Science Laboratories Infrastructure

Funding Profile by Subprogram

(dollars in thousands)

	FY 2003 Comparable Appropriation	FY 2004 Original Appropriation	FY 2004 Adjustments	FY 2004 Comparable Appropriation	FY 2005 Request
Science Laboratories Infrastructure					
Laboratories Facilities Support	32,194	33,456	-186[a]	33,270	17,911
Excess Facilities Disposition	7,900	6,055	-35[a]	6,020	6,100
Oak Ridge Landlord	5,015	5,079	-30[a]	5,049	5,079
Health & Safety Improvements	0	10,000	-59[a]	9,941	0
Subtotal, Science Laboratories Infrastructure	45,109	54,590	-310[a]	54,280	29,090
Use of Prior Year Balances	0	-1,998	0	-1,998	0
Total, Science Laboratories Infrastructure	45,109[b]	52,592	-310[a]	52,282	29,090

Public Law Authorizations:
Public Law 95-91, "Department of Energy Organization Act"
Public Law 103-62, "Government Performance and Results Act of 1993"

Mission

The mission of the Science Laboratories Infrastructure (SLI) program is to enable the conduct of Departmental research missions at the ten Office of Science (SC) laboratories and the Oak Ridge Institute for Science and Education (ORISE) by funding line item construction to maintain the general purpose infrastructure (GPI) and the clean-up and removal of excess facilities. The program also supports SC landlord responsibilities for the 36,000 acre Oak Ridge Reservation; provides Payments in Lieu of Taxes (PILT) to local communities around Argonne National Laboratory-East (ANL-E), Brookhaven National Laboratory (BNL), and Oak Ridge National Laboratory (ORNL); and provides for the correction of Occupational Safety & Health Administration (OSHA) and Nuclear Regulatory Commission (NRC) identified deficiencies and implementation of recommendations for improved health and safety practices at SC laboratories.

Benefits

This program supports the conduct of Departmental research missions at the ten SC laboratories and the Oak Ridge Reservation, including the Federal facilities in the town of Oak Ridge, primarily by addressing general purpose facilities and infrastructures needs.

[a] Excludes $310,110 for a rescission in accordance with the Consolidated Appropriations Act, 2004, as reported in conference report H.Rpt. 108-401, dated November 25, 2003.

[b] Excludes $296,000 for a rescission in accordance with the Consolidated Appropriations Resolution, FY 2003.

Significant Program Shifts

Progress in Line Item Projects – One project was completed in FY 2003: ORNL Electrical Systems Upgrades. Six projects are scheduled for completion in FY 2004: BNL Groundwater and Surface Water Protection Upgrades; BNL Electrical Systems Modifications, Phase II; LBNL Site-wide Water Distribution System Upgrades; ORNL Laboratory Facilities HVAC Upgrade; ORNL Fire Protection System Upgrades; and the ANL-E Fire Safety Improvements, Phase IV. In FY 2005, two projects are scheduled for completion: ORNL Research Support Center; and the ANL-E Mechanical and Control Systems Upgrades-PH I.

In FY 2004, Congress appropriated $10,000,000 to address the OSHA and NRC identified health and safety deficiencies and recommendations for improved health and safety practices at SC laboratories. This $10,000,000 is sufficient to address the most significant health and safety issues at the laboratories. If the Administration determines that health and safety issues remain, resources will be requested in future years as necessary.

Laboratories Facilities Support

Funding Schedule by Activity

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	$ Change	% Change
Laboratory Facilities Support					
General Purpose Facilities	18,868	24,619	9,283	-15,336	-62.3%
Environment, Safety and Health	12,319	7,140	7,108	-32	-0.5%
Payment in Lieu of Taxes (PILT)	1,007	1,511	1,520	+9	+0.6%
Total, Laboratories Facilities Support	32,194	33,270	17,911	-15,359	-46.2%

Description

The Laboratories Facilities Support (LFS) subprogram improves the mission readiness of Office of Science (SC) laboratories by funding line item construction projects to refurbish or replace general purpose facilities and the site-wide infrastructure.

Benefits

This subprogram improves the mission readiness of SC laboratories by funding line item construction projects to refurbish or replace general purpose facilities and site-wide infrastructure. The subprogram also provides Payments in Lieu of Taxes (PILT) assistance as required by law for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory –East.

