

Science Laboratories Infrastructure

Funding Profile by Subprogram

(dollars in thousands)

	FY 2005 Current Appropriation	FY 2006 Original Appropriation	FY 2006 Adjustments	FY 2006 Current Appropriation	FY 2007 Request
Science Laboratories Infrastructure					
Laboratories Facilities Support	21,448	22,389	-224 ^a	22,165	29,461
Excess Facilities Disposition	6,051	14,637	-146 ^a	14,491	16,348
Oak Ridge Landlord.....	5,039	5,079	-51 ^a	5,028	5,079
Health & Safety Improvements.....	4,960	—	—	—	—
Total, Science Laboratories Infrastructure.....	37,498 ^b	42,105	-421	41,684	50,888

Public Law Authorizations:

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

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

Public Law 109-58, "Energy Policy Act of 2005"

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, general plant projects, maintenance activities, and clean-up and removal of excess facilities to maintain the general purpose infrastructure (GPI). The program also supports SC stewardship responsibilities for over 24,000 acres of the Oak Ridge Reservation (ORR), including the Federal facilities in the town of Oak Ridge; provides Payment in Lieu of Taxes (PILT) to local communities around Argonne National Laboratory (ANL), Brookhaven National Laboratory (BNL), and Oak Ridge National Laboratory (ORNL); and provides funding for correction of deficiencies identified by the Occupational Safety & Health Administration (OSHA) and the Nuclear Regulatory Commission (NRC), and for implementation of recommendations to improve health and safety practices at SC laboratories.

The SC Program Goals will be accomplished not only through the efforts of the direct (GPRA Unit) programs, but with additional efforts from subprograms which support the GPRA Units in carrying out their missions.

Benefits

This program supports the conduct of Departmental research missions at SC laboratories and the ORR, primarily by addressing general purpose facilities and infrastructure needs.

^a Reflects a rescission in accordance with P.L. 109-148, the Emergency Supplemental Appropriations Act to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza, 2006.

^b Total is reduced by \$4,500,000 for a reprogramming to High Energy Physics and \$338,000 for a rescission in accordance with P.L. 108-447, the Consolidated Appropriations Act, 2005.

Significant Program Shifts

Progress in Line Item Projects – In FY 2005, two subprojects were completed: The ORNL Research Support Center and the ANL-E Mechanical and Control Systems Upgrades, Phase I.

Funding is requested to initiate design and construction of four infrastructure projects:

- The Seismic Safety Upgrade of Buildings, Phase I, project at the Lawrence Berkeley National Laboratory (LBNL);
- The Modernization of Building 4500N, Wing 4, Phase I, project at the Oak Ridge National Laboratory (ORNL);
- The Building Electrical Services Upgrade, Phase II, project at the Argonne National Laboratory (ANL); and
- The Renovate Science Laboratory, Phase I, project at the Brookhaven National Laboratory (BNL).

FY 2007 funding for the Pacific Northwest National Laboratory (PNNL) Physical Sciences Facility is requested in the Defense Nuclear Non-Proliferation Research and Development program. Work will continue on preliminary and detailed design.

External Independent Reviews

Beginning in FY 2005, the costs of conducting External Independent Reviews (EIRs) for Capital Asset Projects greater than \$5,000,000 within SC have been funded by SC. Examples of EIRs include conducting Performance Baseline EIRs prior to Critical Decision-2 (CD-2) to verify the accuracy of cost and schedule baseline estimates and conducting Construction/Execution Readiness EIRs, which are done for all Major System projects prior to CD-3. These funds, which are managed by the Office of Engineering and Construction Management, are exclusively used for EIRs directly related to these projects funded within SC. Beginning in FY 2007, the EIR business line will be financed via the Working Capital Fund to achieve parity on how EIRs are funded and to standardize the administration of these critical activities

Laboratories Facilities Support

Funding Schedule by Activity

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Laboratory Facilities Support			
General Purpose Facilities	17,168	12,376	14,671
Environment, Safety and Health	2,528	5,314	13,270
Payment in Lieu of Taxes (PILT)	1,752	1,505	1,520
General Plant Projects (GPP)	—	2,970	—
Total, Laboratories Facilities Support	21,448	22,165	29,461

Description

The Laboratories Facilities Support (LFS) subprogram supports the mission of the Office of Science (SC) by providing funding for line item construction, general plant projects and maintenance activities to maintain the general purpose infrastructure, correction of safety deficiencies identified by OSHA and NRC, and Payment in Lieu of Taxes (PILT) to local communities around Argonne and Brookhaven National Laboratories.

Benefits

This subprogram improves the mission readiness of SC laboratories by refurbishing and replacing general purpose facilities and site-wide infrastructure. The subprogram also provides PILT assistance, as required by law, for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory.

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.

