Science Laboratories Infrastructure
Funding Profile by Subprogram and Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Infrastructure Support			
Oak Ridge Landlord	5,250	5,493	5,934
Payments in Lieu of Taxes	1,382	1,385	1,385
Facilities and Infrastructure	0	0	900
Total, Infrastructure Support	6,632	6,878	8,219
Construction			
Utilities Upgrade at FNAL (13-SC-70)	0	0	2,500
Utility Infrastructure Modernization at TJNAF (13-SC-71)	0	0	2,500
Science and User Support Building at SLAC (12-SC-70)	0	12,086	21,629
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	40,694	12,024	36,382
Energy Sciences Building at ANL (10-SC-71)	14,970	40,000	32,030
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	14,970	15,500	14,530
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	20,063	12,975	0
Technology and Engineering Development Facility at TJNAF (09-SC-74)	28,419	12,337	0
Total, Construction	119,116	104,922	109,571
Total, Science Laboratories Infrastructure	125,748	111,800	117,790

Public Law Authorizations

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

Program Overview and Benefits

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 scientific discovery. Facility designs ensure safe, collaborative, and interactive work environments, allow for the integration of basic and applied research and development, and also aid in the recruitment and retention of world-class scientists to work at world-class laboratories. 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 currently has a portfolio of over 30 construction projects across all ten SC laboratories that will provide modernized, mission ready, infrastructure.

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

- *The Physical Sciences Facility (PSF) project at Pacific Northwest National Laboratory***.** In FY 2011, five new structures, as well as refurbishment of Building 325 were completed and accepted for occupancy under the PSF construction project at Pacific Northwest National Laboratory (PNNL). These facilities will allow better integration of basic scientific research with homeland and national security research. The FY 2011 DOE Federal Project Director of the Year Award was given to the Federal manager on this project.
- *The Modernization of Laboratory Facilities (MLF) at Oak Ridge National Laboratory (ORNL).* This project was accepted for occupancy on May 25, 2011 and received approval for project closeout on June 23, 2011, well ahead of the December 2011 baseline date. This replacement research facility provides fume hood-intensive wet chemistry laboratories and analytical instrumentation laboratories with clean electrical power to house ORNL's Chemical Sciences and Materials Science and Technology Divisions. With this new facility, ORNL can successfully carry out materials and chemistry research capabilities including catalysis, soft and bio-mimetic materials, advanced separation and mass spectrometry, chemical imaging and electron microscopy, geochemistry, nanomaterials and nanoscience, materials design and synthesis, chemical and structural materials theories, and condensed matter physics.
- *Demolition of Building 51 and Bevatron Demolition Project at Lawrence Berkeley National Laboratory*. The project is eliminating a legacy accelerator which ceased operation in 1993, freeing up approximately three acres of much needed land at the site for programmatic use. In FY 2011, the project demolished and disposed of the accelerator building (approximately 1,100 tons of steel) and characterized and disposed of approximately 14,000 cubic yards of concrete from the slab and foundations.

Milestone	Date
Complete construction on Building 74 of the Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II project at LBNL.	4th Qtr. FY 2012
Approve start of construction for the balance of the Research Support Building project at SLAC	3rd Qtr. FY 2013
Approve alternative selection and cost range for the Science and User Support Building at SLAC	3rd Qtr. FY 2012

Explanation of Changes

The FY 2013 budget request funds the continuation of four ongoing construction projects, of which three projects are scheduled to receive final funding. The projects planned to be fully funded in FY 2013 are the Research Support Building and Infrastructure Modernization project at SLAC National Accelerator Laboratory (SLAC), the Energy Sciences Building at Argonne National Laboratory (ANL), and the Renovate Science Laboratories project at Brookhaven National Laboratory (BNL). The FY 2013 request provides second year funding for the Science and User Support Building project at SLAC National Accelerator Laboratory (SLAC). There are two new construction project starts included in the FY 2013 request: the Utilities Upgrade project at Fermi National Accelerator Laboratory (FNAL) and the Utility Infrastructure Modernization project at Thomas Jefferson National Accelerator Facility (TJNAF).

Infrastructure Support funding increases in the FY 2013 request 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 budgeted through SC Program Direction.

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 the project starts are consistent with 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. The investments proposed form the basis for projects included in the Initiative.

Projects included in the Initiative 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 projects under the Infrastructure Modernization Initiative has been on track with commitments. In FY 2011, 16 SLI Infrastructure Modernization Initiative projects received successful Lehman Reviews including progress reviews, 13 received CD approvals by the SC Acquisition Board, and all baseline milestones were 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 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 which focuses on the ability of each laboratory infrastructure element to meet the needs of scientific research. The Infrastructure Modernization Initiative will provide capital investment through the SLI program to make these needed improvements. The goals of the Infrastructure Modernization Initiative are 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

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Infrastructure Support	6,878	8,219	+1,341
In FY 2013, the increase supports the initiation of funding for facilities and infrastructure at the OSTI facility at Oak Ridge and the NBL facility at the Argonne Site that were previously budgeted through SC Program Direction and increased support for Oak Ridge Landlord.			
Line Item Construction	104,922	109,571	+4,649
The FY 2013 request supports the continuation of four ongoing projects and the start of two new projects.			
Total, Science Laboratories Infrastructure	111,800	117,790	+5,990

Infrastructure Support
Funding Profile by Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Oak Ridge Landlord	5,250	5,493	5,934
Payments in Lieu of Taxes	1,382	1,385	1,385
Facilities and Infrastructure	0	0	900
Total, Infrastructure Support	6,632	6,878	8,219

Overview

The Infrastructure Support subprogram provides SC stewardship responsibilities for the Oak Ridge Reservation and DOE facilities and Office of Scientific and Technical Information (OSTI) in the city of Oak Ridge, Tennessee and facilities infrastructure support for New Brunswick Laboratory (NBL) at the Argonne site.

Infrastructure Support also provides 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 Federal facilities that house OSTI at Oak Ridge and NBL at the Argonne site; these activities were previously budgeted in SC Program Direction.

Explanation of Funding Changes

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Oak Ridge Landlord	5,493	5,934	+441
Funding increases to accommodate the transfer of funding for facilities and infrastructure at the OSTI facility. This funding was previously budgeted through 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 at NBL. This funding was previously budgeted through SC Program Direction.			
Total, Infrastructure Support	6,878	8,219	+1,341

Oak Ridge Landlord

Overview

Funding supports landlord responsibilities, including infrastructure for the 24,000 acre Oak Ridge Reservation, OSTI, 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 (PILT) 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 ($000)
2011 Current	Funding provided for activities to ensure continuity of operations and minimize interruptions due to infrastructure or other system failures.	5,250
2012 Enacted	Funding provided for activities to ensure continuity of operations and minimize interruptions due to infrastructure or other system failures.	5,493
2013 Request	Funding in FY 2013 is requested for support of Oak Ridge Reservation landlord responsibilities and to initiate support of OSTI facility and infrastructure expenses.	5,934

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 ($000)
2011 Current	Funding provided for discretionary payments to communities around the Argonne and Brookhaven National Laboratories.	1,382
2012 Enacted	Funding supports the Department's authorization to provide PILT payments to communities around Argonne and Brookhaven National Laboratories.	1,385
2013 Request	Funding will continue to support the Department's authorization to provide PILT payments to communities around the Argonne and Brookhaven National Laboratories.	1,385

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 (ANL).