Supporting Information

General purpose and site-wide infrastructure includes administrative, research laboratory, user support and testing space as well as cafeterias, power plants, fire stations, electrical, gas and other utility distribution systems, sanitary sewers, roads, and other associated structures. The 10 SC laboratories have over 2,400 buildings (including 787 trailers and 150 excess buildings) with a total square footage of over 21,000,000 square feet. The LFS subprogram also provides Payments in Lieu of Taxes (PILT) assistance for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory-East.

Capital investment requirements for SC laboratories are identified in laboratory Strategic Facilities Plans. These plans assume the full modernization/revitalization of the infrastructure of the laboratories will be completed over a ten-year period and include priority lists of proposed facilities and infrastructure needs. The backlog of line item construction modernization needs as summarized in SC's 2003 Update of the "*Infrastructure Frontier Report: A Quick Look Survey of the Office of Science Laboratory Infrastructure*," is on the order of $1 billion. Nearly 85% of this total is to rehabilitate or replace buildings.

The large backlog of line item construction needs is attributable to:

- the age of the facilities (over 69% of the buildings are 30 years old or older, and 43% are 40 years old or older);

- the use of wood and other non-permanent building materials in the original construction of the laboratories in the 40's and 50's;
- changing research needs that require:
    - different kinds of space (e.g., nuclear facilities including hot cells are in less demand while facilities that foster interaction and team-based research are in high demand); and
    - higher quality of space (e.g., reduced vibration sensitivity and temperature variability, and increased air quality and power demand for computers and other electronic equipment);
- obsolescence of existing building systems and components and changing technology (e.g., digital controls for heating and ventilation systems, fire alarms, security);
- increased requirements for continuity of utility operations to support large user population at SC user research facilities; and
- changing environmental, safety and health regulations and security needs.

For each budget, all candidate construction projects for funding by the LFS subprogram are scored using the DOE Life Cycle Asset Management (LCAM) Cost-Risk-Impact Matrix that takes into account risk, impacts, and mission need. The projects that have ES&H as the principal driver are further prioritized using the Risk Prioritization Model from the DOE ES&H and Infrastructure Management Plan process. Based on these scores, the LFS subprogram prioritizes the projects. The prioritized list is further evaluated for SC science program mission impact by an integrated infrastructure management team composed of the LFS subprogram and SC research program offices. Projects are then proposed from this list consistent with budget availability.

The LFS subprogram ensures that the funded projects are managed effectively and completed within the established cost, scope and schedule baselines. Performance will be measured by the number of all SLI projects completed within the approved baseline for cost (at or below the appropriated Total Estimated Cost), scope (within 10%), and schedule (within six months). One project scheduled for completion in FY 2003 was completed within the approved baselines for cost, scope, and schedule.

Detailed Justification

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
General Purpose Facilities	**18,868**	**24,619**	**9,283**

Provides funding to support the continuation of two FY 2003 subprojects under the Science Laboratories Infrastructure (MEL-001) Project Engineering and Design (PED) and construction project data sheets. These are summarized below. More details are provided in the data sheets presented later.

Ongoing :

- LBNL Building 77 Rehabilitation of Structures and Systems, Phase II ($4,825,000)
- BNL Research Support Building, Phase I ($4,458,000)

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
Environment, Safety and Health	**12,319**	**7,140**	**7,108**

Provides funding to support the continuation of one FY 2004 subproject under the Science Laboratories Infrastructure (MEL-001) construction project data sheet. It is summarized below. More details are provided in the data sheet presented later.

Ongoing:

- SLAC Safety and Operational Reliability Improvements ($7,108,000)

PILT	**1,007**	**1,511**	**1,520**

Provide Payments in Lieu of Taxes (PILT) to support assistance requirements for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory-East. PILT payments are negotiated between the Department and local governments based on land values and tax rates.

Total, Laboratories Facilities Support	**32,194**	**33,270**	**17,911**

Explanation of Funding Changes

	FY 2005 vs. FY 2004 ($000)
General Purpose Facilities (GPF)	
▪ Reduction in the General Purpose Facilities (GPF) area reflects the cancellation of the PNNL Laboratory Systems Upgrades subproject. The facilities to be rehabilitated under this subproject are now scheduled for removal under the River Corridor clean-up project and further investment is unnecessary. The remaining funds are redirected to two ongoing subprojects: TJNAF CEBAF Center Addition – Phase I and the BNL Research Support Building – Phase I, in FY 2004. This reduced the funding required for FY 2005 mortgages for these projects. Also, funding for two on-going subprojects, the BNL Research Support Building and the LBNL Building 77 Rehab, is reduced, extending funding schedules for both into FY 2006.	-15,336
Environmental Safety & Health (ES&H)	
▪ Reduction in the ES&H area reflects the completion of several ES&H projects resulting from significant past ES&H investment and shifting of SC program priorities. Funding is included for the SLAC Safety and Operational Reliability Improvements project.	-32

