

Science Laboratories Infrastructure

Program 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 supports SC landlord responsibilities for the 36,000 acre Oak Ridge Reservation, and provides Payments in Lieu of Taxes (PILT) to local communities around ANL-E, BNL, and ORNL.

Significant Program Shifts

- The program was broadened in FY 2003 to include all SC program dedicated laboratories and ORISE along with the multiprogram laboratories. These program dedicated laboratories include Ames Laboratory, Fermi National Accelerator Laboratory, Princeton Plasma Physics Laboratory, Thomas Jefferson National Accelerator Facility, and Stanford Linear Accelerator Center.
- In FY 2003 an Excess Facilities Disposition subprogram was presented in the Science Laboratories Infrastructure program to address the disposition of excess facilities resulting in economies and efficiencies in laboratory operations. This subprogram continues the Facilities and Infrastructure (F&I) program initiated in FY 2002.
- Progress in Line Item Projects – Three projects were completed in FY 2002: the LBNL Building 77 Rehabilitation of Structures and Systems, Phase I; ORNL Roofing Improvements; and the BNL Sanitary Systems Modifications, Phase III. Two projects are scheduled for completion in FY 2003: ORNL Electrical Systems Upgrades and the ANL-E Fire Safety Improvements, Phase IV. Five projects are scheduled for completion in FY 2004: BNL Ground and Surface Water Protection Upgrades; BNL Electrical Systems Modifications, Phase II; LBNL Site-wide Water Distribution System Upgrades; ORNL Laboratory Facilities HVAC Upgrade; and the ORNL Fire Protection System Upgrades. In FY 2004, one new project, SLAC Safety and Operational Reliability Improvements, is proposed.

Funding Profile

(dollars in thousands)

	FY 2002 Comparable Appropriation	FY 2003 Request	FY 2004 Request	\$ Change	% Change
Science Laboratories Infrastructure (SLI)					
Laboratories Facilities Support.....	22,691	32,601	33,456	+855	+2.6%
Excess Facilities Disposition	9,960	5,055	5,055	0	--
Oak Ridge Landlord	4,474	5,079	5,079	0	--
External Regulation	0	0	0	0	0
Total, Science Laboratories Infrastructure ...	37,125^{ab}	42,735	43,590	+855	+2.0%

Public Law Authorization:

Public Law 95-91, "Department of Energy Organization Act"

Public Law 103-62, "Government Performance and Results Act of 1993"

^a FY 2002 Appropriation provided \$10,000,000 in a new program added by Congress titled "Facilities and Infrastructure." Funding for this activity is included in the Science Laboratories Infrastructure program (Excess Facilities Disposition) in FY 2003 and FY 2004.

^b Excludes \$5,000 for the FY 2002 rescission contained in section 1403 of P.L. 107-226, Supplemental Appropriations for further recovery from and response to terrorist attacks on the United States.

Funding by Site^a

(dollars in thousands)

	FY 2002	FY 2003	FY 2004	\$ Change	% Change
Chicago Operations Office					
Argonne National Laboratory	3,643	4,205	6,002	+1,797	+42.7%
Brookhaven National Laboratory	7,413	8,513	5,917	-2,596	-30.5%
Fermi National Accelerator Laboratory.....	53	0	233	+233	+100.0%
Princeton Plasma Physics Laboratory	875	545	980	+435	+79.8%
Chicago Operations Office.....	894	1,020	1,520	+500	+49.0%
Total, Chicago Operations Office.....	12,878	14,283	14,652	+369	+2.6%
Oakland Operations Office					
Lawrence Berkeley National Laboratory ...	6,900	5,607	2,975	-2,632	-46.9%
Lawrence Livermore National Laboratory .	350	250	250	0	--
Stanford Linear Accelerator Center.....	400	0	2,000	+2,000	+100.0%
Total, Oakland Operations Office.....	7,650	5,857	5,225	-632	-10.8%
Oak Ridge Operations Office					
Thomas Jefferson National Accelerator Facility.....	0	1,500	3,914	+2,414	+160.9%
Oak Ridge National Laboratory	10,745	12,016	10,600	-1,416	-11.8%
Oak Ridge Institute for Science and Education.....	0	0	0	0	--
Oak Ridge Operations Office	4,474	5,079	5,079	0	--
Total, Oak Ridge Operations Office.....	15,219	18,595	19,593	+998	+5.4%
Richland Operations Office.....					
Pacific Northwest National Laboratory	1,377	4,000	4,120	+120	+3.0%
Washington Headquarters.....	1	0	0	0	--
Total, Science Laboratories Infrastructure	37,125^b	42,735	43,590	+855	+2.0%