Funding and Activity Schedule

Fiscal Year	Activity	Funding ($000)
2011 Current	In FY 2011, these activities were funded by SC program direction.	0
2012 Enacted	In FY 2012, these activities were funded by SC program direction.	0
2013 Request	Funding provided to initiate support of NBL facilities and infrastructure.	900

Construction
Funding Profile by Activity

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Construction			
Utilities Upgrade at FNAL (13-SC-70)	0	0	2,500
Utility Infrastructure Modernization at TJNAF (13-SC-71)	0	0	2,500
Science and User Support Building at SLAC (12-SC-70)	0	12,086	21,629
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	40,694	12,024	36,382
Energy Sciences Building at ANL (10-SC-71)	14,970	40,000	32,030
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	14,970	15,500	14,530
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	20,063	12,975	0
Technology and Engineering Development Facility at TJNAF (09-SC-74)	28,419	12,337	0
Total, Construction	119,116	104,922	109,571

Overview

The SLI Construction subprogram funds line item construction projects to maintain and enhance the general purpose infrastructure at SC laboratories. Infrastructure Modernization Initiative investments are funded in this subprogram and are focused on the accomplishment of long-term science goals and strategies at each SC laboratory. Projects are selected using a collaborative approach involving SC Site Office Managers, laboratory Chief Operating Officers, the SC Deputy Directors for Field Operations and Science Programs, and the SC research program Associate Directors.

Explanation of Funding Changes

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Utilities Upgrade at FNAL (13-SC-70)	0	2,500	+2,500

FNAL currently has design concepts established for a group of neutrino projects, including the Muon to Electron Conversion Experiment (Mu2e) funded through the High Energy Physics (HEP) program. The reliability of the 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. Additional stresses to the system will exacerbate these problems. The proposed Utilities Upgrade project will upgrade the laboratory's industrial cooling water and high voltage electrical system, which will mitigate environmental liability, improve reliability, and allow FNAL to effectively perform high energy physics research. Project engineering and design activities are initiated in FY 2013.

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Utilities Improvement Project at TJNAF (13-SC-71)	0	2,500	+2,500
TJNAF's accelerator science core capability has an immediate need for investments to ensure the laboratory utilities infrastructure can continue to support the superconducting radio frequency mission in the research, development, and production of cryomodules. Existing utility systems continue to experience failures at increasing rates, which limits the laboratory's ability to perform a complementary role within SC research programs. The most critical shortfall is the inability to use an alternative power feed to restart the Central Helium Liquefier, which is a critical component to maintaining constant cryogenic temperatures in the accelerator cryomodules that prevent degradation of accelerator performance and costly repairs. This reduces reliability of accelerator performance which could impact research performed by the Nuclear Physics (NP) and HEP programs. The proposed Utilities Improvement Project will increase capacity to the cryogenic, electrical power distribution, cooling water, and communication systems and will improve performance and reliability while supporting SC research programs. Project Engineering and Design and preliminary construction activities are initiated in FY 2013.			
Science and User Support Building at SLAC (12-SC-70)	12,086	21,629	+9,543
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 with a range of disciplines in physical sciences, engineering, and medicine 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. To ensure that world-class research conducted is supported by mission-ready facilities, an expansion of user space is needed. SLI's Science and User Support building project will serve as the main entrance to the laboratory—the first stop for all visitors and users at SLAC, and will bring together many of the laboratory's visitors, users, and administrative services. This will enhance scientific productivity and collaboration that supports the laboratory's cutting-edge discoveries and exceptional user research program. Increased funding supports the continuation of construction activities per the planned profile in the Preliminary Project Execution Plan.			

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)	12,024	36,382	+24,358
SLAC has evolved from a single program to a multi-program laboratory. This transition, combined with the condition and age of SLAC facilities, drives the need to consolidate core research groups and modernize key support buildings. The Research Support Building and Infrastructure Modernization project will improve accelerator research capabilities and efficiency by collocating Particle Physics, SSRL, and LCLS functions. Additionally, the Accelerator Main Control Center, which will be 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. Funding supports the continuation of construction activities per the planned profile in the Project Execution Plan.			
Energy Sciences Building at ANL (10-SC-71)	40,000	32,030	-7,970
ANL's core research capabilities are currently hampered by antiquated, scientifically inadequate, and inefficient research space as the original site plan was designed when science research was done as a set of separate disciplines. The Energy Science Building project will replace 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. Funding supports the continuation of construction activities per the planned profile in the Project Execution Plan.			
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)	15,500	14,530	-970
This project provides upgrades to several laboratory buildings at BNL. Building 510 (the Physics Department) is essential to research supported by NP and HEP 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 510 (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. Funding supports the continuation of construction activities per the planned profile in the Project			

(Dollars in Thousands)

	FY 2012 Enacted	FY 2013 Request	FY 2013 vs. FY 2012
Execution Plan.			
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)	12,975	0	-12,975
This project will remedy high seismic life-safety risks by replacing seismically-poor buildings and trailers with a new general purpose laboratory/office building, upgrading the Waste Handling Facility, and modernizing an existing Life Sciences Building. This project received final funding in FY 2012 and is planned for project closeout in FY 2015.			
Technology and Engineering Development Facility at TJNAF (09-SC-74)	12,337	0	-12,337
This project will renovate existing space and construct new space in the Test Lab Building, to provide efficient workflow, a safe and sustainable work environment, and functional efficiencies. This project received final funding in FY 2012 and is expected to receive approval for project closeout in FY 2014.			
Total, Construction	104,922	109,571	+4,649

Supporting Information

Operating Expenses, Capital Equipment, and Construction Summary

(Dollars in Thousands)

	FY 2011 Current	FY 2012 Enacted	FY 2013 Request
Operating Expenses	6,532	6,778	8,119
General Plant Projects	100	100	100
Construction	119,116	104,922	109,571
Total, Science Laboratories Infrastructure	125,748	111,800	117,790

Construction Projects

(Dollars in Thousands)

	Prior Years	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	Outyears	Total
Utilities Upgrade at FNAL (13-SC-70)						
TEC	0	0	0	2,500	32,400	34,900
OPC[a]	390	710	0	0	0	1,100
TPC	390	710	0	2,500	32,400	36,000[b]
Utility Infrastructure Modernization at TJNAF (13-SC-71)						
TEC	0	0	0	2,500	26,700	29,200
OPC[a]	400	300	0	0	0	700
TPC	400	300	0	2,500	26,700	29,900[c]
Science & User Support Building at SLAC (12-SC-70)						
TEC	0	0	12,086	21,629	30,285	64,000
OPC[a]	0	500	0	0	500	1,000
TPC	0	500	12,086	21,629	30,785	65,000[d]

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

[b] This project has not yet 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.

[c] This project has not yet 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.