	FY 2005 vs. FY 2004 ($000)
PILT	
▪ PILT is continued close to the FY 2004 level.	+9
Total Funding Change, Laboratories Facilities Support	**-15,359**

Excess Facilities Disposition

Funding Schedule by Activity

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	$ Change	% Change
Excess Facilities Disposition	7,900	6,020	6,100	+80	+1.3%

Description

The Excess Facilities Disposition (EFD) subprogram removes excess facilities at the SC laboratories to reduce long-term costs and liabilities in support of programmatic initiatives (e.g., making land available for new programs). In addition to removal of excess facilities, the subprogram will also clean-up facilities for reuse where such reuse is economical and can provide needed functionality.

Benefits

This subprogram reduces the long-term costs, risks and liabilities at the SC laboratories associated with excess facilities by removing them and cleaning them up for reuse or transfer. It also supports programmatic initiatives by making land available for new programs and reducing expenditures on surveillance and maintenance of excess facilities.

Supporting Information

The EFD subprogram evaluates and prioritizes the backlog based on footprint reduction, risk reduction (e.g., removal of hazards), availability of space/land for research activities, and cost savings (e.g., elimination of surveillance and maintenance costs). The prioritized list is further evaluated for mission impact by an integrated infrastructure management team composed of the EFD subprogram and SC research program offices. The estimated backlog of non-contaminated or slightly contaminated facilities at the beginning of FY 2005 will be approximately $12,000,000.

The EFD subprogram does not fund projects that replace currently active and occupied buildings (e.g., old, deteriorated and marginally functional ones that are still used but are to be replaced by new modern buildings). Such building replacement projects are funded under the previously described LFS subprogram and would include removal of the old buildings as part of the justification for the project.

It should be noted that the EFD subprogram does not include projects involving cleanout and stabilization of contaminated facilities proposed for transfer to the Office of Environmental Management (EM) for ultimate disposition. At issue are 29 process-contaminated facilities at SC laboratories with an estimated decontamination and decommissioning (D&D) cost of $175,000,000. The Department is currently reviewing its existing facility transfer policies.

Detailed Justification

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
Excess Facilities Disposition	**7,900**	**6,020**	**6,100**

In FY 2003, funding of $7,900,000 supports the 8 projects listed below and allows for the clean-up/removal of an estimated 460,000 square feet of space:

- ANL-E ($1,100,000) – Decontamination of Building 306 C132A&B; Decontamination of Building 306 Room D-001 and D-002 Cell; Partial Disposal of Building 202 (Kennels) (approximately 9,000 sq. ft.)
- BNL ($1,025,000) – Demolition of Buildings 89, 90, 91, 158, 184 and 206 (approximately 57,000 sq. ft.)
- FNAL ($362,000) – Demolition of four muon enclosures, Laser Building and Laboratory G trailer and slab, and Shed B at Site 50 (approximately 7,800 sq. ft.)
- LBNL ($2,450,000) – Removal of B51A beamline and demolition of Structure 51B External Proton Beam (EPB) Hall (approximately 48,000 sq. ft.) which are part of the retired Bevatron accelerator complex.
- LLNL ($250,000) – Demolition of the Magnetic Fusion Energy bridge and utility lines (approximately 1,000 sq. ft.)
- ORNL ($2,155,000) – Cleanout of Buildings 9204-1, 9999-3, 2011 and 9204-1 Scrap Yard; Demolition of Buildings 0961, 2093 and 3013 (approximately 270,000 sq. ft.)
- SLAC ($13,000) – Cleanout of Lauritsen Laboratory at California Institute of Technology (approximately 55,000 sq. ft.)
- PPPL ($545,000) – Removal of Princeton Beta Experiment Modification (PBX) Princeton Large Torus (PLT) control room and initial subsystems (approximately 12,000 sq. ft.)