^a On December 20, 2002, the National Nuclear Security Administration (NNSA) disestablished the Albuquerque, Oakland, and Nevada Operations Offices, renamed existing area offices as site offices, established a new Nevada Site Office, and established a single NNSA Service Center to be located in Albuquerque. Other aspects of the NNSA organizational changes will be phased in and consolidation of the Service Center in Albuquerque will be completed by September 30, 2004. For budget display purposes, DOE is displaying non-NNSA budgets by site in the traditional pre-NNSA organizational format.

^b FY 2002 Appropriation provided \$10,000,000 in a new program added by Congress titled "Facilities and Infrastructure." Funding for this activity is included in the Science Laboratories Infrastructure program (Excess Facilities Disposition) in FY 2003 and FY 2004.

Site Description

Ames Laboratory

Ames Laboratory (Ames) is a national center for the synthesis, analysis, and engineering of rare-earth metals and their compounds. Ames conducts fundamental research in the physical, chemical, and mathematical sciences associated with energy generation and storage. The laboratory is located on the campus of the University of Iowa, in Ames, Iowa, and consists of 10 buildings (320,000 gross square feet of space) with the average age of the buildings being 37 years. DOE does not own the land.

Argonne National Laboratory - East

Argonne National Laboratory - East (ANL-E) in Argonne, Illinois, is a Multiprogram Laboratory located on a 1,700 acre site in suburban Chicago. The laboratory consists of 106 buildings (4.6 million gross square feet of space) with the average age of the buildings being 32 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$190,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-017 Mechanical and Control Systems Upgrade, Phase I (TEC \$9,000,000) This ongoing project will upgrade or replace 30-40 year old, deteriorated mechanical system components in various facilities. These will include HVAC, drainage, steam supply, and condensate return systems. This project will optimize capacity, enhance system reliability and performance, improve safety, and reduce maintenance costs. These systems are no longer adequate, reliable, or efficient, and do not meet current ES&H standards (e.g., failure of a laboratory exhaust system could lead to release of radioactive material).

Brookhaven National Laboratory

Brookhaven National Laboratory is a Multiprogram Laboratory located on a 5,200 acre site in Upton, New York. The laboratory consists of 371 buildings (4.1 million gross square feet of space) with the average age of the buildings being 41 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$376,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-027 Research Support Building, Phase I (TEC \$18,200,000) This 55,000 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, 23,000 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, Phase I will provide a return on investment of 14.4% and a simple payback of 9 years.

Fermi National Accelerator Laboratory

Fermi National Accelerator Laboratory is the center for research in high-energy and particle physics and constructs and runs large particle accelerators. The laboratory is located in Batavia, Illinois, and consists of 337 buildings (2.2 million gross square feet of space) with the average age of the buildings being 37 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$7,000,000.

Lawrence Berkeley National Laboratory

Lawrence Berkeley National Laboratory is a Multiprogram Laboratory located on a 200 acre site owned by the University of California that is adjacent to the Berkeley campus of the University of California in Berkeley, California. The laboratory consists of 107 buildings (1.68 million gross square feet of space) with the average age of the buildings being 37 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$148,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-028 Building 77 Rehabilitation of Structures and Systems, Phase II (TEC \$13,360,000)
This project will provide for the 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 Building 77.

