's primary focus is on long-term modernization of SC laboratory infrastructure to ensure the mission readiness of SC laboratories. Through this program, SC is ensuring that its laboratories have state-of-the-art facilities and utilities that are flexible, reliable, and sustainable, with environmentally stable research space and high performance computing space needed to support

Science/

scientific discovery. Facility designs ensure safe, collaborative, and interactive work environments and allow for the integration of basic and applied research and development. Projects in many cases include funds for removal of aged and outdated facilities that are being replaced by new ones. New and renovated buildings and utilities include the latest temperature and humidity controls, clean power, and isolation from vibration and electromagnetic interference where needed. Other small facility decontamination and decommissioning and cleanup projects not included in the SLI construction program are funded with laboratory overhead. SLI maintains and regularly updates a portfolio of potential future projects across all 10 SC laboratories to provide modernized mission-ready infrastructure as needed.

In addition to the construction program, SLI's Infrastructure Support program provides SC stewardship responsibilities for the Oak Ridge Reservation and the Federal facilities in the City of Oak Ridge, Tennessee, and Payments in Lieu of Taxes (PILT) to local communities around the Argonne, Brookhaven, and Oak Ridge National Laboratories. Beginning in FY 2013, SLI will provide funding to support facilities and infrastructure for the Office of Scientific and Technical Information (OSTI) at Oak Ridge and the New Brunswick Laboratory (NBL) at the Argonne Site. These activities were previously budgeted in SC Program Direction.

Program Accomplishments and Milestones

In FY 2012, two SLI projects were recognized by the Secretary of Energy for excellence in project management. The DOE Secretary's Award of Excellence was awarded to the *Physical Sciences Facility (PSF) project at Pacific Northwest National Laboratory (PNNL)* and the DOE Secretary's Improvement Award was presented to the *Modernization of Laboratory Facilities (MLF) project at Oak Ridge National Laboratory (ORNL)*. Both of these projects were approved for project closeout and accepted for occupancy in FY 2011.

Demolition of Building 51 and Bevatron Project at Lawrence Berkeley National Laboratory (LBNL) was completed in FY 2012 on schedule and within budget. The project, which eliminated a legacy accelerator and freed up approximately three acres of much-needed land at the site for programmatic use, has been nominated for recognition for a DOE project management excellence award.

The Technology and Engineering Development Facility (TEDF) at Thomas Jefferson National Accelerator Facility (TJNAF). On March 22, 2012 this project received CD-4A, Approve Start of Operations—New Construction, after the on-time completion of the 30,000 square foot addition to Test Lab for Superconducting Radio Frequency (SRF) space and completion of the new 70,000 square foot Technology and Engineering Development building for engineering and fabrication functions. TJNAF obtained LEED® Gold Certification for this newly constructed building.

The Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II at Lawrence Berkeley National Laboratory. Beneficial Occupancy on Building 74 of this project was completed on August 28, 2012.

The Research Support Building and Infrastructure Modernization (RSB) at SLAC National Accelerator Laboratory (SLAC). Construction on the Operations Support Building (Bldg. 028) was completed 3-months ahead of schedule on October 31, 2011. Work involved a significant renovation in the first quarter of FY 2012 and the addition of enclosed offices and open work-stations to the 20,000 square-foot building. The construction also added ADA compliant access, restrooms, break rooms, huddle rooms, and utility rooms (mechanical, electrical, IT, etc.). SLAC obtained LEED® Gold Certification for this newly renovated building.

The Interdisciplinary Science Building (ISB), Phase I project at Brookhaven National Laboratory (BNL). Construction of this new 87,700 square foot laboratory building is substantially complete, on schedule, and within budget. Beneficial Occupancy was achieved on February 27, 2013.

Milestone	Date
Approve start of construction for the balance of the Research Support Building project at SLAC	3rd Qtr. FY 2013
Approve project completion for the Interdisciplinary Science Building project at BNL	3rd Qtr. FY 2013
Approve performance baseline and start of construction for the Science and User Support Building project at SLAC	3rd Qtr. FY 2013

Milestone	Date
Approve start of operations for the renovated Test Lab and project completion of the Technology and Engineering Development Facility project at TJNAF	2nd Qtr. FY 2014
Approve project completion for the Renovate Science Laboratories—Phase II project at BNL	3rd Qtr. FY 2014

Program Planning and Management

SLI's portfolio of infrastructure modernization construction projects has been established in full collaboration with the SC Deputy Director for Field Operations and the Deputy Director for Science Programs. SLI reviews the priorities for new construction projects each year in concert with the Director of Science and the Deputy Director for Science Programs in order to assure project starts are consistent with current and future science mission priorities. SLI relies on the SC Annual Laboratory Plans for this annual review. These plans integrate scientific planning with infrastructure and operational planning by directly tying proposed investments to identified mission capability gaps. The plans provide a concise picture of the mission readiness of each laboratory, the capability gaps, and the investments necessary to fill those gaps.

SLI's construction projects are rigorously managed in accordance with the requirements of DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, as well as Office of Science policies and procedures, including Independent Project Reviews. SLI program managers work closely with the SC Budget and Project Assessment offices during project planning and execution. As a result, performance of SLI construction projects has been on track with commitments. To date, all on-going SLI infrastructure modernization construction projects have received successful reviews by the SC Office of Project Assessment and all planned milestones and Critical Decision (CD) approvals have been met.

Program Goals and Funding

Revitalizing facilities and providing modern laboratory infrastructure is critical to ensuring the continued mission readiness of SC laboratories. Mission readiness of a laboratory's facilities and infrastructure is defined as the capability of those assets to effectively support the scientific mission assigned to the laboratory. The current and future mission readiness of each SC laboratory is evaluated using a peer review process that focuses on the ability of each laboratory infrastructure element to meet the needs of scientific research. Through the SLI program, capital investments are provided to make needed improvements. The goal of SLI's construction program is to provide the modern laboratory infrastructure needed to deliver advances in science the Nation requires to remain competitive in the 21st century and to correct longstanding deficiencies while ensuring laboratory infrastructure provides a safe and quality workplace.

Goal Areas by Subprogram

	Research	Facility Operations	Future Facilities	Workforce
Infrastructure Support	0%	0%	100%	0%
Line Item Construction	0%	0%	100%	0%
Total, Science Laboratories Infrastructure	0%	0%	100%	0%

Explanation of Funding and Program Changes

Two ongoing SLI construction projects received final year funding in FY 2012—the Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II project at Lawrence Berkeley National Laboratory; and the Technology and Engineering Development Facility project at Thomas Jefferson National Accelerator Facility. Furthermore, three ongoing construction projects are scheduled to receive final year funding with the requested FY 2013 budget: the Renovate Science Laboratories project at Brookhaven National Laboratory; the Energy Sciences Building project at Argonne National Laboratory; and the Research Support Building and Infrastructure Modernization project at the SLAC National Accelerator Laboratory.

In FY 2014, SLI will continue funding for three ongoing construction projects: the Science and User Support

Building project at SLAC, the Utilities Upgrade project at the Fermi National Accelerator Laboratory, and the Utility Infrastructure Modernization project at TJNAF. In FY 2014, SLI's Infrastructure Support subprogram will continue funding to accommodate and support facilities and infrastructure activities at the Office of Scientific and Technical Information facility at Oak Ridge and the NBL facility at the Argonne Site.