In FY 2004, funding of $6,020,000 will support the 9 projects listed below and allows for the clean-up/removal of an estimated 84,000 square feet of space:

- Ames ($150,000) - Waste Handling Facility Closeout and Demolition, Phase 1
- ANL-E ($749,000) – Building 202 (N&P Kennels) Partial Disposal, Building 202,D-149 Lead Vault Demolition, and Building 205 G101 Junior Cave Remediation (approximately 4,400 sq. ft.)
- BNL ($725,000) – Demolition of Buildings 206/207/208/457/458 (approximately 34,000 sq. ft.)
- FNAL ($233,000) – Bubble Chamber Demolition (approximately 3,000 sq. ft.)
- LBNL ($500,000) – Remove Upper Layer Roof Concrete Shielding Blocks & Beamline Components from Building 51 of the retired Bevatron accelerator complex.
- LLNL ($250,000) – Demolition of Magnetic Fusion Energy Legacy Facilities at Building 445, Phase I (approximately 8,000 sq. ft.)

(dollars in thousands)

FY 2003	FY 2004	FY 2005

- ORNL ($760,000) – Demolition of Buildings 2069 and 7009 (approximately 17,000 sq. ft.)
- PPPL ($980,000) – Princeton Beta Experiment Modification (PBX)/Princeton Large Torus (PLT) final subsystem removals and cooling tower demolition (approximately 18,200 sq. ft.)
- SLAC ($150,000) - Demolish Portion of Sector 17 "Boneyard" (approximately 4 acres)
- Unallocated ($1,523,000) – To be allocated to other priority projects in FY 2004. $1,000,000 of the reserve is designated for the 88" cyclotron at LBNL in accordance with the FY 2004 appropriation committee report language. Because the 88" cyclotron will continue to operate in FY 2004 and FY 2005, a request has been submitted to Congress to apply these funds for the continued clean-out of retired Bevatron accelerator complex at LBNL.

In FY 2005, funding of $6,100,000 will support at least the 9 projects listed below and allow for the clean-up/removal of more than 61,000 square feet of space:

- Ames ($150,000) - Waste Handling Facility Closeout and Demolition, Phase 2 (approximately 9,000 sq. ft.)
- ANL-E ($2,120,000) - Building 40 (Instrument Calibration) Disposal and Partial Facility Demolitions (approximately 8,000 sq. ft.)
- BNL ($300,000) - Demolition of Buildings 428 and 492, and partial demolition of Buildings 197 and 244 (approximately 6,000 sq. ft.)
- FNAL ($125,000) – Demolition of two muon enclosures (approximately 2,000 sq. ft.)
- LBNL ($1,360,000) - Removal of portions of the retired Bevatron accelerator complex including a trailer, small building and injector (approximately 7,000 sq. ft.)
- LLNL ($300,000) - Demolition of Magnetic Fusion Energy Legacy Facilities at Building 445, Phase 2 (approximately 7,000 sq. ft.)
- ORISE ($565,000) – Demolition of Building SC-2, Isotope Laboratory (approximately 550 sq. ft.)
- ORNL ($780,000) - Demolition of Buildings 5000, 2018, 7010, 2016, 3008 and 3111 (approximately 19,000 sq. ft.)
- SLAC - ($400,000) – Demolition of HRS Detector in Building 660 (approximately 2,000 sq. ft.)

Individual projects and amounts are subject to revision based on evolving program priorities including risk reduction (e.g., removal of hazards), footprint reduction, cost savings (e.g., elimination of surveillance and maintenance costs), and availability of space/land for new research activities.

Total, Excess Facilities Disposition	**7,900**	**6,020**	**6,100**

Explanation of Funding Changes

	FY 2005 vs. FY 2004 ($000)
Excess Facilities Disposition	
▪ Excess Facilities Disposition is continued close to the FY 2004 level.	+80

Oak Ridge Landlord

Funding Schedule by Activity

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	$ Change	% Change
Oak Ridge Landlord	5,015	5,049	5,079	+30	+0.6%

Description

The Oak Ridge Landlord subprogram supports activities to maintain continuity of operations at the Oak Ridge Reservation (ORR) and the Oak Ridge Operations Office (ORO).

Benefits

This subprogram maintains continuity of operations at the Oak Ridge Reservation and the Oak Ridge Operations Office by minimizing interruptions due to infrastructure and/or other systems failures. The subprogram also provides Payments in Lieu of Taxes (PILT) assistance as required by law for communities surrounding Oak Ridge.

Supporting Information

The subprogram supports landlord responsibilities, including infrastructure for the 24,000 acres of the ORR outside of the Y-12 plant, ORNL, and the East Tennessee Technology Park, plus DOE facilities in the town of Oak Ridge. This includes roads and grounds and other infrastructure maintenance, Environment, Safety and Health (ES&H) support and improvements, PILT for Oak Ridge communities, and other needs related to landlord requirements. These activities maintain continuity of operations at the Oak Ridge Reservation and the ORO and minimize interruptions due to infrastructure and/or other systems failures.