[d] This project has not yet 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)

	Prior Years	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	Outyears	Total
Research Support Building and Infrastructure Modernization at SLAC (10-SC-70)						
TEC	6,900	40,694	12,024	36,382	0	96,000
OPC[a]	700	5	215	250	230	1,400
TPC	7,600	40,699	12,239	36,632	230	97,400
Energy Sciences Building at ANL (10-SC-71)						
TEC	8,000	14,970	40,000	32,030	0	95,000
OPC[a]	956	0	0	0	0	956
TPC	8,956	14,970	40,000	32,030	0	95,956
Renovate Science Laboratories, Phase II, at BNL (10-SC-72)						
TEC	5,000	14,970	15,500	14,530	0	50,000
OPC[a]	737	63	0	0	0	800
TPC	5,737	15,033	15,500	14,530	0	50,800
Seismic Life-Safety, Modernization, and Replacement of General Purpose Buildings, Phase II, at LBNL (09-SC-72)						
TEC	61,522	20,063	12,975	0	0	94,560
OPC[a]	2,256	0	74	150	0	2,480
TPC	63,778	20,063	13,049	150	0	97,040
Technology and Engineering Development Facility at TJNAF (09-SC-74)						
TEC	31,387	28,419	12,337	0	0	72,143
OPC[a]	1,000	0	0	0	0	1,000
TPC	32,387	28,419	12,337	0	0	73,143
Total, Construction						
TEC		119,116	104,922	109,571		
OPC[a]		1,578	289	400		
TPC		120,694	105,211	109,971		

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

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

General Plant Projects

General Plant Projects (GPPs) 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 2011 Current	FY 2012 Enacted	FY 2013 Request
Ames Laboratory	2,110	200	2,315
Argonne National Laboratory	0	0	1,000
Lawrence Berkeley National Laboratory	0	0	1,000
Oak Ridge National Laboratory	2,375	0	2,000
Sandia National Laboratories	4,110	0	0
SLAC National Accelerator Laboratory	3,640	0	1,000
Fermi National Accelerator Laboratory	3,177	8,675	14,900
Notre Dame, University	395	0	0
Oak Ridge Institute for Science and Education	700	500	500
Oak Ridge Office	100	100	100
Pacific Northwest National Laboratory	2,125	400	0
Princeton Plasma Physics Laboratory	1,653	465	465
Thomas Jefferson National Acceleratory Facility	2,516	2,000	2,000
Total, GPP	22,901	12,340	25,280

Institutional General Plant Projects

Institutional General Plant Projects (IGPPs) 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 2011 Current	FY 2012 Enacted	FY 2013 Request
Argonne National Laboratory	14,379	10,056	15,180
Brookhaven National Laboratory	7,304	10,000	10,000
Fermi National Accelerator Laboratory	1,809	0	0
Lawrence Berkeley National Laboratory	5,585	5,500	6,000
Oak Ridge National Laboratory	25,613	15,000	15,000
Pacific Northwest National Laboratory	2,731	14,700	13,600
SLAC National Accelerator Laboratory	516	3,810	4,091
Total IGPP	57,937	59,066	63,871

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 at SC laboratories are displayed in the following tables.

Indirect-Funded Maintenance and Repair

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 2011 Current	FY 2012 Enacted	FY 2013 Request
Ames Laboratory	1,166	1,147	1,192
Argonne National Laboratory	44,158	50,755	51,951
Brookhaven National Laboratory	36,896	36,742	38,272
Fermi National Accelerator Laboratory	15,162	16,178	16,773
Lawrence Berkeley National Laboratory	21,057	17,200	17,500
Lawrence Livermore National Laboratory	2,666	2,719	2,773
Los Alamos National Laboratory	115	117	119
Oak Ridge Institute for Science and Education	858	413	403
Oak Ridge National Laboratory	56,320	58,712	60,062
Oak Ridge National Laboratory facilities at Y-12	1,073	602	615
Pacific Northwest National Laboratory	4,221	4,300	3,797
Princeton Plasma Physics Laboratory	6,695	6,045	6,786
Sandia National Laboratories	2,499	2,548	2,598
SLAC National Accelerator Laboratory	10,405	17,424	16,954
Thomas Jefferson National Accelerator Facility	5,139	4,450	5,200
Total, Indirect-Funded Maintenance and Repair	208,430	219,352	224,995

Direct-Funded Maintenance and Repair

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 2011 Current	FY 2012 Enacted	FY 2013 Request
Brookhaven National Laboratory	6,870	5,696	5,843
Fermilab National Accelerator Facility	126	122	127
Notre Dame Radiation Laboratory	173	171	173
Oak Ridge National Laboratory	15,183	15,388	15,742
Oak Ridge Office	5,071	5,100	8,172
Office of Scientific and Technical Information	346	355	364
SLAC National Accelerator Laboratory	2,789	838	1,220
Thomas Jefferson National Accelerator Facility	77	63	65
Total, Direct-Funded Maintenance and Repair	30,635	27,733	31,706

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

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 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.

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

This Project Data Sheet (PDS) is new and does include a new start for the budget year.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter To Date)

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

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – 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]

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. Existing 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 capabilities of the existing utility systems in capacity

[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 yet 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.

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

Maintaining a dependable research infrastructure from which science programs can be accomplished is dependent on robust, redundant, maintainable, and flexible utility systems. 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. This project, originally included in the FY 2011 Budget Request, 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; therefore, they cannot be maintained nor replaced in kind. 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	Perform all Distribution System Modifications required to isolate Master Substation Replace all oil switches with new air switches Replace 7 unit substations	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, including replacing the control wiring and upgraded metering, upgrading 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

Other Project Costs, funded through laboratory overhead, were used to complete the conceptual design. FY 2013 PED funds will be used for preliminary design and include associated project management and support costs.

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 2013	2,500	2,500	2,500
FY 2014	1,950	1,950	1,950
Total, PED	4,450	4,450	4,450
Construction			
FY 2013	0	0	0
FY 2014	30,450	30,450	23,524
FY 2015	0	0	6,926
Total, Construction	30,450[b]	30,450[b]	30,450[b]

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

[b] This project has not yet 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
TEC			
FY 2013	2,500	2,500	2,500
FY 2014	32,400	32,400	25,474
FY 2015	0	0	6,926
Total, TEC	34,900[b]	34,900[b]	34,900[b]
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	2,500	2,500	2,500
FY 2014	32,400	32,400	25,474
FY 2015	0	0	6,926
Total, TPC[b]	36,000[a]	36,000[a]	36,000[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 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.

6. Details of Project Cost Estimate

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)[a]			
Design	3,560	N/A	N/A
Contingency	890	N/A	N/A
Total, PED	4,450	N/A	N/A
Construction			
Construction	24,360	N/A	N/A
Contingency	6,090	N/A	N/A
Total, Construction	30,450[a]	N/A	N/A
Total, TEC	27,920[a]	N/A	N/A
Contingency, TEC	6,980	N/A	N/A
Other Project Cost (OPC)[b]			
OPC except D&D			
Conceptual Planning	500	N/A	N/A
Conceptual Design	400	N/A	N/A
Contingency	200	N/A	N/A
Total, OPC	1,100	N/A	N/A
Contingency, OPC	200	N/A	N/A
Total, TPC[b]	28,820[b]	N/A	N/A
Total, Contingency	7,180	N/A	N/A

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

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

7. Funding Profile History

Request Year		(Dollars in Thousands) FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Total
FY 2013	TEC	0	0	0	2,500	32,400	0	0	0	34,900[a]
	OPC[a]	390	710	0	0	0	0	0	0	1,100
	TPC	390	710	0	2,500	32,400	0	0	0	36,000[b]

8. Related Operations and Maintenance Funding Requirements

Not applicable.