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
Infrastructure Support	6,878	8,236	+1,358
Funding increases to accommodate the transfer of funding for facilities and infrastructure support at the OSTI facility at Oak Ridge and the NBL facility at the Argonne site that were previously funded under SC Program Direction. Increased funding also supports reservation road repairs, critical maintenance needs, and other landlord responsibilities at the Oak Ridge Reservation and other DOE facilities in Oak Ridge.			
Line Item Construction	104,922	89,582	-15,340
Two ongoing SLI construction projects received final funding in FY 2012, and three ongoing construction projects received final funding in FY 2013. The conclusion of funding is offset in FY 2014 by funding provided for the continuation of the Science and User Support Building project at SLAC, the Utilities Upgrade project at FNAL, and the Utility Infrastructure Modernization project at TJNAF.			
Total, Science Laboratories Infrastructure	111,800	97,818	-13,982

Infrastructure Support
Funding Profile by Activity

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Oak Ridge Landlord	5,493	5,527	5,951
Payments in Lieu of Taxes	1,385	1,393	1,385
Facilities and Infrastructure	0	0	900
Total, Infrastructure Support	6,878	6,920	8,236

Overview

The Infrastructure Support subprogram provides SC stewardship responsibilities for the Oak Ridge Reservation and DOE facilities and Office of Scientific and Technical Information in the city of Oak Ridge, Tennessee and facilities infrastructure support for New Brunswick Laboratory at the Argonne site. Infrastructure Support also provides Payments in Lieu of Taxes to local communities around the Argonne, Brookhaven, and Oak Ridge National Laboratories.

Explanation of Funding Changes

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
Oak Ridge Landlord	5,493	5,951	+458
Funding increases to accommodate the transfer of funding for facilities and infrastructure support at OSTI ($200,000) that was previously funded under SC Program Direction. The increase also supports reservation road repairs and other critical maintenance needs at the Oak Ridge Reservation and other DOE facilities in Oak Ridge.			
Payments in Lieu of Taxes	1,385	1,385	0
Funding is maintained at the current level.			
Facilities and Infrastructure	0	900	+900
Funding increases to accommodate the transfer of funding for facilities and infrastructure support at NBL. This funding was previously funded under SC Program Direction.			
Total, Infrastructure Support	6,878	8,236	+1,358

Oak Ridge Landlord

Overview

Funding supports landlord responsibilities, including infrastructure for the 24,000 acre Oak Ridge Reservation, Office of Scientific and Technical Information, and DOE facilities in the city of Oak Ridge, Tennessee. Activities include maintenance of roads, grounds, and other infrastructure; support and improvement of environmental protection, safety, and health; routine infrastructure maintenance at OSTI; and Payment in Lieu of Taxes to Oak Ridge communities. Landlord responsibilities exclude the Y-12 plant, ORNL, and the East Tennessee Technology Park.

Funding and Activity Schedule

Fiscal Year	Activity	Funding (dollars in thousands)
FY 2012	Funding provided for activities to ensure continuity of operations and minimize interruptions due to infrastructure or other system failures.	5,493
FY 2013	The FY 2013 Request proposed $5,934,000 to support Oak Ridge Reservation Landlord responsibilities and to ensure continuity of operations and minimize interruptions due to infrastructure or other system failures. Funding also initiated support of OSTI facility and infrastructure expenses transferred from SC Program Direction.	5,527
FY 2014	The FY 2014 request provides funding for activities to ensure continuity of operations and minimize interruptions due to infrastructure or other system failures. Funding also initiates support for OSTI facility and infrastructure expenses transferred from SC Program Direction.	5,951

Payments in Lieu of Taxes

Overview

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 and operated by the Department. Under this authorization, PILT is provided to communities around the Argonne and Brookhaven National Laboratories 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.

Funding and Activity Schedule

Fiscal Year	Activity	Funding (dollars in thousands)
FY 2012	Funding supports the Department's authorization to provide PILT payments to communities around Argonne and Brookhaven National Laboratories.	1,385
FY 2013	The FY 2013 Request proposed $1,385,000 to support the Department's authorization to provide PILT payments to communities around the Argonne and Brookhaven National Laboratories.	1,393
FY 2014	The FY 2014 request provides funding for PILT payments to communities around the Argonne and Brookhaven National Laboratories.	1,385

Facilities and Infrastructure

Overview

Funding within this activity is provided for maintenance of general purpose infrastructure at the New Brunswick Laboratory (NBL), located on the site of the Argonne National Laboratory.

Funding and Activity Schedule

Fiscal Year	Activity	Funding (dollars in thousands)
FY 2012	In FY 2012, these activities were funded by SC Program Direction.	0
FY 2013	The FY 2013 Request proposed $900,000 to initiate support of NBL facilities and infrastructure previously funded under SC Program Direction.	0
FY 2014	Funding provided to support of NBL facilities and infrastructure previously funded under SC Program Direction.	900

Construction
Funding Profile by Activity

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Construction			
Utilities Upgrade at FNAL (13-SC-70)	0	0	34,900
Utility Infrastructure Modernization at TJNAF (13-SC-71)	0	0	29,200
Science and User Support Building at SLAC (12-SC-70)	12,086	12,160	25,482
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	12,024	12,098	0
Energy Sciences Building at ANL (10-SC-71)	40,000	40,245	0
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	15,500	15,595	0
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	12,975	13,054	0
Technology and Engineering Development Facility at TJNAF (09-SC-74)	12,337	12,413	0
Total, Construction	104,922	105,565	89,582

Overview

The SLI Construction program funds line item projects to maintain and enhance the general purpose infrastructure at SC laboratories. SLI's infrastructure modernization construction projects are focused on the accomplishment of long-term science goals and strategies at each SC laboratory.

Explanation of Funding Changes

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
Utilities Upgrade at FNAL (13-SC-70)	0	34,900	+34,900

The reliability of FNAL's current industrial cooling water and high-voltage electrical distribution systems is suffering due to increased pipe break and electrical failures. Also, current and future accelerator and experimental facilities at FNAL will exhaust the capacity of the existing utility systems and additional stresses to the system will exacerbate these problems. The Utilities Upgrade project will upgrade the laboratory's industrial cooling water and high voltage electrical system, which will mitigate environmental liability, improve reliability, and enable FNAL to effectively perform high energy physics research.

This project received CD-1 approval on November 15, 2010.