Detailed Justification

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
Roads, Grounds and Other Infrastructure and ES&H Support and Improvements	**2,424**	**2,458**	**1,602**
Road maintenance, reservation mowing, bridge inspections, and records management.			
General Purpose Equipment	**0**	**0**	**150**
Replacement of two aging high maintenance fuel tanker trucks.			
General Plant Projects	**0**	**0**	**736**
Major road repair and renovation of the Federal Building including electrical systems, restrooms, and exterior shell.			
Payments in Lieu of Taxes (PILT)	**2,300**	**2,300**	**2,300**
Payments in Lieu of Taxes (PILT) to the City of Oak Ridge, and Anderson and Roane Counties.			

	(dollars in thousands)		
	FY 2003	FY 2004	FY 2005
Reservation Technical Support	**291**	**291**	**291**
Includes recurring activities such as site mapping, National Archives Records Administration, support for legacy legal cases, and real estate activities.			
Total, Oak Ridge Landlord	**5,015**	**5,049**	**5,079**

Explanation of Funding Changes

	FY 2005 vs. FY 2004 ($000)
Oak Ridge Landlord	
▪ Landlord activities are continued close to the FY 2004 level.	+30

Health and Safety Improvement

Funding Schedule by Activity

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	$ Change	% Change
Health and Safety Improvement.....	0	9,941	0	-9,941	-100%

Description

The Health and Safety Improvements subprogram corrects health and safety deficiencies at SC laboratories to ensure consistency with Occupational Safety and Health Administration (OSHA) and Nuclear Regulatory Commission (NRC) requirements.

Benefits

This subprogram improves health and safety practices at SC laboratories to ensure consistency with Occupational Safety and Health Administration and Nuclear Regulatory Commission safety requirements.

In FY 2003, Congress directed the OSHA and NRC to perform inspections at the 10 SC laboratories. The purpose of these inspections was to document those deficiencies that would be identified if the Department were regulated by the OSHA and NRC, and to provide recommendations for improved health and safety practices.

Detailed Justification

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
Health and Safety Improvements	**0**	**9,941**	**0**

The deficiencies include: electrical hazards, machine guarding, legacy material removal, material handling, ladder compliance, inadequate building egress, crane hazards, exhaust ventilation, and eyewash station availability and operability.

Explanation of Funding Change

	FY 2005 vs. FY 2004 ($000)
Health and Safety Improvements	
It is expected that the FY 2004 funding will address the most significant health and safety issues at the laboratories. If the Administration determines that health and safety issues remain, resources will be requested in future years as necessary.	-9,941

Capital Operating Expenses & Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	$ Change	% Change
General Plant Projects (ORO Landlord)	0	0	736	+736	--
Capital Equipment (ORO Landlord)	0	0	150	+150	--
Capital Equipment (Excess Facilities Disposition)	75	0	0	0	--
Total, Capital Operating Expenses	75	0	886	+886	--

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 2003	FY 2004	FY 2005	Unapprop. Balance
Project – 03-SC-001 Laboratories Facilities Support Project						
FY 2003 PED Datasheet	N/A	N/A	3,313	0	0	0
Project – 04-SC-001 Laboratories Facilities Support Project						
FY 2004 PED Datasheet	N/A	N/A	0	1,988	0	0
Project - MEL-001 Laboratories Facilities Support Project						
FY 2005 Construction Datasheet	N/A	N/A	27,874	29,771	16,391	15,869
Total, LFS Construction	N/A	N/A	31,187	31,759	16,391	15,869

MEL-001 – Science Laboratories Infrastructure Project, Various Locations

(Changes from FY 2004 Congressional Budget Request are denoted with a vertical line in the left margin.)

Significant Changes

Subproject 18 – Laboratory Systems Upgrades (PNNL) is cancelled. The buildings that were to be rehabilitated under this project will be removed under the Office of Environmental Management funded Corridor Clean-up project at the Hanford Site.