Oak Ridge Institute for Science and Education

Oak Ridge Institute for Science and Education (ORISE) is an academic and training facility providing specialized scientific and safety training to DOE and other institutions. ORISE is an international leader in radiation-related emergency response and epidemiological studies. The laboratory consists of 21 facilities (0.2 million gross square feet of space) with the average age of the facilities being 40 years. Approximately 92 percent of the space is considered adequate, while the remainder needs rehabilitation or replacement/demolition.

Oak Ridge National Laboratory

Oak Ridge National Laboratory (ORNL) is a Multiprogram Laboratory located in Oak Ridge, Tennessee. The laboratory's 1,100 acre main site on Bethel Valley Road contains 335 buildings (3 million gross square feet of space) with the average age of the buildings being 32 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$209,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-025 - Research Support Center (TEC \$16,100,000) This ongoing 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 that are presently scattered throughout the Laboratory complex in facilities that are old (30-50 years), undersized, poorly located, or scheduled to be surplus. The facility will serve as a modern center for meeting, collaborating, and exchanging scientific ideas for ORNL staff and the 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.

Pacific Northwest National Laboratory

Pacific Northwest National Laboratory (PNNL) is a Multiprogram Laboratory located on a 960 acre site on the south end of the Hanford Reservation near Richland, Washington. The laboratory consists of 40 government owned buildings (900,000 gross square feet of space) with the average age of the buildings being 31 years. PNNL also has 451,000 square feet of space in Battelle owned buildings on Battelle owned land. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$19,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-018 Laboratory Systems Upgrades (TEC \$9,000,000) This ongoing project will upgrade or replace 20-50 year old mechanical system components in eight high 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.

Princeton Plasma Physics Laboratory

Princeton Plasma Physics Laboratory (PPPL) is a national center dedicated to plasma and fusion science. PPPL has a leading international role in developing the theoretical, experimental, and technology innovations needed to make fusion practical and affordable. PPPL is located in Princeton, New Jersey on Princeton University land, and consists of 35 buildings (700,000 gross square feet of space) with the average age of the buildings being 23 years. The line item construction backlog identified in the laboratory's Strategic Facilities Plan is \$13,000,000.

Stanford Linear Accelerator Center

Stanford Linear Accelerator Center (SLAC) is a laboratory dedicated to the design, construction and operation of state-of-the-art electron accelerators and related experimental facilities for use in high-energy physics and synchrotron radiation research. SLAC operates the 2 mile long Stanford Linear Accelerator which began operating in 1966. SLAC is located on 426 acres of Stanford University land in Menlo Park, California, and is also the home of the Stanford Synchrotron Radiation Laboratory

(SSRL). The SSRL was built in 1974 to utilize the intense x-ray beams from the Stanford Positron Electron Accelerating Ring (SPEAR) that was built for particle physics by the SLAC laboratory. SLAC (including SSRL) consists of 166 buildings (1.8 million gross square feet of space) with the average age of 23 years. The line item construction backlog identified in SLAC's (including SSRL) Strategic Facilities Plan is \$15,000,000. The SLI program will initiate the following project in FY 2004:

- MEL-001-036 - Safety and Operational Reliability Improvements (TEC \$15,600,000) – This project has two components:
 - o 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 Charge-Parity Violation studies (one of the pillars of the current U.S. 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.
 - o 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. Nineteen “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 nine years.

Thomas Jefferson National Accelerator Facility

Thomas Jefferson National Accelerator Facility (TJNAF) is a national user facility for nuclear science using continuous beams of high-energy electrons to discover the underlying quark and gluon structure of nucleons and nuclei. TJNAF has 1,600 users, about half of which are actively engaged in experiments at a given time. TJNAF is located in Newport News, Virginia, and consists of 65 buildings (500,000 gross sq. ft. of space) with the average age of the buildings being 12 years. The line item construction backlog identified in the lab's Strategic Facilities Plan is \$24,000,000. The SLI program will continue to fund the following project in FY 2004:

- MEL-001-033 Continuous Electron Beam Accelerator Facility (CEBAF) Center Addition, Phase I (TEC \$10,500,000) - 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.