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
The FY 2014 Request fully funds this project to reduce procurement risk.			
Utility Infrastructure Modernization at TJNAF (13-SC-71)	0	29,200	+29,200
The Utility Infrastructure Modernization project at TJNAF will replace/upgrade existing utility systems that continue to experience failures that could limit the laboratory's performance abilities. This project will upgrade and increase capacity of the process cooling, cryogenic, electrical power distribution, and communication systems. These upgrades will improve performance and reliability of ongoing SC research programs including Continuous Electron Beam Accelerator Facility and its 12 GeV Upgrade, along with the Free Electron Laser.			
This project received CD-1 approval on October 14, 2010.			
The FY 2014 Request fully funds this project to reduce procurement risk.			
Science and User Support Building at SLAC (12-SC-70)	12,086	25,482	+13,396
SLAC's Linac Coherent Light Source (LCLS) and Stanford Synchrotron Radiation Light Source (SSRL), through a common user support office, engage, train, and support a new generation of scientific users working in a range of disciplines in physical sciences, engineering, and biology, whose skills bridge x-ray and laser physics capabilities. With the success of the LCLS, SLAC is benefiting from a large influx of visitors and users and expects the demand to use SLAC's research facilities will continue to grow. The Science and User Support Building project will provide the expanded user space needed to ensure that world-class research conducted is supported by mission-ready facilities. This project will replace aging structures with a newly constructed building that will serve as the main entrance to the laboratory and bring together SLAC's visitor's, users, and administrative services.			
This project received CD-1 approval on May 11, 2012.			
FY 2014 funding supports the continuation of construction activities per the planned profile in the Preliminary Project Execution Plan.			
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	12,024	0	-12,024
The Research Support Building and Infrastructure Modernization project improves accelerator research capabilities and efficiency by collocating Particle Physics, SSRL, and LCLS functions. Additionally, the Accelerator Main Control Center, located within the Research Support Building, will contribute to the co-location of accelerator scientists and strengthen ties and interactions between control room operators and related areas of research and support functions as well as provide them a stronger connection to the main campus.			

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
CD-3A approval to start construction on Building 28 and Building 52 was received on December 10, 2010. Construction on Building 28 was completed on October 31, 2011 and construction on Building 52 is in progress and is expected to be completed in FY 2013. CD-3B to start construction on Building 41 is expected to be approved in FY 2013. Final funding for this project was requested in FY 2013.			
Energy Sciences Building at ANL (10-SC-71)	40,000	0	-40,000
The Energy Science Building project replaces some of the oldest and least effective research space with new, environmentally stable, and specialized multi-disciplinary laboratory space. This integration will enable multi-functionality and enhance capabilities of research funded through the Basic Energy Science (BES) program including biomolecules; superconductors and magnets; catalysts with intricately structured surfaces; and hybrid solar cells integrating nanoscale dyes, semiconductors, and electrolytes. This project received CD-3 approval on June 15, 2011 and is planned for project closeout in FY 2014. Final funding for this project was requested in FY 2013.			
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	15,500	0	-15,500
This project provides upgrades to several laboratory buildings at BNL. Building 510 (the Physics Department) is essential to research supported by the SC Office of Nuclear and Office of High Energy Physics as it is home to scientists from the PHENIX and STAR collaborations at the Relativistic Heavy Ion Collider (RHIC) facility and is the center for the U.S. ATLAS group that works at the Large Hadron Collider at CERN. This building also accommodates research related to the MINOS experiment at Fermilab and the Long Baseline Neutrino Experiment. Building 555 (the Chemistry Department) is essential to research supported by the BES program as it is the primary site for wet chemistry and is linked to BNL's Center for Functional Nanomaterials, the National Synchrotron Light Source (NSLS), and the future NSLS-II. The Renovate Science Labs, Phase II project will improve the working environment of scientists by modernizing the laboratory space in these two buildings which will boost operational efficiency, save energy through more efficient buildings, and provide facilities that meet ES&H codes to improve safety. This project received CD-3B approval on June 15, 2011 and is planned to receive approval for project closeout in FY 2014. Final funding for this project was requested in FY 2013.			

(dollars in thousands)

	FY 2012 Current	FY 2014 Request	FY 2014 Request vs. FY 2012 Current
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	12,975	0	-12,975
This project received final funding in FY 2012 and is planned to receive approval for project closeout in FY 2015.			
Technology and Engineering Development Facility at TJNAF (09-SC-74)	12,337	0	-12,337
This project received final funding in FY 2012 and is planned to receive approval for project closeout in FY 2014.			
Total, Construction	104,922	89,582	-15,340

Supporting Information

Capital Operating Expenses

Capital Operating Expenses

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
General plant projects under $5 million	100	—	100

Construction Projects Summary

Construction Projects

(dollars in thousands)

	Total	Prior Years	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Utilities Upgrade at FNAL (13-SC-70)					
TEC	34,900[a]	0	0	0	34,900
OPC[b]	1,100	1,100	0	0	0
TPC	36,000[a]	1,100	0	0	34,900
Utility Infrastructure Modernization at TJNAF (13-SC-71)					
TEC	29,200[a]	0	0	0	29,200
OPC[b]	700	700	0	0	0
TPC	29,900[a]	700	0	0	29,200
Science & User Support Building at SLAC (12-SC-70)					
TEC	64,000[a]	0	12,086	12,160[c]	25,482
OPC[b]	1,000	500	0	0	300
TPC	65,000[a]	500	12,086	12,160[c]	25,782
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)					
TEC	96,000	47,594	12,024	12,098[d]	0
OPC[b]	1,400	705	215	216[d]	230
TPC	97,400	48,299	12,239	12,314[d]	230

[a] This project has not received CD-2 approval; therefore, preliminary cost estimates are shown for TEC and TPC.

[b] Other Project Costs shown are funded through laboratory overhead.

[c] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, TPC, and subsequent appropriation assumptions have not been adjusted to reflect this FY 2013 level; the FY 2013 Request level of $21,629,000 is assumed instead.

[d] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, TPC, and subsequent appropriation assumptions have not been adjusted to reflect this FY 2013 level; the FY 2013 Request level of $36,382,000 for TEC, $250,000 for OPC, and $36,632,000 for TPC is assumed.

(dollars in thousands)

	Total	Prior Years	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Energy Sciences Building at ANL (10-SC-71)					
TEC	95,000	22,970	40,000	40,245[a]	0
OPC[b]	956	956	0	0	0
TPC	95,956	23,926	40,000	40,245[a]	0
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)					
TEC	50,000	19,970	15,500	15,595[c]	0
OPC[b]	800	800	0	0	0
TPC	50,800	20,770	15,500	15,595[c]	0
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)					
TEC	94,560	81,585	12,975	13,054[d]	0
OPC[b]	2,480	2,256	74	74	0
TPC	97,040	83,841	13,049	13,128[d]	0
Technology and Engineering Development Facility at TJNAF (09-SC-74)					
TEC	72,143	59,806	12,337	12,413[d]	0
OPC[b]	1,000	1,000	0	0	0
TPC	73,143	60,806	12,337	12,413[d]	0
Total, Construction					
TEC			104,922	105,565	89,582
OPC[b]			289	290	530
TPC			105,211	105,855	90,112

[a] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, TPC, and subsequent appropriation assumptions have not been adjusted to reflect this FY 2013 level; the FY 2013 Request level of $32,030,00 is assumed instead.

[b] Other Project Costs shown are funded through laboratory overhead.

[c] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, TPC, and subsequent appropriation assumptions have not been adjusted to reflect this FY 2013 level; the FY 2013 Request level of $14,530,000 is assumed instead.

[d] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, TPC, and subsequent appropriation assumptions have not been adjusted to reflect this FY 2013 level. Final funding for this project was received in FY 2012.

Construction Project Outyears

(dollars in thousands)

	FY 2015 Request	FY 2016 Request	FY 2017 Request	FY 2018 Request	Outyears to Completion
Science & User Support Building at SLAC (12-SC-70)					
TEC	4,803	0	0	0	0
OPC[a]	200	0	0	0	0
TPC	5,003	0	0	0	0

[a] Other Project Costs shown are funded through laboratory overhead.