1. Construction Schedule History

Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		

N/A -- See subproject details

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Project Engineering & Design (PED)			
Prior Years	3,183[a]	3,183	1,374
FY 2003	3,313[b]	3,313	2,663
FY 2004	1,988[c]	1,988	3,259
FY 2005	0	0	1,188
Construction			
Prior Years	21,111	21,111	12,162
FY 2003	27,874	23,924	20,733
FY 2004	29,771	31,742	28,682
FY 2005	16,391	16,391	23,945
FY 2006	15,869	15,869	16,015
FY 2007	0	0	7,500

[a] Title I and Title II Design funding of $880,000 (Subproject 18); $803,000 (Subproject 17); and $1,500,000 (Subproject 25) provided under PED Project No. 02-SC-001.

[b] Title I and Title II Design funding of $1,679,000 (Subproject 27); $1,089,000 (Subproject 28); $545,000 (Subproject 33) requested under PED Project No. 03-SC-001.

[c] Title I and Title II Design funding of $1,988,000 requested under PED Project No. 04-SC-001.

3. Project Description, Justification and Scope

This project funds two types of subprojects:

- Projects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service and user support facilities such as administrative space, cafeterias, utility systems, and roads; and
- Projects to correct Environment, Safety, and Health (ES&H) deficiencies including deteriorated steam lines, environmental insult, fire safety improvements, sanitary system upgrades and electrical system replacements.

General Purpose Facilities Projects:

a. Subproject 15 – Laboratory Facilities HVAC Upgrade (ORNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
7,055	3,500	3,555	0	0	0	3Q 2002 – 2Q 2004

This project will provide improvements to aging (average 38 years old) HVAC systems located throughout the 13 buildings which comprise ORNL's central research complex, thereby improving the research environment and reducing operations and maintenance costs. Work will include: 1) installation of a primary/secondary Central Chilled Water Plant pumping system by replacing existing inefficient primary and booster pumps with a variable volume distribution system and 2-way chilled water control valves; 2) installation of a chilled water cross-tie to Buildings 4501/4505 from the underground tie-line between Buildings 4500N and 4509 to address low capacity problems; 3) upgrading of a corroded hot water reheat distribution system which supplies reheat water for zone control of the primary air handlers; 4) upgrade of deteriorated air handlers in selected buildings with new filters, steam and chilled water coils, and controls; 5) installation of new chilled water coils and chilled water supply piping for the east wing of Building 3500 to replace the refrigerant system that has high maintenance requirements; and 6) replacement of control valves in various buildings to improve system efficiency.

b. Subproject 18 – Laboratory Systems Upgrades (PNNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
880	880 [a]	0 [b]	0 [b]	0	0	Project Cancelled [b]

This project will upgrade or replace 20-50 year old mechanical system components in eight high

[a] Title I and Title II Design funding provided under PED Project No. 02-SC-001.

[b] Project cancelled. The buildings that were to be rehabilitated under this project will be removed under the Office of Environmental Management funded River Corridor Clean-up project at the Hanford Site. FY 2003 Unobligated balances of $3,950,000 and $2,141,000 of FY 2004 Construction funds have been redirected in FY 2004 as follows: $5,105,000 to complete CEBAF center addition subproject MEL-001-33 and $986,000 to Research Support building MEL-001-27.

occupancy facilities, replacing them with more efficient and better performing systems to enhance the quality of science while reducing maintenance and energy costs. This upgrade will include: replacement of HVAC supply and exhaust fans; replacement, rehabilitation or modification of numerous chemical exhaust fume hoods; and installation of computerized, remote, digital controls on various systems to improve operations.

c. Subproject 25 – Research Support Center (ORNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
16,041	1,500 [a]	4,941	9,600	0	0	2Q 2003 – 2Q 2005

This project will construct a 50,000 sq. ft. facility to house the core support service facilities and serve as the cornerstone and focal point of the East Research Campus envisioned in the ORNL Facility Revitalization Project. This building will include an auditorium and conference center (currently there is no adequate auditorium/conference space available at ORNL), cafeteria, visitor reception and control area, and offices for support staff. It will facilitate consolidation of functions, which are presently scattered throughout the Laboratory complex in facilities that are old (30-50 years), undersized, poorly located, or scheduled for surplus. The facility will serve as a modern center for meeting, collaborating, and exchanging scientific ideas for ORNL staff and nearly 30,000 visitors, guests, and collaborators that use ORNL facilities each year. The new cafeteria will replace the existing cafeteria, which was constructed in 1953. The existing cafeteria is poorly located to serve the current staff and is adjacent to the original production area of the laboratory now undergoing decontamination. The estimated simple payback is seven years.

d. Subproject 27 – Research Support Building, Phase I (BNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
18,200	0	3,206 [b]	5,971	4,458	4,565	2Q 2004 – 3Q 2007

This 70,000 sq. ft. facility is intended to consolidate Staff Services, Public Affairs, Human Resources, Credit Union, Library and other support functions in a central quadrangle to provide staff and visiting scientists with convenient and efficient support. This facility, the first of four phases in the BNL Master Revitalization Plan, will include a lobby with a visitor information center to assist visiting scientists, and a coordinated office layout of related support services. After completion of this project, 21,100 sq. ft. of World War II era structures will be torn down. Based on total life-cycle costs, productivity gains, avoided energy and maintenance costs, the Research Support Building will provide a return on investment of 10% and a simple payback of 8.4 years.