9. Required D&D Information

Not applicable.

10. Acquisition Approach

Not applicable.

[a] This project has not yet received approval of CD-2; 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.

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

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

This Project Data Sheet (PDS) is new and does include a new start for the budget year.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter or Date)

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

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2 – Approve Performance Baseline
CD-3 – 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]

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

[a] This project is pre-CD-2 and schedule estimates are preliminary. Construction funds will not be executed without appropriate CD approvals.
[b] Other Project Costs are funded through laboratory overhead.
[c] This project has not yet 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.

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 TJNAF cryogenic, power distribution, cooling water, and communication systems are experiencing failure at increasing frequencies and have insufficient capacity to meet current and forecasted need. This project is needed to address performance gaps in respect to providing a work environment that meets safety goals, current code standards and operational efficiency goals.

The Utilities Infrastructure Modernization (UIM) Project, originally included in the FY 2011 Budget Request, will upgrade the electrical distribution, process cooling, cryogenics, and communications systems at TJNAF by replacing aging infrastructure and providing needed additional capability. The scope of the project includes replacement of accelerator site primary and secondary electrical distribution feeders, thereby increasing the capacity for the electrical transfer feeder between the two on-site utility substations; replacement of 8–12 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 a fiber ring around 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. Electricity energy savings from an upgrade to the Cryogenic Test Facility, a key component in the cryogenic system, are estimated to be 36%. The power distribution system capacity is currently taxed to its limit and will not support future projected needs. Electric feeders are at the end of their service life and are near failing. Insulation cracks have been observed on multiple feeders. Recent interruptions to accelerator operation due to failed components of the electrical supply heighten this concern.

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. These systems have reached the end of their life cycle. 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. A detailed alternatives analysis using life-cycle costs will be conducted prior to CD-1.

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 plus Central Helium Liquefier Buildings Construct a 2,500 SF 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 (2,000 square foot)

Other Project Costs, funded through laboratory overhead, were used to complete the conceptual design in preparation for CD–1. FY 2013 PED funds will be used to complete preliminary and final designs for all aspects of the project. FY 2013 construction funds will be used for procurement of long-lead items and to start construction work as well as 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 2013	900	900	900
Total PED	900	900	900

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

(Dollars in Thousands)

	Appropriations	Obligations	Costs
Construction			
FY 2013	1,600	1,600	1,600
FY 2014	26,700	26,700	10,700
FY 2015	0	0	16,000
Total, Construction	28,300[a]	28,300[a]	28,300[a]
TEC			
FY 2013	2,500	2,500	2,500
FY 2014	26,700	26,700	10,700
FY 2015	0	0	16,000
Total, TEC	29,200[a]	29,200[a]	29,200[a]
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	2,500	2,500	2,500
FY 2014	26,700	26,700	10,700
FY 2015	0	0	16,000
Total, TPC[a]	29,900[a]	29,900[a]	29,900[a]

[a] This project has not yet 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)			
Design (PED)[a]			
Design	800	N/A	N/A
Contingency	100	N/A	N/A
Total, PED	900	N/A	N/A
Construction			
Other Construction	22,640	N/A	N/A
Contingency	5,660	N/A	N/A
Total Construction	28,300[b]	N/A	N/A
Total, TEC	29,200[b]	N/A	N/A
Contingency, TEC	5,760	N/A	N/A
Other Project Cost (OPC)[c]			
OPC except D&D			
Conceptual Planning	700	N/A	N/A
Startup	0	N/A	N/A
Total, OPC	700	N/A	N/A
Total, TPC[b]	29,900[b]	N/A	N/A
Total, Contingency	5,760	N/A	N/A

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

[b] This project has not yet 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.

7. Funding Profile History

Request Year		(Dollars in Thousands) FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	Total
FY 2013	TEC	0	0	0	2,500	26,700	0	0	29,200[a]
	OPC[b]	400	300	0	0	0	0	0	700
	TPC	400	300	0	2,500	26,700[a]	0[a]	0[a]	29,900[a]

8. Related Operations and Maintenance Funding Requirements

Not Applicable.

9. Required D&D Information

Not Applicable.

10. Acquisition Approach

Not Applicable.

[a] This project has not yet 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 are funded through laboratory overhead.

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

1. Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-0, Approve Mission Need, which was approved August 26, 2010. 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.

A Federal Project Director at the appropriate certification level will be assigned to this project prior to CD-1.

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

This PDS is an update of the FY 2012 PDS.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter To 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[a]	4Q FY 2016[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

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 2012	5,000	59,000[c]	64,000[c]	1,000	TBD	1,000	65,000[c]
FY 2013	5,000	59,000[c]	64,000[c]	1,000	0	1,000	65,000[c]

[a] This project is pre-CD-2 and the estimated schedule is preliminary. Construction funds will not be executed without appropriate CD approvals.
[b] Other Project Costs are funded through laboratory overhead.
[c] This project has not yet 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.

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)

A range of alternatives will be considered; however, the current proposed approach is to construct a building with an estimated area of 58,000 gsf to 72,000 gsf 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.

This project has not yet received CD-1 approval; therefore key performance parameters are to be determined.

FY 2013 construction funding will support construction activities on this project, such as site preparation, 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	4,500
FY 2013	0	0	500
Total, PED	5,000	5,000	5,000

(Dollars in Thousands)

	Appropriations	Obligations	Costs
Construction			
FY 2012	7,086	7,086	4,000
FY 2013	21,629	21,629	15,000
FY 2014	30,285	30,285	35,000
FY 2015	0	0	5,000
Total, Construction	59,000[a]	59,000[a]	59,000[a]
TEC			
FY 2012	12,086	12,086	8,500
FY 2013	21,629	21,629	15,500
FY 2014	30,285	30,285	35,000
FY 2015	0	0	5,000
Total, TEC	64,000[a]	64,000[a]	64,000[a]
Other Project Cost (OPC)[b]			
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

[a] This project has not yet 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.

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

(Dollars in Thousands)

	Appropriations	Obligations	Costs
Total Project Cost (TPC)			
FY 2011	500	500	500
FY 2012	12,086	12,086	8,500
FY 2013	21,629	21,629	15,500
FY 2014	30,585	30,585	35,300
FY 2015	200	200	5,200
Total, TPC[a]	65,000[a]	65,000[a]	65,000[a]

6. Details of Project Cost Estimate

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate[a]	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	4,150	4,150	N/A
Contingency	850	850	N/A
Total, PED	5,000	5,000	N/A
Construction			
Construction	47,200	5,669	N/A
Contingency	11,800	1,417	N/A
Total, Construction	59,000[b]	7,086	N/A
Total, TEC	64,000[b]	TBD	N/A
Contingency, TEC	12,650	2,267	N/A

[a] The funding amounts shown in table 6 in the FY 2012 Request to Congress only reflected funding through FY 2012.