Other Supporting Information

Indirect Costs and Other Items of Interest for the Office of Science

General Plant Projects

General Plant Projects are construction projects that are less than $10 million and necessary to adapt facilities to new or improved production techniques, to effect economies of operation, and to reduce or eliminate health, fire, and security problems. The following table displays total GPP funding across the Office of Science by site.

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Ames Laboratory	1,152	—	600
Sandia National Laboratories	1,700	—	0
SLAC National Accelerator Laboratory	1,000	—	0
Fermi National Accelerator Laboratory	7,175	—	14,548
Oak Ridge Institute for Science and Education	700	—	500
Oak Ridge Office	100	—	100
Pacific Northwest National Laboratory	1,483	—	0
Princeton Plasma Physics Laboratory	465	—	400
Thomas Jefferson National Acceleratory Facility	2,000	—	2,000
Total, GPP	15,775	—	18,148

Institutional General Plant Projects

Institutional General Plant Projects are construction projects that are less than $10 million and cannot be allocated to a specific program. IGPPs fulfill multi-programmatic and/or inter-disciplinary needs and are funded through site overhead. The following table displays total IGPP funding across all SC laboratories by site.

(dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request
Argonne National Laboratory	16,998	—	21,435
Brookhaven National Laboratory	7,541	—	7,750
Lawrence Berkeley National Laboratory	5,730	—	6,000
Oak Ridge National Laboratory	8,517	—	20,000
Pacific Northwest National Laboratory	7,340	—	13,160
SLAC National Accelerator Laboratory	5,477	—	6,850
Total, IGPP	51,603	—	75,195

Facilities Maintenance and Repair

General purpose infrastructure includes multiprogram research laboratories, administrative and support buildings, as well as cafeterias, power plants, fire stations, utilities, roads, and other structures. Together, the SC laboratories have over 1,400 operational buildings and real property trailers, with nearly 20 million gross square feet of space.

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

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

Generally, facilities maintenance and repair expenses are funded through an indirect overhead charge. In some cases, however, a laboratory may charge maintenance directly to a specific program. One example would be when maintenance is performed in a building used only by a single program. Such direct-funded charges are not directly budgeted.

(dollars in thousands)

	FY 2012 Actual Costs	FY 2012 Planned Costs	FY 2013 Planned Costs	FY 2014 Planned Costs
Brookhaven National Laboratory	6,623	5,696	—	6,028
Fermilab National Accelerator Facility	68	122	—	142
Notre Dame Radiation Laboratory	180	171	—	117
Oak Ridge National Laboratory	16,514	15,388	—	17,714
Oak Ridge Office	2,941	5,100	—	3,123
Office of Scientific and Technical Information	355	355	—	373
SLAC National Accelerator Laboratory	3,049	838	—	5,269
Thomas Jefferson National Accelerator Facility	83	63	—	68
Total, Direct-Funded Maintenance and Repair	29,813	27,733	—	32,834

Costs for Indirect-Funded Maintenance and Repair (including Deferred Maintenance)

Facilities maintenance and repair activities funded indirectly through overhead charges at SC laboratories are displayed below. Since this funding is allocated to all work done at each laboratory, the cost of these activities is allocated to SC and other DOE organizations, as well as other Federal agencies and other entities doing work at SC laboratories. Maintenance reported to SC for non-SC laboratories is also shown. The figures below are total projected expenditures across all SC laboratories.

(dollars in thousands)

	FY 2012 Actual Costs	FY 2012 Planned Costs	FY 2013 Planned Costs	FY 2014 Planned Costs
Ames Laboratory	1,343	1,147	—	1,272
Argonne National Laboratory	62,728	50,755	—	51,200
Brookhaven National Laboratory	36,952	36,742	—	36,743
Fermi National Accelerator Laboratory	16,221	16,178	—	17,158
Lawrence Berkeley National Laboratory	16,437	17,200	—	18,300
Lawrence Livermore National Laboratory	2,719	2,719	—	2,828

(dollars in thousands)

	FY 2012 Actual Costs	FY 2012 Planned Costs	FY 2013 Planned Costs	FY 2014 Planned Costs
Los Alamos National Laboratory	117	117	—	121
Oak Ridge Institute for Science and Education	954	413	—	447
Oak Ridge National Laboratory	58,397	58,712	—	61,014
Oak Ridge National Laboratory facilities at Y-12	819	602	—	779
Pacific Northwest National Laboratory	3,887	4,300	—	2,922
Princeton Plasma Physics Laboratory	6,228	6,045	—	6,587
Sandia National Laboratories	2,548	2,548	—	2,649
SLAC National Accelerator Laboratory	11,105	17,424	—	11,224
Thomas Jefferson National Accelerator Facility	5,452	4,450	—	5,500
Total, Indirect-Funded Maintenance and Repair	225,907	219,352	—	218,744

Report on FY 2012 Expenditures for Maintenance and Repair

This report responds to legislative language set forth in Conference Report (H.R. Conf. Rep. No. 108-10) accompanying the Consolidated Appropriations Resolution, 2003 (Public Law 108-7) (pages 886-887), which requests the Department of Energy provide an annual year-end report on maintenance expenditures to the Committees on Appropriations. This report compares the actual maintenance expenditures in FY 2012 to the amount planned for FY 2012, including Congressionally-directed changes.

Total Costs for Maintenance and Repair

(dollars in thousands)

	FY 2012 Actual Costs	FY 2012 Planned Costs
Ames Laboratory	1,343	1,147
Argonne National Laboratory	62,728	50,755
Brookhaven National Laboratory	43,575	42,438
Fermi National Accelerator Laboratory	16,289	16,300
Lawrence Berkeley National Laboratory	16,437	17,200
Lawrence Livermore National Laboratory	2,719	2,719
Los Alamos National Laboratory	117	117
Notre Dame Radiation Laboratory	180	171
Oak Ridge Institute for Science and Education	954	413
Oak Ridge National Laboratory	74,911	74,100
Oak Ridge National Laboratory facilities at Y-12	819	602
Oak Ridge Office	2,941	5,100
Office of Science and Technical Information	355	355

(dollars in thousands)

	FY 2012 Actual Costs	FY 2012 Planned Costs
Pacific Northwest National Laboratory	3,887	4,300
Princeton Plasma Physics Laboratory	6,228	6,045
Sandia National Laboratories	2,548	2,548
SLAC National Accelerator Laboratory	14,154	18,262
Thomas Jefferson National Accelerator Facility	5,535	4,513
Total, Maintenance and Repair	255,720	247,085

13-SC-70, Utilities Upgrade, Fermi National Accelerator Laboratory (FNAL), Batavia, Illinois
Project Data Sheet is for PED and Construction

1. Summary and Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-1, *Approve Alternative Selection and Cost Range*, which was approved on November 15, 2010. The preliminary Total Estimated Cost (TEC) range for this project is $31,300,000 to $34,900,000. The preliminary Total Project Cost (TPC) range for this project is $32,400,000 to $36,000,000.

This PDS is an update of the data sheet submitted in FY 2013 and includes a new start for the budget year, which was also requested in FY 2013.

The preliminary funding schedule has been updated to reflect full project funding in FY 2014.

A Federal Project Director with a certification level II has been assigned to this project.