[a] Title I and Title II Design funding of $1,500,000 provided under PED Project No. 02-SC-001.
[b] Title I and Title II Design funding of $1,679,000 requested under PED Project No. 03-SC-001.

e. Subproject 28 – Building 77 Rehabilitation of Structures and Systems, Phase II (LBNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
13,360	0	1,735 [a]	2,000	4,825	4,800	3Q 2004 – 2Q 2007

This project will provide for rehabilitation to correct mechanical, electrical and architectural deficiencies in Buildings 77 (a 39 year old, 68,000 sq. ft. high-bay industrial facility) and 77A (a 14 year old, 10,000 sq. ft. industrial facility). Both buildings house machine shop and assembly operations in which production of highly sophisticated research components for a variety of DOE research projects is performed. Current work includes precision machining, fabrication and assembly of components for the Advanced Light Source, the Dual-Axis Radiographic Hydrodynamic Test Facility (DAHRT) project, the Spallation Neutron Source, and the ATLAS Detector. Infrastructure systems installed by this project will include HVAC, power distribution, lighting, and noise absorption materials. The improvements are necessary to satisfy urgent demands for high levels of cleanliness, temperature and humidity control, and OSHA and reliability requirements. This is the second of two projects; the first project, funded in FY 1999 and completed in FY 2002, corrected structural deficiencies in Bldg. 77.

f. Subproject 33 – Continuous Electron Beam Accelerator Facility (CEBAF) Center Addition, Phase I (TJNAF)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
10,500	0	1,481 [b]	9,019 [c]	0	0	2Q 2005 – 2Q 2007

This project is Phase I of three phases to provide for additions to the CEBAF Center office building. The purpose of the three phases is to provide additional critical computer center space and to eliminate off-site leases and existing trailers to collocate staff for enhanced productivity. This first addition will add 59,000 sq. ft. of computer center (7,600 sq. ft.) and office space, and eliminate 22,000 sq. ft. of aging trailers with a 7.4-year simple payback and a 10% rate of return. Phase I will provide additional space for 182 users and 50 staff personnel.

ES&H Projects:

a. Subproject 12 - Site-wide Water Distribution System Upgrade (LBNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
8,264	5,400	2,864	0	0	0	2Q 2002 –1Q 2004

[a] Title I and Title II Design funding of $1,089,000 requested under PED Project No. 03-SC-001.
[b] Title I and Title II Design funding of $545,000 requested under PED Project No. 03-SC-001.
[c] Includes $3,950,000 of FY 2003 unobligated balances and $1,155,000 of planned FY 2004 funds redirected from subproject MEL-001-018.

This project will rehabilitate the Laboratory's High Pressure Water (HPW) System that supplies over 100 facilities at LBNL. The HPW System provides domestic water, fire water, treated water, cooling tower water and low conductivity water. It consists of 9.6 km of pipe (1.4 km of cast iron pipe, 6.3 km of ductile iron pipe, and 1.9 km of cement lined coated steel pipe), associated valves, pumps, fittings etc. and two 200,000 gallon emergency fire water tanks. This project will: replace all cast iron pipe, which is in imminent danger of failing, with ductile iron pipe; electrically isolate pipe and provide cathodic protection; replace leaking valves and add pressure reducing stations to prevent excessive system pressure at lower laboratory elevations; add an emergency fire water tank to serve the East Canyon; and provide the two current emergency fire water tanks with new liners and seismic upgrades.

b. Subproject 13 - Groundwater and Surface Water Protection Upgrades (BNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
6,033	4,652	1,381	0	0	0	2Q 2002 - 1Q 2004

This project will implement a backlog of ground and surface water protection projects that are commitments to regulators. These include: proper closure of inactive supply and injection wells; runoff control for the surplus material storage yard; containment and runoff control for the radioactive material storage yard; replacement of 12 hydraulic elevator cylinders; removal of 22 underground fuel oil tanks; and other Suffolk County Article 12 upgrades.