[b] This project has not yet 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.

(Dollars in Thousands)

	Current Total Estimate	Previous Total Estimate[a]	Original Validated Baseline
OPC[b]			
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	65,000[c]	10,619	N/A
Total, Contingency	12,850	2,467	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[b]	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
	OPC[b]	500	0	0	300	200	1,000
	TPC	500	12,086	21,629	30,585[c]	200[c]	65,000[c]

8. Related Operations and Maintenance Funding Requirements

Not Applicable.

9. Required D&D Information

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 and use banked excess for the balance. Note that the project does not yet have CD-2 approval, so some assumptions may change.

[a] The funding amounts shown in table 6 in the FY 2012 Request to Congress only reflected funding through FY 2012.
[b] Other Project Costs are funded through laboratory overhead.
[c] This project has not yet 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.

10. Acquisition Approach

SLAC as the 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. Note that the project does not yet have CD-2 approval, so some assumptions may change.

10-SC-70, Research Support Building and Infrastructure Modernization,
SLAC National Accelerator Laboratory (SLAC), Menlo Park, California
Project Data Sheet is for Design and Construction

1. Significant Changes

The most recent DOE O 413.3B Critical Decision (CD) is CD-2/3A, *Approve Performance Baseline and Start of Construction*, which was approved on December 20, 2010. The Total Estimated Cost (TEC) of this project is $96,000,000. The Total Project Cost (TPC) of this project is $97,400,000.

A Federal Project Director with certification level III 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 2012 PDS. Since that submittal, the estimate for project engineering and design (PED) activities has been revised downward from $6,900,000 to $6,429,000. The construction estimate has been revised upward by an equal amount such that there is no net increase in TEC.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter or Date)

	CD-0	CD-1	PED Complete	CD-2/3A	CD-3B	CD-4	D&D Start	D&D Complete
FY 2010	10/10/2008	1Q FY 2010	2Q FY 2011	TBD	TBD	TBD	TBD	TBD
FY 2011	10/10/2008	11/3/2009	4Q FY 2011	4Q FY 2010	4Q FY 2012	1Q FY 2015	4Q FY 2011	2Q FY 2015
FY 2012	10/10/2008	11/3/2009	4Q FY 2011	12/20/2010	2Q FY 2013	3Q FY 2015	2Q FY 2011	4Q FY 2014
FY 2013	10/10/2008	11/3/2009	7/31/2011	12/20/2010	2Q FY 2013	3Q FY 2015	2Q FY 2011	4Q FY 2014

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2/3A – Approve Performance Baseline; Approve Start of Construction; RSB Building 52 and Building 28
CD-3B – Approve Start of Construction; Building 41
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

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 2010	8,900	TBD	TBD	1,400	TBD	TBD	TBD
FY 2011	8,900	87,100	96,000	1,400	N/A	1,400	97,400
FY 2012	6,900	89,100	96,000	1,400	N/A	1,400	97,400
FY 2013	6,429	89,571	96,000	1,400	N/A	1,400	97,400

4. Project Description, Justification, and Scope

Mission Need

SLAC National Accelerator Laboratory 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 was originally founded to perform accelerator-based particle physics research. The laboratory mission has since broadened its focus to include photon science and non-accelerator based particle physics. Successfully carrying out this broadened mission is currently at risk given substandard buildings that do not provide the appropriate environment to conduct world class science or mission support functions.

SLAC's transition to a multi-program laboratory, combined with the condition and age of SLAC facilities drives the need to better align core research functions and modernize key support buildings. The most pressing infrastructure gaps are the lack of appropriate space to house and co-locate accelerator scientists and key mission support staff who are currently spread across the laboratory in outdated and inefficient facilities.

Scope and Justification (10-SC-70, Research Support Building and Infrastructure Modernization at SLAC)

The Research Support Building and Infrastructure Modernization project will correct these deficiencies by replacing numerous 40-year-old trailers that currently house the laboratory's accelerator scientists. This will improve accelerator research capabilities and efficiency by collocating Particle Physics, SSRL, and LCLS functions and enabling integration across programmatic boundaries, allowing these scientists to better support the science missions at the laboratory. In addition, renovation of existing buildings is proposed. These buildings house key mission support functions and were part of the original construction of the laboratory in the mid-1960s. Although the basic core and shell construction are sound, their interior and exterior spaces and utility systems are obsolete. Overall, the proposed project will upgrade working conditions for over 20% of the laboratory staff in a way that supports the laboratory vision of a unified culture with a strong sense of community between all scientific and support functions across the laboratory.

New construction is anticipated to be in the range of 53,000 to 95,000 square feet which may include more than one building; a minimum of 53,000 square feet of existing space will undergo renovation, and demolition of approximately 20,000 square feet will be completed to provide the site for the new construction. The remaining balance of gross square feet to be demolished to meet the one-for-one replacement will be from banked excess.

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

Key Performance Parameters

Description	Threshold Value (Minimum)	Objective Value (Maximum)
New Facilities (Building 52)	53,000 gsf	95,000 gsf
Renovated Facilities (Building 28 and Building 41)	53,000 gsf	70,000 gsf

FY 2013 funding will support the continuation of construction activities, including project management and all associated support functions. FY 2013 is the final year of funding for this project.

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			
FY 2010	6,429	6,429	3,039[a]
FY 2011	0	0	3,390
Total, PED	6,429	6,429	6,429
Construction			
FY 2010	471	471	0
FY 2011	40,694	40,694	13,900
FY 2012	12,024	12,024	38,000
FY 2013	36,382	36,382	29,000
FY 2014	0	0	7,800
FY 2015	0	0	871
Total, Construction	89,571	89,571	89,571

[a] FY 2012 PED has been updated to reflet actual final costs.

(Dollars in Thousands)

	Appropriations	Obligations	Costs
TEC			
FY 2010	6,900	6,900	3,039
FY 2011	40,694	40,694	17,290
FY 2012	12,024	12,024	38,000
FY 2013	36,382	36,382	29,000
FY 2014	0	0	7,800
FY 2015	0	0	871
Total, TEC	96,000	96,000	96,000
Other Project Cost (OPC)[a]			
OPC except D&D			
FY 2009	700	700	700
FY 2010	0	0	0
FY 2011	5	5	5
FY 2012	215	215	215
FY 2013	250	250	250
FY 2014	230	230	230
Total, OPC	1,400	1,400	1,400
Total Project Cost (TPC)			
FY 2009	700	700	700
FY 2010	6,900	6,900	3,039
FY 2011	40,699	40,699	17,295
FY 2012	12,239	12,239	38,215
FY 2013	36,632	36,632	29,250
FY 2014	230	230	8,030
FY 2015	0	0	871
Total, TPC	97,400	97,400	97,400

[a] Other Project Costs 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)			
Design (PED)			
Design	6,429	6,306	6,306
Contingency	0	594	594
Total, PED	6,429	6,900	6,900
Construction			
Construction	67,447	72,494	72,494
Contingency	22,124	16,606	16,606
Total, Construction	89,571	89,100	89,100
Total, TEC	96,000	96,000	96,000
Contingency, TEC	22,124	17,200	17,200
OPC[a]			
Other OPC	700	700	700
Start-Up	481	514	514
Contingency	219	186	186
Total, OPC	1,400	1,400	1,400
Total, TPC	97,400	97,400	97,400
Total, Contingency	22,343	17,386	17,386