Chicago Operations Office

The Chicago Operations Office processes the Payments in Lieu of Taxes (PILT) made to the local taxing authorities at Brookhaven National Laboratory and Argonne National Laboratory-East. These discretionary payments are made to state or local governments where the Department or its predecessor agencies have acquired property previously subject to state or local taxation.

Oak Ridge Operations Office

The Oak Ridge Landlord program provides for centralized Oak Ridge Operations Office (ORO) infrastructure requirements and general operating costs for activities on the Oak Ridge Reservation (ORR) outside plant fences and activities to maintain a viable operations office, including maintenance of roads and grounds and other infrastructure, PILT, and other needs related to landlord activities.

Laboratories Facilities Support

Mission Supporting Goals and Measures

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. 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.

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 "*Infrastructure Frontier: A Quick Look Survey of the Office of Science Laboratory Infrastructure*," April 2001, 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, etc.)
- obsolescence of existing building systems and components and changing technology (e.g., digital controls for heating and ventilation systems, fire alarms, security, etc.);
- increased requirements for continuity of utility operations to support large user population at SC user research facilities;
- increased energy costs;
- changing environmental, safety and health regulations and security needs; and
- inadequate capital investment in the past.

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). Three projects scheduled for completion in FY 2002 were completed within the approved baselines for cost, scope, and schedule. The LFS subprogram also provides Payments in Lieu of Taxes (PILT) assistance for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory-East.

Subprogram Goals

Reduce the Recapitalization Period (RP) of the general purpose infrastructure (GPI) from 146 years in FY 2002 to 112 years in FY 2004. The RP is defined as the number of years it takes to replace/rehabilitate the GPI at a specified capital investment level. The period is computed by dividing the replacement plant value of GPI (\$5,975,000,000 in FY 2002) by the annual capital investment funding level for GPI. The annual capital investment funding level for GPI is composed of general purpose line item funding and one half the general plant projects (GPP) funding (i.e., GPP is small construction up to \$5,000,000). One-half of the GPP is used because, on average, one half funds GPI related small construction and the other half funds programmatic small construction needs. Note: Because SC research programs fund GPP - e.g., Basic Energy Sciences funds GPP at Argonne National Laboratory, Oak Ridge National Laboratory, and Ames Laboratory, this measure reflects SC's corporate efforts for capital investment in the GPI. (Laboratories Facilities Support subprogram)

Performance Indicator

The reduction in the RP from year to year

Annual Performance Results and Targets

FY 2002 Results	FY 2003 Targets	FY 2004 Targets
Based on capital investment funding level of \$40,840,000 for FY 2002, the RP will be 146 years.	Based on proposed capital investment funding level of \$54,299,000 for FY 2003, the RP will decline to 112 years.	Based on proposed capital investment funding level of \$54,428,000 for FY 2004, the RP will be 112 years.

Funding Schedule

(dollars in thousands)

	FY 2002	FY 2003	FY 2004	\$ Change	% Change
General Purpose Facilities	5,380	19,107	24,784	+5,677	+29.7%
Environment, Safety and Health	16,416	12,474	7,152	-5,322	-42.7%
Payment in Lieu of Taxes (PILT)	895	1,020	1,520	+500	+49.0%
Total, Laboratories Facilities Support	22,691	32,601	33,456	+855	+2.6%

Detailed Program Justification

(dollars in thousands)

	FY 2002	FY 2003	FY 2004
General Purpose Facilities	5,380	19,107	24,784

Provides funding to support continuation of two FY 2002 subprojects and three 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 projects:

- LBNL Building 77 Rehabilitation of Structures and Systems, Phase II (\$2,000,000)
- BNL Research Support Building, Phase I (\$5,150,000)
- TJNAF CEBAF Center Addition, Phase I (\$3,914,000)
- PNNL Laboratory Systems Upgrade (\$4,120,000)
- ORNL Research Support Center (\$9,600,000).

Environment, Safety and Health	16,416	12,474	7,152
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Provides funding to support the initiation of one new subproject in FY 2004 as well as the continuation of one FY 2002 subproject under the Science Laboratories Infrastructure (MEL-001) PED and construction project data sheets. These are summarized below. More details are provided in the data sheets presented later.