c. Subproject 14 - Fire Protection Systems Upgrades (ORNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
5,892	3,704	2,188	0	0	0	3Q 2002 – 4Q 2004

This project will upgrade the 36 year-old fire protection system with improved, more reliable fire alarm capabilities by: replacing deteriorated, obsolete systems; replacing the single 16-inch water main in the east central section of ORNL with a looped system (4,000 lf of 16 inch pipe); and by extending coverage of automatic alarm systems to areas not previously served. New fire alarm equipment will provide emergency responders with greatly improved annunciation of the causes and locations of alarms and will provide code compliant occupant notification evacuation alarms for enhanced life safety. It will also include timesaving, automatic diagnostic capabilities that will reduce maintenance costs. The new occupant notification systems will comply with the Americans with Disabilities Act. The fire alarm receiving equipment at the site fire department headquarters will be upgraded to ensure its reliability, modernize its technology, and meet the demands of an expanded fire alarm system network.

d. Subproject 16 – Electrical Systems Modifications, Phase II (BNL)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
6,734	3,855	2,879	0	0	0	2Q 2002 – 1Q 2004

This project is the second phase of the modernization and refurbishment of the Laboratory's deteriorating 50 year-old electrical infrastructure. The project includes: installation of two new 13.8 kV feeders to provide alternate sources to existing, aged feeders; installation of additional underground ductbanks to support a new 13.8 kV feeder; replacement of 24 kV switchgear to increase system reliability/safety; reconditioning of 50 480-volt circuit breakers including replacing obsolete trip units with modern, solid-state trip devices; and the retrofit of 10 13.8 kV air breakers with new vacuum technology.

e. Subproject 17 – Mechanical and Control Systems Upgrade, Phase I (ANL-E)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
8,962	803[a]	3,007	5,152	0	0	3Q 2003 – 3Q 2005

This project will upgrade and replace 30-40 year old mechanical system components in various facilities. It will optimize capacity, enhance system reliability and performance, improve safety, and reduce maintenance and repair costs of primary building mechanical equipment and control systems. The mechanical systems designated for replacement are no longer adequate, reliable, or efficient, and do not meet current ES&H standards (i.e. failure of laboratory exhaust systems could lead to the release of radioactive material). Specifically, this project will: upgrade HVAC systems in Buildings 221 and 362, including heating and cooling coils, fans, filter systems, ductwork, controls, and variable frequency drive fans; upgrade lab exhaust systems in Buildings 202 and 306, including new fans, ductwork, and controls; upgrade corroded drainage systems in Buildings 200, 205 and 350; and upgrade steam and condensate return systems in 12 facilities in the 360 area. This will include high and low pressure steam supply piping and associated pressure reducing stations, valves, and accessories; and replacing condensate pumping systems including piping, valves and system controls.

f. Subproject 36 – Safety and Operational Reliability Improvements (SLAC)

TEC	Prev.	FY 2003	FY 2004	FY 2005	Outyear	Construction Start/ Completion Dates
15,600	0	0	1,988[b]	7,108	6,504	3Q 2003 – 3Q 2007

[a] Title I and Title II Design funding of $803,000 provided under PED Project No. 02-SC-001.
[b] Title I and Title II Design funding of $1,988,000 requested under PED Project No. 04-SC-001.

This project has two components:

- Underground Utility Upgrades - this component will replace deteriorated sections of cooling water, low conductivity water, drainage, natural gas, compressed air and fire protection which are critical to the operation of the linear accelerator and the B-Factory rings which produce the essential collisions needed for the Parity Violation studies (one of the pillars of the current US High Energy Physics program also carried out competitively at KEK in Japan). There have been five pipe failures over the last two years and the failure rate is expected to increase in these 35 year-old systems as they continue to age. When the pipes fail, research is slowed or halted until repairs are completed.
- Seismic Upgrades – this component will install seismic upgrades necessary to bring various building structures into compliance with the seismic standards of the Uniform Building Code. The seismic hazard in the Bay Area is high. 19 "essential" facilities, i.e., those that will minimize the time required for the Laboratory to recover from an earthquake, will be retrofitted for a total of 229,000 sq. ft.

Payback is 11.2 years for the entire project.

4. Details of Cost Estimate

N/A

5. Method of Performance

To the extent feasible, construction and procurement will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

6. Schedule of Project Funding

N/A

7. Related Annual Funding Requirements

N/A