This PDS includes a new CD-2/3A, Approve Performance Baseline and Approve Long Lead Procurement.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3A	CD-3B	CD-4
FY 2013	9/18/2009	11/15/2010	1Q FY 2014	4Q FY 2013[a]	N/A	3Q FY 2014[a]	3Q FY 2015[a]
FY 2014	9/18/2009	11/15/2010	4Q FY 2014	3Q FY 2014[a]	3Q FY 2014[a]	2Q FY 2015[a]	4Q FY 2016[a]

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2/3A – Approve Performance Baseline and Approve Long Lead Procurement
CD-3B – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC[b] Except D&D	OPC, D&D	OPC, Total	TPC
FY 2013	4,450	30,450[c]	34,900[c]	1,100	0	1,100	36,000[c]
FY 2014	4,450	30,450[c]	34,900[c]	1,100	0	1,100	36,000[c]

4. Project Description, Justification, and Scope

Mission Need

DOE is a leading sponsor of research in particle physics and FNAL remains focused on particle physics while progressing research efforts to neutrino physics at the intensity frontier. Maintaining a dependable base from which science research

[a] This project is pre-CD-2 and schedule estimates are preliminary.
[b] Other project costs (OPC) are funded through laboratory overhead.
[c] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $31,300,000 to $34,900,000. The preliminary TPC range for this project is $32,400,000 to $36,000,000.

can be accomplished is dependent upon robust, redundant, maintainable, and flexible utility systems. Existing FNAL facilities are subjected to decreased reliability as pipe breaks and electrical equipment failures become more common. FNAL also currently has design concepts established for a group of neutrino projects including the Muon to Electron Conversion Experiment (Mu2e) funded through the SC High Energy Physics (HEP) program. These and future accelerator and experimental facilities at FNAL will exhaust the capacity capabilities of the existing utility systems.

Scope and Justification (13-SC-70, Utilities Upgrade at FNAL)

The backbone of Fermilab's utility systems is its industrial cooling water (ICW) and high voltage electrical systems. Without these systems, science at Fermilab cannot exist. The Utilities Upgrade project at FNAL will upgrade both of these systems and significantly extend their useful lifespans.

The ICW system consists of ponds, pumping stations, and approximately 72,000 feet of underground network piping, supplying process cooling and fire protection water throughout the laboratory's 6,800 acre site. As most of the system was installed during the construction of the lab, almost 40 years ago most components of the system have reached the end of their useful life. The fragile state of the piping and valves currently in service, reduction in flows by biofouling, and frequent pipe failures jeopardize the reliability and maintainability of the ICW system. The current system requires frequent and unscheduled repairs which are complicated by insufficient and often malfunctioning isolation valves, enlarging the disabled area being repaired. Reliable process cooling and fire protection water service cannot be provided to current accelerator and experimental facilities areas as well as those areas slated for development of future facilities unless substantial re-investment in the lab's ICW system is provided. The new system will include state of the art materials to mitigate the existing conditions such as biofouling (zebra mussels) and valves to properly isolate various locations of the system. These improvements will significantly extend the useful life of the system.

The high voltage electrical system consists of substations, switches, and transformers. Various elements of the high voltage distribution system are rated as poor based on their current condition, are unreliable, and will continue to deteriorate with age. Future science at Fermilab is dependent upon a robust, redundant, maintainable, and flexible high voltage electrical distribution system for both programmatic and conventional power needs. The master substation and numerous oil switches and transformers across the site were installed during the original construction of the laboratory in the early 1970s. Much of this equipment is now beyond its useful life, and substantial reinvestment in this system is required for continued science in support of the Fermilab mission. This project will mitigate environmental liability (e.g. oil switches replaced with air switches), improve reliability, and allow FNAL to effectively perform high energy physics research. Furthermore, this project will upgrade and expand these utilities to provide a flexible base to serve existing facilities and provide the backbone from which future projects will build to serve new facilities. Many parts of the system are no longer manufactured, limiting system maintenance options. New state of the art transformers and substations will be provided to extend system life. This will establish a stable base from which to serve both programmatic and conventional requirements across the site.

Key Performance Parameters

Description	Threshold Value (Minimum)	Objective Value (Maximum)
High-Voltage Electrical (H/V) Upgrade	Replace Master Substation Building and associated components Replace all oil switches with new air switches	Threshold value plus: Replace feeder cable > 25 years old Replace all end-of-life unit substations Perform all Master Substation Modifications to improve system reliability, which includes replacing the 345kV oil circuit breaker and performing various yard modifications

Description	Threshold Value (Minimum)	Objective Value (Maximum)
Industrial Cooling Water (ICW) Upgrade	Install new backbone piping network from Casey's Pond to the Main Ring ICW system	Threshold value plus: Install new Backfeed Loop System to improve reliability and to provide greater sectionalization of the ICW system, including installing new ICW transmission mains, upgrading primary and secondary pumphouses, and automating transfer of stored water in east ponds into the ICW system

FY 2014 funds will be used for preliminary and final design, for procurement of long-lead items, to start and complete construction work, and for project management and support activities.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED[a]			
FY 2014	4,450	4,450	4,450
Construction			
FY 2014	30,450	30,450	10,000
FY 2015	0	0	13,000
FY 2016	0	0	7,450
Total, Construction	30,450	30,450	30,450
TEC			
FY 2014	34,900	34,900	14,450
FY 2015			13,000
FY 2016	0	0	7,450
Total, TEC[b]	34,900	34,900	34,900

[a] All design will be completed in less than 18 months.

[b] This project has not received approval of CD-2; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range is $31,300,000 to $34,900,000. The preliminary TPC range is $32,400,000 to $36,000,000.

(dollars in thousands)

	Appropriations	Obligations	Costs
Other Project Cost (OPC)[a]			
OPC except D&D			
FY 2010	390	390	390
FY 2011	710	710	710
Total, OPC	1,100	1,100	1,100
Total Project Cost (TPC)			
FY 2010	390	390	390
FY 2011	710	710	710
FY 2012	0	0	0
FY 2013	0	0	0
FY 2014	34,900	34,900	14,450
FY 2015	0	0	13,000
FY 2016	0	0	7,450
Total, TPC[b]	36,000	36,000	36,000

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
PED[c]			
Design	3,560	3,560	N/A
Contingency	890	890	N/A
Total, PED	4,450	4,450	N/A

[a] Other Project Costs are funded through laboratory overhead.

[b] This project has not received approval of CD-2; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range is $31,300,000 to $34,900,000. The preliminary TPC range is $32,400,000 to $36,000,000.

[c] All design will be completed in less than 18 months.