Ongoing:

- ANL-E Mechanical and Control Systems Upgrades, Phase I (\$5,152,000)

New Start:

- SLAC Safety and Operational Reliability Improvements (\$2,000,000)

(dollars in thousands)

	FY 2002	FY 2003	FY 2004
PILT	895	1,020	1,520
Increase Payments in Lieu of Taxes (PILT) to support the negotiated increase in the per acre land value used to calculate the PILT payment. PILT assistance requirements for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory-East are negotiated between the Department and local governments based on land values and tax rates.			
Total, Laboratories Facilities Support	22,691	32,601	33,456

Explanation of Funding Changes

	FY 2004 vs. FY 2003 (\$000)
Laboratories Facilities Support	
■ Increase in the General Purpose Facilities (GPF) area reflects the completion of several ES&H projects resulting from significant past ES&H investment and shifting program priorities to GPF needs.....	+5,677
■ Reduction in the Environment, Safety and Health (ES&H) area reflects the completion of several ES&H projects resulting from significant past ES&H investment and shifting of program priorities to GPF needs. Funding is included for a high priority new ES&H project start at SLAC.	-5,322
■ Increase in PILT funding to meet increased tax rates and assessments	+500
Total Funding Change, Laboratories Facilities Support	+855

Excess Facilities Disposition

Mission Supporting Goals and Measures

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.

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 2004 will be approximately \$16,000,000.

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.

Subprogram Goals

Eliminate the current backlog of excess SC facilities by the end of FY 2006. (Excess Facilities Disposition subprogram)

Performance Indicator

Reductions as measured by the number of excess facilities and square footage removed (or made usable).

Annual Performance Results and Targets

FY 2002 Results	FY 2003 Targets	FY 2004 Targets
A Congressionally added FY 2002 Facilities and Infrastructure (F&I) Program of \$10,000,000 will allow the clean-up of approximately 30 excess facilities with a reduction of approximately 400,000 square feet in FY 2002.	Estimated clean-up of 9 facilities with a reduction of approximately 113,000 square feet.	Estimated clean-up of 13 facilities with a reduction of approximately 92,000 square feet. Expect to eliminate current backlog by the end of FY 2006, two years earlier than planned. However, additional needs may be identified.

Funding Schedule

(dollars in thousands)

	FY 2002	FY 2003	FY 2004	\$ Change	% Change
Excess Facilities Disposition	9,960	5,055	5,055	0	--
Total, Excess Facilities Disposition	9,960	5,055	5,055	0	--

Detailed Program Justification

(dollars in thousands)

FY 2002	FY 2003	FY 2004
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Excess Facilities Disposition	9,960	5,055	5,055
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FY 2002 Facilities and Infrastructure (F&I) program funding of \$9,960,000 allows for the clean-up/removal of approximately 30 excess facilities. In FY 2002, an estimated 400,000 total square feet of space is being removed or cleaned up for reuse in the projects listed below:

- ANL-E (\$810,000) – Cleanup of Building 205 Sample Carousel; cleanup of Building 315 Cell 6 Pit; cleanup of Building 315 Radiochemistry Lab (approximately 1,300 sq. ft.)
- BNL (\$1,350,000) – Demolition of Building 318; demolition of Building 960 Complex; abandoned well closure and demolition of Buildings 93, 168, 915, and 917 (approximately 34,000 sq. ft.)
- FNAL (\$53,000) – Demolition of Neon Compressor Building (approximately 900 sq. ft.)
- LBNL (\$2,500,000) – Removal of motor generators from Building 51; removal of the Heavy Ion Spectrometer System (HISS) Magnet and Structure “51G,” removal of shielding blocks/beam lines from External Particle Beam (EPB) hall (approximately 21,000 sq. ft.)
- LLNL (\$350,000) – Demolition and removal of the Magnetic Fusion Energy Direct Current power supply (approximately 60,000 sq. ft.)
- ORNL (\$3,125,000) – Stabilization and cleanout of Building 9201-3; stabilization and cleanout of EN tandem space in Building 5500; demolition of Building 2013; demolition of Building 2506; deactivation/demolition of Building 6003 (approximately 224,000 sq. ft.)
- PNNL (\$497,000) – Demolition of Building 331-B Radioactive Inhalation Facility and Dog Kennels (approximately 26,000 sq. ft.)
- SLAC (\$400,000) – Demolition of the following: Building 232 - Experimental Facilities Department/Cryogenics Conference Room; Building 125 - Test Beam Facility Control Room; Building 111 – 40” Bubble Chamber Building; Building 109 – Experimental Facilities Department High Bay Building; Building 404 – Experimental Shelter; Building 133 – Stanford Linear Detector Cherenkov Ring Imaging Detector Clean Room; Building 265 – Computer Trailer; Building 295 – End Station A Office Trailer #1; Building 291 - End Station A Office Trailer #2; Building 296 – SLAC User Trailer #2; Building 297 – SLAC User Trailer #3 (approximately 13,000 sq. ft.)
- PPPL (\$875,000) – Preparation for Princeton Beta Experiment Modification (PBX) disposition and shielding block removals (approximately 27,000 sq. ft.)

In FY 2003, funding of \$5,055,000 supports the 6 projects listed below and allows for the clean-up/removal of an estimated 113,000 square feet of space:

- ANL-E (\$1,160,000) – Building 40 (Instrument Calibration) Disposal and Partial Facility Demolition (approximately 7,000 sq. ft.)
- BNL (\$950,000) – Demolition of Buildings 89, 90, 91 and 118 (approximately 32,000 sq. ft.)
- LBNL (\$950,000) – Disposal of concrete shield blocks, beamlines, magnets, and activated components (approximately 2,000 sq. ft.)
- LLNL (\$250,000) – Demolish Magnetic Fusion Energy bridge and utility lines (approximately 1,000 sq. ft.)
- ORNL (\$1,200,000) – Building 1,000 deactivation/demolition (approximately 59,000 sq. ft.)
- PPPL (\$545,000) – Princeton Beta Experiment Modification (PBX)/Princeton Large Torus (PLT) control room and initial subsystem removals (approximately 12,000 sq. ft.)

In FY 2004, funding of \$5,055,000 supports 7 projects listed below and allows for the clean-up/removal of an estimated 92,000 square feet of space:

- ANL-E (\$850,000) - Building 205 (H-125/H-126 Cell) Decontamination and Decommissioning, and Building 330 (CP-5) Partial Disposal (approximately 35,000 sq. ft.).
- BNL (\$767,000) - Demolition of Buildings 208, 324, and 428 (approximately 21,000 sq. ft.)
- FNAL(\$233,000) –Bubble Chamber Demolition (approximately 3,000 sq. ft.)
- LBNL (\$975,000) - Disposal of Pill Box Roof Concrete Blocks from Building 51 (2,000 sq. ft.)
- LLNL (\$250,000) - Demolition of Magnetic Fusion Energy Legacy Facilities at Building 445 (approximately 8,000 sq. ft.)
- ORNL (\$1,000,000) - Deactivation/Demolition of Building 1506 and Demolition of Freel's Bend and Solway Facilities, (approximately 5,000 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.)

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	9,960	5,055	5,055
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Explanation of Funding Changes

FY 2004 vs.
FY 2003
(\$000)

Excess Facilities Disposition

No funding change.

Oak Ridge Landlord

Mission Supporting Goals and Measures

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).

This 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, 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. In FY 2002 there were no significant interruptions due to infrastructure failures.