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

7. Funding Profile History

Request Year		(Dollars in Thousands) FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total
FY 2010	TEC	0	8,900	TBD	TBD	TBD	TBD	TBD
	OPC[a]	500	900	TBD	TBD	TBD	TBD	TBD
	TPC	500	9,800	TBD	TBD	TBD	TBD	TBD
FY 2011	TEC	0	6,900	33,100	19,700	36,300	0	96,000
	OPC[a]	700	100	100	150	300	50	1,400
	TPC	700	7,000	33,200	19,850	36,600	50	97,400
FY 2012	TEC	0	6,900	40,776	12,024	36,300	0	96,000
	OPC[a]	700	0	150	100	250	200	1,400
	TPC	700	6,900	40,926	12,124	36,550	200	97,400
FY 2013	TEC	0	6,900	40,694	12,024	36,382	0	96,000
	OPC[a]	700	0	5	215	250	230	1,400
	TPC	700	6,900	40,699	12,239	36,632	230	97,400

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	FY 2014
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	FY 2064

(Related Funding requirements)

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	146	399	7,300	10,266
Maintenance	633	1,722	31,650	44,481
Total, Operations & Maintenance	779	2,121	38,950	54,747

Portions of this project include renovation of existing space within existing buildings.

9. Required D&D Information

This project will include demolition of approximately 20,000 square feet to clear the proposed site for the new construction. The remaining balance of gross square feet to be demolished to meet the one-for-one replacement will be from banked excess.

10. Acquisition Approach

Design was performed by an architect-engineer (A-E) with the subcontract managed by the SLAC operating contractor. The A-E subcontractor was competitively selected based on demonstrated competence and qualifications to perform the required design services at a fair and reasonable price. A design-build approach will be used to procure construction of the new Research Support Building, and a traditional design-bid-build approach will be used for remaining portions of the construction. Competitive construction bids will be sought by the SLAC operating contractor.

10-SC-71, Energy Sciences Building, Argonne National Laboratory (ANL), Argonne, IL
Project Data Sheet is for Design and Construction

1. Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-3, *Approve Start of Building Construction*, which was approved on June 15, 2011, with a Total Estimated Cost (TEC) $95,000,000. The Total Project Cost (TPC) of this project is $95,956,000.

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 2012 PDS. Since that submittal, the estimate for project engineering and design (PED) activities has been revised downward from $10,000,000 to $6,587,000. The construction estimate has been revised upward by an equal amount such that there is no net increase in TEC. Since the last submittal, Other Project Costs (OPC) has also been revised downward from $1,000,000 to $956,000 resulting in a net decrease in TPC. In addition, the Project upper bound Key Performance Parameter has been changed from 165,000 gsf to 190,000 gsf since the last submittal.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter or Date)

	CD-0	CD-1	PED Complete	CD-2	CD-3A	CD-3	CD-4
FY 2010	10/10/2008	4Q FY 2009	2Q FY 2011	TBD	TBD	TBD	TBD
FY 2011	10/10/2008	09/02/2009	2Q FY 2011	2Q FY 2011	2Q FY 2011	2Q FY 2012	4Q FY 2014
FY 2012	10/10/2008	09/02/2009	2Q FY 2011	01/20/2011	N/A	3Q FY 2011	4Q FY 2014
FY 2013	10/10/2008	09/02/2009	3/25/2011	01/20/2011	N/A	6/15/2011	4Q FY 2014

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Ranges
CD-2 – Approve Performance Baseline
CD-3– Approve Start of Building Construction – Updated tailoring strategy has changed CD-3B to CD-3
CD-4 – Approve Start of Operations or Project Closeout

(Fiscal Quarter or Date)

	D&D Start	D&D Complete
FY 2010	TBD	TBD
FY 2011	N/A	N/A
FY 2012	N/A	N/A
FY 2013	N/A	N/A

D&D Start – Start of Demolition & Decontamination (D&D) work
D&D Complete –Completion of D&D work

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 2010	10,000	TBD	TBD	1,000	TBD	TBD	TBD
FY 2011	10,000	85,000	95,000	1,000	N/A	1,000	96,000
FY 2012	10,000	85,000	95,000	1,000	N/A	1,000	96,000
FY 2013	6,857	88,143	95,000	956	N/A	956	95,956

4. Project Description, Justification, and Scope

Mission Need

Research capabilities at ANL are currently hampered by antiquated, scientifically inadequate, and inefficient research space. The original site plan was designed when science research was done as a set of separate disciplines. Integrating different areas of science will enable multi-functionality and enhance capabilities of research funded by the Office of Science.

ANL research buildings dedicated to the SC energy research missions at ANL are all more than 40 years old. They require constant repair and frequently compromise or halt scientific research making them unable to meet modern standards for high resolution apparatus requiring vibration, electromagnetic, and thermal stability. Electrical power in these facilities is unstable and insufficient for modern synthesis and measurement instruments to operate at rated performance levels. Temperature and humidity controls were designed for human comfort only and not for state-of-the-art experimental performance, resulting in erratic temperature and humidity fluctuations over a few hours requiring frequent recalibration of apparatus to achieve sufficient measuring accuracy. Several key laboratories can operate only at night because of excessive vibration, temperature, and power fluctuations in the daytime, significantly impeding productivity. In addition to the functional inadequacies described above, safety and building code non-compliances further compromise ANL's ability to support SC and the Department's long-term energy goals. Antiquated and outdated electrical, fire protection, and ventilation systems have resulted in numerous National Electric and National Fire Protection Association code deficiencies. The age of these facilities and systems as well as the inability to obtain replacement parts has limited ANL's ability to correct these deficiencies via replacement or capital improvements.

Scope and Justification (10-SC-71, Energy Sciences Building at ANL)

The Energy Sciences Building (ESB) project will replace some of the oldest and least effective research space with between 125,000 and 190,000 gross square feet of new, environmentally stable and specialized multi-disciplinary laboratory space for core energy research at ANL. This new center will provide modern, 21st century, high-accuracy laboratory and office space for energy-related research and development (R&D) and associated space for support functions. The design utilizes efficient laboratory planning benchmarks as the basis for determining the size and configuration of space types. The design of the space also emphasizes more open, collaborative environments and flexibility to respond to future mission changes. In addition to the research laboratories, the building will include office space for researchers, small group conference rooms, equipment areas, restrooms, circulation space, and supporting infrastructure.

The objective of the ESB project is to provide the agile, flexible, and sustainable high-accuracy laboratory and office space to support scientific theory/simulation, materials discovery, characterization, and application of new energy-related materials and processes. Efficient, high-accuracy heating, ventilation, and air conditioning systems will be installed to support cutting edge research and the operation of sensitive instrumentation. Comparable space is not available at ANL. The scope of the

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

project includes design, construction, and necessary furniture and equipment for the new facility as well as extension of existing site utilities to the new building. Risks were analyzed in accordance with DOE O 413,3B procedures and were found to be acceptable for the issuance of CD-3.