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Construction			
Construction	24,360	24,360	N/A
Contingency	6,090	6,090	N/A
Total, Construction	30,450	30,450	N/A
Total, TEC[a]	34,900	34,900	N/A
Contingency, TEC	6,980	6,980	N/A
Other Project Cost (OPC)[b]			
OPC except D&D			
Conceptual Planning	500	500	N/A
Conceptual Design	400	400	N/A
Contingency	200	200	N/A
Total, OPC	1,100	1,100	N/A
Contingency, OPC	200	200	N/A
Total, TPC[a]	36,000	36,000	N/A
Total, Contingency	7,180	7,180	N/A

7. Funding Profile History

(dollars in thousands)

Request Year		FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total
FY 2013	TEC	0	0	0	2,500	32,400	0	34,900[a]
	OPC[b]	390	710	0	0	0	0	1,100
	TPC	390	710	0	2,500	32,400	0	36,000[a]
FY 2014	TEC	0	0	0	0	34,900	0	34,900[a]
	OPC[b]	390	710	0	0	0	0	1,100
	TPC	390	710	0	0	34,900	0	36,000[a]

[a] This project has not received approval of CD-2; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range is $31,300,000 to $34,900,000. The preliminary TPC range is $32,400,000 to $36,000,000.
[b] Other Project Costs are funded through laboratory overhead.

8. Related Operations and Maintenance Funding Requirements

Project is an upgrade and expansion of existing utility systems. No additional operations and maintenance funding is required.

9. Required D&D Information

The project is an upgrade and expansion of existing utility systems and will not require offsetting demolition of excess facilities.

10. Acquisition Approach

Acquisition for this project will be performed by the Management and Operating (M&O) Contractor, Fermi Research Alliance, LLC (FRA). FRA's standard procurement practice is to use firm fixed-price purchase orders and subcontracts for supplies, equipment, and services and to make awards through competitive solicitations.

Various acquisition alternatives will be considered for this project, including a design-build approach and/or a design-bid-build approach. As the M&O contractor, FRA is responsible for its subcontracts. Fermi Site Office provides contract oversight for FRA's plans and performance. Project performance metrics for FRA are included in the M&O contractor's annual performance evaluation and measurement plan.

13-SC-71, Utility Infrastructure Modernization,
Thomas Jefferson National Accelerator Facility (TJNAF), Newport News, Virginia
Project Data Sheet is for PED and Construction

1. Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-1, *Approve Alternative Selection and Cost Range*, which was approved October 14, 2010. The preliminary Total Estimated Cost (TEC) range for this project is $24,300,000 to $29,200,000. The preliminary Total Project Cost (TPC) range for this project is $25,000,000 to $29,900,000.

This PDS is an update of the data sheet submitted in FY 2013 and includes a new start for the budget year, which was also requested in FY 2013.

The preliminary funding schedule has been updated to reflect full project funding in FY 2014.

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

This PDS includes a new CD-3A, *Approve Procurement of Long-Lead Items*, to purchase critical components of utility systems as quickly as possible.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2	CD-3A	CD-3B	CD-4
FY 2013	9/18/2009	10/14/2010	4Q FY 2013	4Q FY 2013	N/A	4Q FY 2013	4Q FY 2015
FY 2014[a]	9/18/2009	10/14/2010	4Q FY 2014	3Q FY 2014	1Q FY 2014	3Q FY 2014	4Q FY 2016

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3A – Approve Procurement of Long-Lead Items
CD-3B – Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC[b] Except D&D	OPC, D&D	OPC, Total	TPC
FY 2013	900	28,300[c]	29,200[c]	700	0	700	29,900[c]
FY 2014	900	28,300[c]	29,200[c]	700	0	700	29,900[c]

[a] This project is pre-CD-2 and schedule estimates are preliminary.
[b] Other Project Costs are funded through laboratory overhead.
[c] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $24,300,000 to $29,200,000. The preliminary TPC range for this project is $25,000,000 to $29,900,000.

4. Project Description, Justification, and Scope

Mission Need

DOE is an important sponsor of research in nuclear physics and TJNAF maintains a central and unique role in the field of nuclear physics as a world leader in hadronic physics and superconducting accelerator technologies. At TJNAF, the accelerator science core capability has an immediate need for investment to ensure the laboratory utilities infrastructure can continue to support the superconducting radio frequency (SRF) mission in the research, development, and production of cryomodules.

Existing utility, cryogenic, power distribution, cooling water, and communication systems at TNJAF continue to experience failures at increasing rates, which limits the laboratory's ability to support SC research programs. For example, the current cryogenic capacity is inadequate to support the needs in the Test Lab, which is the key facility for SRF development and production activities. This limits various SRF activities and research supported by the Nuclear Physics (NP) and High Energy Physics (HEP) programs. In addition, the current power distribution system does not have the necessary redundancy to maintain operation of critical systems during power outages. The most critical shortfall is the inability to use an alternative power feed to restart the Central Helium Liquefier (CHL), a critical component to maintaining constant cryogenic temperatures in the accelerator cryomodules that prevent degradation of accelerator performance and costly repairs. These inadequacies reduce reliability and could jeopardize the laboratory's capability to support ongoing research performed by NP and HEP.

Scope and Justification (13-SC-71, Utility Infrastructure Modernization at TJNAF)

The Utility Infrastructure Modernization project will address the performance gaps at TJNAF that limit its ability to provide a work environment that meets safety goals, current code standards and operational efficiency goals. The project will address these gaps by upgrading the electrical distribution, process cooling, cryogenics, and communications systems, replacing aging infrastructure and providing needed additional capability. The scope of the project includes replacement of primary and secondary electrical distribution feeders, replacement of cooling tower cells to significantly extend the useful expected life of the process cooling system, expansion of the Cryogenics Test Facility with additional cryogenics equipment, and an expandable communications pathway for the campus.

The cryogenic, power distribution, cooling water, and communication systems are 20–40 years old, dating back to the previous owner. The cryogenic system has insufficient capacity and, despite gains over the past several years on significantly improving the efficiency of major system components, there remains a need for overall system efficiency optimization. The lack of adequate cryogenic capacity is a limiting factor on scheduling SRF activities. The sizing of the systems to mitigate the effects of the limiting factors will be fully integrated during the final design process. Cryogenic system operation at TJNAF accounts for over 90% of annual electricity costs. Therefore, efficiency gains in this system will significantly contribute to a reduction in overall operating costs.

The cooling water distribution system is suffering frequent failures and has insufficient capacity to support optimal experimental program scheduling, computer center heat loads, and future expected growth. Since 2008, failures of the cooling water distribution system have caused several weeks of down time for the Free Electron Laser facility. Cooling towers are well past their efficient life-cycle utilization and are requiring ever increasing amounts of maintenance. In addition, addressing this gap would achieve an estimated 10% energy savings.

Subsurface communications systems are outdated and unreliable. Because some of these systems are over 40 years old, replacement components are often unavailable. Phone switch parts are difficult to locate and no additional cabling capacity is available for telecommunications or data lines. Inadequate capacity is impacting the ability to install communications to support staff growth and replace degraded cables as necessary. Consequently, instances of phone outages are impacting the efficiency of operations. The underground copper wiring is also past its service life. In addition, installation of an

Emergency Broadcast System is necessary to meet safety goals and improve response efficiency. In order to meet the growth in communication requirements, both in size and type, new upgraded cabling will be necessary.

The proposed solutions under this project to address the utility system performance gaps at TJNAF are relatively straight-forward and include upgrades and expansion of cryogenic, electrical power distribution, cooling water, and communication systems.