Funding Schedule

(dollars in thousands)

	FY 2002	FY 2003	FY 2004	\$ Change	% Change
Oak Ridge Landlord	4,474	5,079	5,079	0	--

Detailed Program Justification

(dollars in thousands)

	FY 2002	FY 2003	FY 2004
<ul style="list-style-type: none"> ■ Roads, Grounds and Other Infrastructure and ES&H Support and Improvements ■ Payments in Lieu of Taxes (PILT) 	2,195	2,488	2,488
<ul style="list-style-type: none"> Payments in Lieu of Taxes (PILT) to the City of Oak Ridge, and Anderson and Roane Counties. 	1,900	2,300	2,300
<ul style="list-style-type: none"> ■ Reservation Technical Support 	379	291	291
<ul style="list-style-type: none"> Includes recurring activities such as Site Mapping, National Archives Records Administration, and support for legacy legal cases. 			
Total, Oak Ridge Landlord	4,474	5,079	5,079

Explanation of Funding Changes

FY 2004 vs. FY 2003 (\$000)

Oak Ridge Landlord

No funding change.

Capital Operating Expenses & Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2002	FY 2003	FY 2004	\$ Change	% Change
General Plant Projects (ORO Landlord).....	0	0	0	0	--
Capital Equipment (ORO Landlord)	0	0	0	0	--
Total, Capital Operating Expenses.....	0	0	0	0	--

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp- riations	FY 2002	FY 2003	FY 2004	Unapprop. Balance
Project – 02-SC-001 Laboratories Facilities Support Project						
FY 2002 PED Datasheet.....	N/A	N/A	3,183	0	0	0
Project – 03-SC-001 Laboratories Facilities Support Project						
FY 2003 PED Datasheet.....	N/A	N/A	0	3,355	0	0
Project – 04-SC-001 Laboratories Facilities Support Project						
FY 2004 PED Datasheet.....	N/A	N/A	0	0	2,000	0
Project - MEL-001 Laboratories Facilities Support Project						
FY 2004 Construction Datasheet	N/A	N/A	18,613	28,226	29,936	28,489
Total, LFS Construction.....	N/A	N/A	21,796	31,581	31,936	28,489

04-SC-001 – Science Laboratories Infrastructure, Project Engineering Design (PED), Various Locations

1. Construction Schedule History

Fiscal Quarter				Total Estimated 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
2004	2,000	2,000	1,600
2005	0	0	400

3. Project Description, Justification and Scope

This project funds PED for two types of subprojects:

- Projects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service and 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.

This updated request provides the status of ongoing PED projects funded in FY 2002 and proposed in FY 2003. This PED data sheet requests design funding for one FY 2004 new start: Stanford Linear Accelerator Center – Safety and Operational Reliability Improvements.

FY 2004 Proposed Design Projects

Environment, Safety, and Health Project:

04 -04: MEL-001-036 – Safety and Operational Reliability Improvements (SLAC)

Fiscal Quarter				Total Estimated Cost (Design Only) (\$000)	Full Total Estimated Cost Projection ^a (\$000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q 2004	3Q 2004	4Q 2004	N/A	2,000	15,600

Fiscal Year	Appropriations	Obligations	Costs
2004	2,000	2,000	1,600
2005	0	0	400

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 9 years.

FY 2003 Ongoing Design Projects

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
	LBNL	1,100	0	0	0	1Q2003	2Q2004	3Q2004

General Purpose Facilities Projects:

03 -01: MEL-001-028
Building 77 Rehabilitation
Of Structures and
Systems, Phase II

LBNL 1,100 0 0 0 1Q2003 2Q2004 3Q2004

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

Science/Science Laboratories Infrastructure/

04-SC-001 – Project Engineering

Design (PED)

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.

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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03 -02: MEL-001-027

Research Support

Building, Phase I

BNL 1,710 0 0 0 1Q2003 2Q2004 3Q2004

This design project will provide design for construction of the Research Support Building, Phase I. This 55,000 sq. ft. Research Support Building 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, 23,000 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 14.4% and a simple payback of 9 years.

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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03 -03: MEL-001-033

CEBAF Center Addition,

Phase I

TJNAF 545 0 0 0 1Q2003 4Q2003 1Q2004

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.