This project has secured "banked space" from prior Nuclear Footprint Reduction efforts at Argonne as well as demolition projects at other Office of Science facilities to meet the one for one requirement for offsetting space.

Key Performance Parameters

Description	Threshold Value (Minimum)	Objective Value (Maximum)
Facility Size	125,000 gsf	190,000 gsf

FY 2013 construction funding will support the completion of construction activities on this project, including project management and all associated support functions. FY 2013 is the final year of funding for this project and includes $14.62M for contingency.

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			
FY 2010	6,857	6,857	3,667
FY 2011	0	0	3,190
Total, PED	6,857	6,857	6,857
Construction			
FY 2010	1,143	1,143	0
FY 2011	14,970	14,970	6,800
FY 2012	40,000	40,000	48,000
FY 2013	32,030	32,030	29,200
FY 2014	0	0	4,143
Total, Construction	88,143	88,143	88,143

(Dollars in Thousands)

	Appropriations	Obligations	Costs
TEC			
FY 2010	8,000	8,000	3,667
FY 2011	14,970	14,970	9,990
FY 2012	40,000	40,000	48,000
FY 2013	32,030	32,030	29,200
FY 2014	0	0	4,143
Total, TEC	95,000	95,000	95,000
Other Project Cost (OPC)[a]			
OPC except D&D			
FY 2009	956	956	956
Total, OPC	956	956	956
Total Project Cost (TPC)			
FY 2009	956	956	956
FY 2010	8,000	8,000	3,667
FY 2011	14,970	14,970	9,990
FY 2012	40,000	40,000	48,000
FY 2013	32,030	32,030	29,200
FY 2014	0	0	4,143
Total, TPC	95,956	95,956	95,956

[a] Other Project Costs 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)			
Design (PED)			
Design	6,857	8,334	6,857
Contingency	0	1,666	0
Total, PED	6,857	10,000	6,857
Construction			
Other Construction	73,491	70,707	73,491
Contingency	14,652	14,293	14,652
Total, Construction	88,143	85,000	88,143
Total, TEC	95,000	95,000	95,000
Contingency, TEC	14,652	15,959	14,652
Other Project Cost (OPC)[a]			
OPC except D&D			
Conceptual Planning	263	263	263
Conceptual Design	693	737	693
Contingency	0	0	0
Total, OPC	956	1,000	956
Total, TPC	95,956	96,000	95,956
Total, Contingency	14,652	15,959	14,652

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

7. Funding Profile History

Request Year		(Dollars in Thousands) FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total
FY 2010	TEC	0	10,000	TBD	TBD	TBD	TBD
	OPC[a]	1,000	0	0	0	0	TBD
	TPC	1,000	10,000	TBD	TBD	TBD	TBD
FY 2011	TEC	0	8,000	15,000	45,000	27,000	95,000
	OPC[a]	956	44	0	0	0	1,000
	TPC	956	8,044	15,000	45,000	27,000	96,000
FY 2012	TEC	0	8,000	15,000	40,000	32,000	95,000
	OPC[a]	956	44	0	0	0	1,000
	TPC	956	8,044	15,000	40,000	32,000	96,000
FY 2013	TEC	0	8,000	14,970	40,000	32,030	95,000
	OPC[a]	956	0	0	0	0	956
	TPC	956	8,000	14,970	40,000	32,030	95,956

8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy	FY 2014
Expected Useful Life	50 years
Expected Future Start of D&D of this capital asset	FY 2064

(Related Funding requirements)

(Dollars in Thousands)

	Annual Costs		Life Cycle Costs	
	Current Total Estimate	Previous Total Estimate	Current Total Estimate	Previous Total Estimate
Operations	733	733	96,182	96,182
Maintenance	1,153	1,153	37,363	37,363
Total, Operations & Maintenance	1,886	1,886	133,545	133,545

9. Required D&D Information

This project has secured “banked space” from prior Nuclear Footprint Reduction efforts at Argonne as well as demolition projects at other Office of Science facilities to meet the one for one requirement for offsetting space.

10. Acquisition Approach

The ESB project Acquisition Strategy was approved on January 7, 2009.

The M&O contractor will have prime responsibility for oversight of both the design and construction subcontracts.

Various acquisition alternatives were considered for this project. After considering all alternatives in relation to the schedule, size, and risk, the use of a tailored design-bid-build approach with design by an architectural/engineering firm, construction management services through the industrial partnership, and construction by a general contractor, all led by the M&O contractor integrated project team, was deemed to provide the best construction delivery method and the lowest risk. In addition, the M&O contractor's standard procurement practice is to use firm fixed-priced contracts, and the M&O contractor has extensive experience in project management, construction management, and ES&H management systems in the acquisition of scientific facilities.

10-SC-72, Renovate Science Laboratories, Phase II, Brookhaven National Laboratory (BNL), Upton, New York
Project Data Sheet is for Design and Construction

1. Significant Changes

The most recent DOE O 413.3B approved Critical Decision (CD) is CD-3b, *Approve Start Construction*, which was approved on June 15, 2011. The Total Estimated Cost (TEC) of this project is $50,000,000. The Total Project Cost (TPC) of this project is $50,800,000.

A Federal Project Director with 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 2012 PDS. Since that submittal, the estimate for project engineering and design (PED) activities has been revised downward from $6,000,000 to $4,960,000. The construction estimate has been revised upward by an equal amount, and there is no net change to the TPC.

2. Design, Construction, and D&D Schedule

(Fiscal Quarter To Date)

	CD-0	CD-1 (Design Start)	PED Complete	CD-2/3a	CD-3b	CD-4
FY 2010	10/10/2008	4Q FY 2009	3Q FY 2011	TBD	TBD	TBD
FY 2011	10/10/2008	9/2/2009	2Q FY 2011	1Q FY 2011	4Q FY 2011	2Q FY 2014
FY 2012	10/10/2008	9/2/2009	2Q FY 2011	12/20/2010	4Q FY 2011	3Q FY 2014
FY 2013	10/10/2008	9/2/2009	2/28/2011	12/20/2010	6/15/2011	3Q FY 2014

CD-0 – Approve Mission Need
CD-1 – Approve Alternative Selection and Cost Range
CD-2/3a – Approve Performance Baseline and Start of Site Preparation
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 Except D&D[a]	OPC, D&D	OPC, Total	TPC
FY 2010	7,000	TBD	TBD	800	TBD	TBD	TBD
FY 2011	7,000	43,000	50,000	800	TBD	800	50,800
FY 2012	6,000	44,000	50,000	800	N/A	800	50,800
FY 2013	5,100	44,900	50,000	800	N/A	800	50,800

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

4. Project Description, Justification, and Scope

Mission Need

BNL maintains primary focus in the physical energy, life sciences, environmental sciences, energy technology areas. Building 510 is a key facility for major activities in particle physics, experimental and theoretical nuclear physics, accelerator science, condensed matter physics, and materials science research. This building is home for scientists at the Relativistic Heavy Ion Collider and is the center for the U.S. group that works at the Large Hadron Collider (LHC) at CERN. Building 555 (the Chemistry Department) is essential to research supported by SC's Basic Energy Science (BES) program as it's the primary site for wet chemistry, and, in the future, will house other materials synthesis programs funded by BES. Building 555 is a key facility for research, theory, and computation in chemical and molecular sciences and for structural analysis of biological systems sciences. This building is strongly connected to BNL's CFN, NSLS, the New York Blue supercomputer, and the future NSLS-II.