Key Performance Parameters

Description	Threshold Value (Minimum)	Objective Value (Maximum)
Electrical Distribution System	Replace accelerator primary and secondary feeders with copper (upgrade from aluminum to copper)	Threshold value plus: Increase size of the tie line between substations
Process Cooling	Replace and extend system life of existing cooling towers at North and South Access. Construct a 2,500 square foot addition to the TEDF chiller plant building and a 800 ton chiller for the computer center	Threshold value plus: Replace the ESR cooling tower (life extension) Replace Building 92 cooling tower (life extension) Add a 1 MW UPS system for the computer center
Cryogenics Test Facility	1,000 square foot addition	2,500 square foot addition Upgrade cryogenic piping and support systems
Communications System Upgrade	Create an expandable pathway for a fiber ring around the campus to eliminate single points of failure for this core ring.	Threshold value plus: Establish redundant network path for major facilities. Establish 2 demarcation communication utility facilities from off-site

FY 2014 funds will be used for preliminary and final design, for procurement of long-lead items, to start and complete construction work, and for project management and support activities.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED[a]			
FY 2014	900	900	900

[a] All design will be complete in less than 18 months

(dollars in thousands)

	Appropriations	Obligations	Costs
Construction			
FY 2014	28,300	28,300	12,490
FY 2015	0	0	10,150
FY 2016	0	0	5,660
Total, Construction	28,300	28,300	28,300
TEC			
FY 2014	29,200	29,200	13,390
FY 2015	0	0	10,150
FY 2016	0	0	5,660
Total, TEC[a]	29,200	29,200	29,200
Other Project Cost (OPC)[b]			
OPC except D&D			
FY 2010	400	400	400
FY 2011	300	300	300
Total OPC	700	700	700
Total Project Cost (TPC)			
FY 2010	400	400	400
FY 2011	300	300	300
FY 2012	0	0	0
FY 2013	0	0	0
FY 2014	29,200	29,200	13,390
FY 2015	0	0	10,150
FY 2016	0	0	5,660
Total, TPC[a]	29,900	29,900	29,900

[a] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $24,300,000 to $29,200,000. The preliminary TPC range for this project is $25,000,000 to $29,900,000.

[b] Other Project Costs (OPC) are funded through laboratory overhead.

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
PED[a]			
Design	800	800	N/A
Contingency	100	100	N/A
Total, PED	900	900	N/A
Construction			
Other Construction	22,640	22,640	N/A
Contingency	5,660	5,660	N/A
Total Construction	28,300	28,300	N/A
Total, TEC[b]	29,200	29,200	N/A
Contingency, TEC	5,760	5,760	N/A
Other Project Cost (OPC)[c]			
OPC except D&D			
Conceptual Planning	700	700	N/A
Startup	0	0	N/A
Total, OPC	700	700	N/A
Total, TPC[a]	29,900	29,900	N/A
Total, Contingency	5,760	5,760	N/A

7. Funding Profile History

(dollars in thousands)

Request Year		FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total
FY 2013	TEC	0	0	0	2,500	26,700	0	29,200[a]
	OPC[b]	400	300	0	0	0	0	700
	TPC	400	300	0	2,500	26,700	0	29,900[a]

[a] All design will be complete in less than 18 months

[b] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $24,300,000 to $29,200,000. The preliminary TPC range for this project is $25,000,000 to $29,900,000.

[c] Other Project Costs are funded through laboratory overhead.

FY 2014	TEC	0	0	0	0	29,200	0	29,200[a]
	OPC[b]	400	300	0	0	0	0	700
	TPC	400	300	0	0	29,200	0	29,900[a]

8. Related Operations and Maintenance Funding Requirements

This project is an upgrade and expansion of existing utility systems. No additional operations and maintenance funding is required.

9. Required D&D Information

This project will construct up to 5,000 square feet of new space through additions to a chiller plant building and the Cryogenics Test Facility. The space increase from these additions has been offset by space previously banked at TJNAF in order to meet the one-for-one replacement requirement.

10. Acquisition Approach

Acquisition for this project will be performed by TJNAF. TJNAF's standard procurement practice is to use firm fixed-price purchase orders and subcontracts for supplies, equipment and services, and to make awards through competitive solicitations. Drawings and specifications will be sufficiently detailed to allow prospective small business design and construction firms to effectively participate in procurements. This practice was employed during the design and construction of prior projects at TJNAF and has proven to be very effective for the projects as well as for small business vendors. As the Management and Operating (M&O) contractor, TJNAF is responsible for its subcontracts. Thomas Jefferson Site Office provides contract oversight for TJNAF's plans and performance. Project performance metrics for TJNAF are included in the M&O contractor's annual performance evaluation and measurement plan.

The Acquisition Strategy and Acquisition Plan will reflect the addition of CD-3A, *Approve Procurement of Long-Lead Items*. This new critical decision will support accelerator upgrade commissioning activities and facilitate project completion.

As appropriate, critical procurements will be evaluated according to pre-defined criteria for ranking prospective vendors competing for an award. An evaluation plan will include a technical review of each proposal as well as a review of business and cost factors (e.g., past performance, management, and environment, health, and safety factors).

12-SC-70, Science and User Support Building
SLAC National Accelerator Laboratory (SLAC), Menlo Park, California
Project Data Sheet is for PED and Construction

1. Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-1, *Approve Alternative Selection and Cost Range*, which was approved May 11, 2012. The estimated preliminary Total Estimated Cost (TEC) range for this project is $59,000,000 to $64,000,000. The estimated preliminary Total Project Cost (TPC) range for this project is $60,000,000 to $65,000,000.

The preliminary funding schedule has been updated to reflect planned FY 2013 funding under the Continuing Resolution, and funding extending into FY 2015 as a result of overall program restraints. As a result, CD-4 has been extended until 3Q FY 2017.

A Federal Project Director with a certification level II has been assigned to this project.

This Project Data Sheet (PDS) does not include a new start for the budget year.

This PDS is an update of the FY 2013 PDS.

2. Design, Construction, and D&D Schedule

(fiscal quarter or date)

	CD-0	CD-1	PED Complete	CD-2/3	CD-4	D&D Start	D&D Complete
FY 2012	8/26/2010	2Q FY 2012	4Q FY 2013	TBD	TBD	TBD	TBD
FY 2013	8/26/2010	3Q FY 2012	2Q FY 2013	2Q FY 2013	4Q FY 2016	3Q FY 2012	4Q FY 2016
FY 2014	8/26/2010	5/11/2012	2Q FY 2014	3Q FY 2013[a]	3Q FY 2017[a]	3Q FY 2012[a]	4Q FY 2016[a]

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2/3 – Approve Performance Baseline; Approve Start of Construction
CD-4 – Approve Start of Operations or Project Closeout
D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete – Completion of D&D work

[a] This project is pre-CD-2 and the estimated schedule is preliminary.

3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC Construction	TEC, Total	OPC[a] Except D&D	OPC, D&D	OPC, Total	TPC
FY 2012	5,000	59,000[b]	64,000[b]	1,000	TBD	1,000	65,000[b]
FY 2013	5,000	59,000[b]	64,000[b]	1,000	0	1,000	65,000[b]
FY 2014	5,000	59,000[b]	64,000[b]	1,000	0	1,000	65,000[b]

4. Project Description, Justification, and Scope

Mission Need

SLAC is an Office of Science laboratory that supports a large national and international community of scientific users performing cutting edge research in support of the Department of Energy mission. SLAC is home to research activities in materials and chemical sciences that build on ultrafast and advanced synchrotron techniques. SLAC also operates beamlines for structural biology and supports efforts in particle physics and particle astrophysics. SLAC operates and is strongly positioned by the Linac Coherent Light Source (LCLS) and the Stanford Synchrotron Radiation Light Source (SSRL).