FY 2003 Total 3,355 0 0 0

FY 2002 Ongoing Design Projects

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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General Purpose Facilities Projects:

02-01: MEL-001-018
 Lab. Systems Upgrade PNNL 880 880 880 622 1Q2002 3Q2003 2Q2003

This design project will provide design to upgrade or replace 20-50 year old mechanical system components in eight high occupancy facilities, replacing them with more efficient, 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; installation of computerized, remote, digital controls on various systems to improve operations.

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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02-03: MEL-001-025
 Research Support Center ORNL 1,500 1,500 1,500 522 1Q2002 3Q2003 2Q2003

This design 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 the 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.

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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Environment, Safety & Health Projects:

02-08: MEL-001-017
 Mechanical Control Systems Upgrade, Ph. I ANL 803 803 803 230 1Q2002 3Q2003 2Q2003

**Science/Science Laboratories Infrastructure/
 04-SC-001 – Project Engineering Design (PED)**

MEL-001 – Science Laboratories Infrastructure Project, Various Locations

(Changes from FY 2003 Congressional Budget Request are denoted with a vertical line in the left margin.)

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)			
FY 2002	3,183 ^a	3,183	2,385
FY 2003	3,355 ^b	3,355	3,573
FY 2004	2,000	2,000	2,080
FY 2005	0	0	500
Construction			
Prior Years	10,879	10,879	2,672
FY 2002	18,613	18,613	12,262
FY 2003	28,226	28,226	27,445
FY 2004	29,936	29,936	31,900
FY 2005	28,489	28,489	29,400
FY 2006	0	0	12,464

^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 \$1,710,000 (Subproject 27); \$1,100,000 (Subproject 28); \$545,000 (Subproject 33) requested under PED Project No. 03-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)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/Completion Dates</u>
7,100	500	3,000	3,600	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)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/Completion Dates</u>
9,000	0	880 ^a	4,000	4,120	0	2Q 2003 – 2Q 2005

This project will upgrade or replace 20-50 year old mechanical system components in eight high 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; installation of computerized, remote, digital controls on various systems to improve operations.

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

c. Subproject 25 – Research Support Center (ORNL)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
16,100	0	1,500 ^a	5,000	9,600	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)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
18,200	0	0	3,250 ^b	5,150	9,800	2Q 2004 – 3Q 2006

This 55,000 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, 23,000 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 14.4% and a simple payback of 9 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 \$1,710,000 requested under PED Project No. 03-SC-001.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
13,360	0	0	1,757 ^a	2,000	9,603	3Q 2004 – 2Q 2006

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)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
10,500	0	0	1,500 ^b	3,914	5,086	1Q 2004 – 1Q 2006

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 09 - Fire Safety Improvements, Phase IV (ANL-E)

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
8,381	6,351	2,030	0	0	0	3Q 2001 - 2Q 2003

This project will complete the effort of correcting known deficiencies with respect to fire detection and alarm systems; life safety and OSHA related sprinkler systems; and critical means of egress in twenty-eight (28) buildings at the Argonne National Laboratory-East (ANL-E) site. Correction of these deficiencies is required to comply with DOE Order 420.1, OSHA 1910,164, and OSHA Subpart C. These deficiencies, if uncorrected, could result in unmitigated risks of injury to personnel and/or damage to DOE property in case of fire.

a Title I and Title II Design funding of \$1,100,000 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.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
8,300	1,000	4,400	2,900	0	0	2Q 2002 –1Q 2004

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.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
6,050	1,889	2,763	1,398	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.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
5,920	584	3,120	2,216	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.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
6,770	555	3,300	2,915	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.

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

<u>TEC</u>	<u>Prev.</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Outyear</u>	<u>Construction Start/ Completion Dates</u>
9,000	0	803 ^a	3,045	5,152	0	3Q 2003 – 3Q 2005

This design project will provide design to 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.

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

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

a Title I and Title II Design funding of \$2,000,000 (Subproject 36) requested under PED Project No. 04-SC-001.

7. Related Annual Funding Requirements

N/A

8. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards;" section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988. DOE has reviewed the GSA inventory of Federal Scientific laboratories and found insufficient space available, as reported by the GSA inventory.