The laboratories in Building 510 were constructed in 1962 and are desperately in need of renovation and modernization in order to keep pace with the highly complex and rapidly changing technologies required for work on advanced new detectors. This work involves sophisticated electronics, high precision mechanical assemblies, and extremely clean work areas for detectors such as silicon or gas filled devices. A task force conducted a condition assessment of the laboratories and developed a list of deficiencies that included damaged floors and ceilings, roof and ceiling leaks, old and unused plumbing, poor lighting levels, decrepit lab facilities, poor temperature control and ventilation, significant particulate discharge from heating, ventilation, and air conditioning systems, high electromagnetic interference noise on electrical power in certain laboratories, and lack of fire sprinkler protection.

Building 555 has a robust design for chemical sciences research but was constructed in 1966 and now has a number of substantial limitations for current research needs. While Building 555 has an effective design for wet chemistry, it needs to be renovated to address very serious infrastructure quality issues that have grown over the years. Its design can also accommodate the evolving need for laser and instrumentation space for many of the physical methods in use, but an upgrade of facilities for air, water, and electrical is critical, and selective lab reconfiguration is needed to best meet advanced instrumentation needs.

Scope and Justification (10-SC-72, Renovate Science Laboratories, Phase II, at BNL)

The Renovate Science Laboratories, Phase II project will upgrade and rehabilitate existing, obsolete, and unsuitable systems in Buildings 510 (Physics) and 555 (Chemistry) to provide safe, modern, efficient, and sustainable facilities for advanced detector research and chemistry research. For example, the renovation of the heating, ventilating and air conditioning system will eliminate the fine dust that accumulated due to corrosion which currently covers instruments and working surfaces. It will also provide stable temperatures necessary for high accuracy research. The fire suppression system will also be upgraded to comply with modern building codes. This project will improve the working environment of scientists associated with the NP, HEP, and BES programs and boost operational efficiency, save energy through occupation of more efficient buildings, and provide facilities the meet ES&H codes to improve safety.

Key Performance Parameters

Description	Threshold Value (Minimum)	Objective Value (Maximum)
Building 510	Revitalization and modernization of architectural, mechanical, electrical and fire protection systems located in the 3-story laboratory and office wing. Includes demolition as required and startup testing of building systems. Hazard Analysis Report (HAR) approved and Beneficial Occupancy Readiness Evaluation (BORE) conducted.	Renovation of B510 Seminar Wing.
Building 555	Revitalization and modernization of architectural, mechanical, electrical and fire protection systems located in the second and third floors of the west wing. Includes demolition as required and startup testing of building systems. HAR approved and BORE conducted.	Elevator upgrades and partition wall upgrades in chemistry labs.

FY 2013 construction funds will support the continuation of construction activities on this project, including project management and all associated support functions. FY 2013 is the final year of funding for this project.

The project is being conducted in accordance with the project management requirements in DOE O 413.3B and all appropriate project management requirements have been met.

5. Financial Schedule

(Dollars in Thousands)

	Appropriations	Obligations	Costs[a]
Total Estimated Cost (TEC)			
PED			
FY 2010	5,000	5,000	3,406
FY 2011	100	100	1,554
Total, PED	5,100	5,100	4,960[b]

[a] All costs through FY 2011 reflect actual expeditures.

[b] FY 2010 PED has been updated to reflect actual final costs.

(Dollars in Thousands)

	Appropriations	Obligations	Costs[a]
Construction			
FY 2011	14,870	14,870	1,119
FY 2012	15,500	15,500	18,712
FY 2013	14,530	14,530	23,993
FY 2014	0	0	1,216
Total, Construction	44,900	44,900	45,040
TEC			
FY 2010	5,000	5,000	3,406
FY 2011	14,970	14,970	2,673
FY 2012	15,500	15,500	18,712
FY 2013	14,530	14,530	23,993
FY 2014	0	0	1,216
Total, TEC	50,000	50,000	50,000
Other Project Cost (OPC)[a]			
OPC except D&D			
FY 2009	737	737	737
FY 2010	0	0	15
FY 2011	63	63	0
FY 2012	0	0	48
Total, OPC	800	800	800
Total Project Cost (TPC)			
FY 2009	737	737	737
FY 2010	5,000	5,000	3,421
FY 2011	15,033	15,033	2,673
FY 2012	15,500	15,500	18,760
FY 2013	14,530	14,530	23,993
FY 2014	0	0	1,216
Total, TPC	50,800	50,800	50,800

[a] Other Project Costs are funded through laboratory overhead

6. Details of Project Cost Estimate

(Dollars in Thousands)

	Current Total Estimate[a]	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	4,960	5,007	5,007
Contingency	0	993	993
Total, PED	4,960	6,000	6,000
Construction			
Other Construction	36,490	36,363	36,363
Contingency	8,550	7,637	7,637
Total, Construction	45,040	44,000	44,000
Total, TEC	50,000	50,000	50,000
Contingency, TEC	8,550	8,630	8,630
Other Project Cost (OPC)[b]			
OPC except D&D			
Conceptual Planning	150	150	150
Conceptual Design	650	650	650
Contingency	0	0	0
Total, OPC	800	800	800
Total, TPC	50,800	50,800	50,800
Total, Contingency	8,550	8,630	8,630

[a] All costs through FY 2011 reflect actual expeditures.

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

7. Funding Profile History

Request Year		(Dollars in Thousands) FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total
FY 2010	TEC	0	7,000	TBD	TBD	TBD	TBD
	OPC[a]	800	0	0	0	0	800
	TPC	800	7,000	TBD	TBD	TBD	TBD
FY 2011	TEC	0	5,000	15,000	22,000	8,000	50,000
	OPC[a]	737	63	0	0	0	800
	TPC	737	5,063	15,000	22,000	8,000	50,800
FY 2012	TEC	0	5,000	15,000	15,500	14,500	50,000
	OPC[a]	737	63	0	0	0	800
	TPC	737	5,063	15,000	15,500	14,500	50,800
FY 2013	TEC	0	5,000	14,970	15,500	14,530	50,000
	OPC[a]	737	0	63	0	0	800
	TPC	737	5,000	15,033	15,500	14,530	50,800

8. Related Operations and Maintenance Funding Requirements

Project is a renovation of existing space within existing buildings.

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	3Q FY 2014
Expected Useful Life (number of years)	30
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

9. Required D&D Information

The project is a renovation of existing space. No new space will be constructed.

10. Acquisition Approach

Design will be performed by an architect-engineer (A-E) with the subcontract managed by the BNL operating contractor. The A-E will be competitively selected based on qualifications. After completion of the design, the BNL operating contractor will solicit offers from prospective large and small business general construction firms, and award a firm fixed price construction subcontract. Evaluation of offers will include consideration of each offeror's relative experience, safety record, past performance in successfully completing similar construction projects, and cost. Award will then be made to one qualified responsible, responsive offeror.

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