The demand to use SLAC's unique research facilities is rapidly increasing. This has resulted in a critical gap in SLAC's mission capability due to inadequate centralized support for its user community and lack of modern, collaborative infrastructure to support a world-class research program.

The SLAC Science and User Support building (SUSB) will close the mission capability gap and ensure that the world-class research conducted by SLAC scientific staff and users is supported by modern, mission-ready facilities. Located at the entrance to the Laboratory, this building will be the first stop for all users and visitors to SLAC, and will bring together many of the Laboratory's user, visitor, and administrative services. This will enhance scientific productivity and collaboration that better supports the laboratory's cutting-edge discoveries and exceptional user research program.

Scope and Justification (12-SC-70, Science and User Support Building at SLAC)

This project will construct a building that will house a centrally located user support hub; the visitor's center; a new cafeteria; office space needed to centralize SLAC communications, security, and laboratory administration; and a state-of-the-art auditorium and conference space. The Science and User Support Building will replace the aging structure that currently holds Panofsky Auditorium and the cafeteria built in 1962, the same year SLAC was founded. In order to meet the congressional mandates for replacement, the project plans to demolish the Panofsky Auditorium building (approximately 19,000 gsf) and use banked excess for the balance. Note that the project does not yet have CD-2 approval, so some assumptions may change.

Key Performance Parameters

Description	Minimum Threshold	Maximum Threshold
Multistory Office Building	58,000 gross square feet	72,000 gross square feet

[a] Other Project Costs are funded through laboratory overhead.

[b] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $59,000,000 to $64,000,000. The preliminary TPC range for this project is $60,000,000 to $65,000,000.

FY 2014 construction funding will support construction activities on this project, including project management and all associated support functions.

The project will be conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2012	5,000	5,000	1,150
FY 2013	0	0	3,850
Total, PED	5,000	5,000	5,000
Construction			
FY 2012	7,086	7,086	0
FY 2013	12,160[a]	21,629	15,000
FY 2014	25,482	25,482	35,000
FY 2015	4,803	4,803	9,000
Total, Construction	59,000	59,000	59,000
TEC			
FY 2012	12,086	12,086	1,150
FY 2013	12,160[a]	21,629	18,850
FY 2014	25,482	25,482	35,000
FY 2015	4,803	4,803	9,000
Total, TEC[b]	64,000	64,000	64,000

[a] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, OPC, and TPC totals and outyear appropriation assumptions have not been adjusted to reflect the final FY 2013 funding level; the FY 2013 Request level of $21,629,000 is assumed instead.

[b] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $59,000,000 to $64,000,000. The preliminary TPC range for this project is $60,000,000 to $65,000,000.

(dollars in thousands)

	Appropriations	Obligations	Costs
Other Project Cost (OPC)[a]			
OPC except D&D			
FY 2011	500	500	500
FY 2012	0	0	0
FY 2013	0	0	0
FY 2014	300	300	300
FY 2015	200	200	200
Total, OPC except D&D	1,000	1,000	1,000
Total Project Cost (TPC)			
FY 2011	500	500	500
FY 2012	12,086	12,086	1,150
FY 2013	12,160[b]	21,629	18,850
FY 2014	25,782	25,782	35,300
FY 2015	5,003	5,003	9,200
Total, TPC[c]	65,000	65,000	65,000

6. Details of Project Cost Estimate

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
PED			
Design	4,150	4,150	N/A
Contingency	850	850	N/A
Total, PED	5,000	5,000	N/A

[a] Other Project Costs are funded through laboratory overhead.

[b] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, OPC, and TPC totals and outyear appropriation assumptions have not been adjusted to reflect the final FY 2013 funding level; the FY 2013 Request level of $21,629,000 is assumed instead.

[c] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $59,000,000 to $64,000,000. The preliminary TPC range for this project is $60,000,000 to $65,000,000.

(dollars in thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Construction			
Construction	46,000	46,000[a]	N/A
D&D	1,200	1,200[a]	N/A
Contingency	11,800	11,800	N/A
Total, Construction	59,000	59,000	N/A
Total, TEC[b]	64,000	64,000	N/A
Contingency, TEC	12,650	12,650	N/A
OPC[c]			
Other OPC	500	500	N/A
Start-Up	300	300	N/A
Contingency	200	200	N/A
Total, OPC	1,000	1,000	N/A
Total, TPC[b]	65,000	65,000	N/A
Total, Contingency	12,850	12,850	N/A

7. Funding Profile History

(dollars in thousands)

Request Year		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total
FY 2012	TEC	0	12,086	TBD	TBD	TBD	TBD
	OPC[c]	500	300	200	0	0	1,000
	TPC	500	12,386	TBD	TBD	TBD	TBD
FY 2013	TEC	0	12,086	21,629	30,285	0	64,000[b]
	OPC[c]	500	0	0	300	200	1,000
	TPC	500	12,086	21,629	30,585	200	65,000[b]

[a] The Previous Total Estimate updated to show D&D costs separate from new construction costs.

[b] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $59,000,000 to $64,000,000. The preliminary Total Project Cost (TPC) range for this project is $60,000,000 to $65,000,000.

[c] Other Project Costs are funded through laboratory overhead.

Request Year		(dollars in thousands) FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Total
FY 2014	TEC	0	12,086	12,160[a]	25,482	4,803	64,000[b]
	OPC[c]	500	0	0	300	200	1,000
	TPC	500	12,086	12,160[a]	25,782	5,003	65,000[b]

8. Related Operations and Maintenance Funding Requirements

Not Applicable.

9. Required D&D Information

The Science and User Support Building will replace the aging 14,000 gross square foot structure that currently holds the Panofsky Auditorium and the cafeteria, built in 1962, the same year SLAC was founded. In order to meet the congressional mandates for one-for-one replacement, the project plans to demolish the Panofsky Auditorium building and cafeteria; and use SC's banked excess space at SLAC for the balance. Note that the project does not yet have CD-2 approval, so some assumptions may change.

10. Acquisition Approach

SLAC as the Management and Operating (M&O) contractor will have the primary responsibility for oversight of design and construction subcontracts, LEED, commissioning, and estimating services necessary to execute this project scope. Design will be performed by an architect-engineer (A-E) with the subcontract managed by the SLAC operating contractor. Final design and construction will occur concurrently using the design-build project delivery method. SLAC Site Office provides contract oversight for SLAC's plans and performance. Project performance metrics for SLAC are included in the M&O contractor's annual performance evaluation and measurement plan.

[a] The FY 2013 amount shown reflects the P.L. 112-175 continuing resolution level annualized to a full year. The TEC, OPC, and TPC totals and outyear appropriation assumptions have not been adjusted to reflect the final FY 2013 funding level; the FY 2013 Request level of $21,629,000 is assumed instead.

[b] This project has not received CD-2 approval; funding estimates are consistent with the high end of the preliminary cost ranges. The preliminary TEC range for this project is $59,000,000 to $64,000,000. The preliminary Total Project Cost (TPC) range for this project is $60,000,000 to $65,000,000.

[c] Other Project Costs are funded through laboratory overhead.