As has been reported previously, the ten SC research laboratories, and the Oak Ridge Institute for Science and Education (ORISE), together have more than 1,400 buildings and 103 real property trailers, with 20 million gross square feet of space, that are aging. Over 6,000 employees and users of SC research facilities are housed in wooden buildings, trailers and buildings more than 50 years old. The average age of active SC buildings is 33 years. In terms of square footage, 44.6% (8.8 million square feet) that is forty years old or older, including 23.7% (4.7 million square feet) that is over fifty years old.

As required by DOE Order 430.1B, Real Property Asset Management, of September, 2003, SC laboratories have developed Ten Year Site Plans (TYSPs), which identify and prioritize projects, activities, and mission resource requirements for real property assets over a ten-year period. The Integrated Facilities and Infrastructure (IFI) Crosscut Budget forms the first five years of each TYSP. The SC TYSPs identify a need for over a billion dollars of line item and GPP funding to fully modernize and revitalize the sites' infrastructure over the ten-year period.

The large backlog of construction needs is attributable to:

- the age of the facilities;
- 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 facilities (e.g., nuclear facilities, such as hot cells, are in lower demand, while facilities that foster interaction and team-based research are in higher demand); and
 - higher quality facilities (e.g., reduced vibration sensitivity and temperature variability, and improved air quality for, and increased power demand by, 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);
- need for improved reliability of utility operations to support the large number of researchers at SC user facilities; and
- changing environmental, safety and health regulations, and security needs.

All candidate construction subprojects proposed for funding by the LFS subprogram are scored using the DOE Cost-Risk-Impact Matrix, that takes into account risk, impacts, and mission need. The subprojects 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. After prioritization by the LFS subprogram, the subprojects are evaluated further for SC science program mission impact by an integrated infrastructure management team composed of representatives from the LFS subprogram and SC research program offices.

The LFS subprogram ensures that the funded subprojects are managed effectively and completed within the established cost, scope, and schedule baselines. Performance is measured by the number of all SLI subprojects completed within the approved baseline for cost, scope (within 10%), and schedule (within six months). For example, both of the subprojects completed in FY 2005 were completed within their cost, scope, and schedule baselines.

SLI construction subprojects typically involve conventional construction and, as such, can usually be engineered, designed, and ready for construction contract award within one fiscal year. Accordingly, SLI construction subprojects are submitted with both Project Engineering and Design (PED) and construction funding identified. In most cases, these subprojects proceed (after normal reviews and approvals) directly from design into construction without delay. DOE's December 2000 report to Congress, "The US DOE Implementation Procedures for the Use of External Independent Reviews and Project Engineering and Design Funds," allows this approach under the Section "Simplified Process for a Design-Procure-Build or Design-Build Project," pages 15 to 18. The full report can be found at the following web site: <http://www.sc.doe.gov/sc-80/sc-82/documents/EIR-PED.pdf>.

Detailed Justification

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
General Purpose Facilities	17,168	12,376	14,671

Provides initial funding for three projects identified below. More detail is provided in Project Engineering and Design data sheet 07-SC-04, and construction project data sheet MEL-001.

New starts:

- Modernization of Building 4500N, Wing 4, Phase I, at ORNL, which will rehabilitate a facility housing many of the laboratory's chemical laboratory facilities, as well as administrative offices and the medical clinic (\$7,071,000);
- Building Electrical Services Upgrade, Phase II, at ANL, which will upgrade critical portions of the electrical power distribution system in twelve research buildings and support facilities, including the Canal Water Plant supplying cooling water for site experiments (\$3,000,000);
- Renovate Science Laboratory, Phase I, at BNL, which will upgrade and rehabilitate existing obsolete and unsuitable laboratory facilities into modern, efficient facilities compatible with world-class scientific research (\$4,600,000).

Environment, Safety and Health	2,528	5,314	13,270
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Provides final funding to support the completion of one subproject, and initial funding for the Seismic Safety Upgrade of Buildings, Phase I, at LBNL. More detail is provided in Project Engineering and Design data sheet 07-SC-04, and construction project data sheet MEL-001.

Ongoing:

- Safety and Operational Reliability Improvements at SLAC, which will replace deteriorated sections of underground utilities and install seismic upgrades necessary to bring various building structures into compliance with the seismic standards of the Uniform Building Code. (\$5,770,000)

New starts:

- Seismic Safety Upgrade of Buildings, Phase I, at LBNL, which will address the seismic vulnerability of laboratory buildings where high life-safety risks have been identified (\$7,500,000)

General Plant Projects (GPP)	—	2,970	—
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Provides funding for GPP projects (Total Estimated Cost less than \$5,000,000) to refurbish and rehabilitate general purpose infrastructure necessary to perform cutting edge research throughout the SC Laboratory complex. Funding for this GPP activity in FY 2007 is contained in other SC programs' budgets.

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Payment in Lieu of Taxes (PILT)	1,752	1,505	1,520
Provide PILT to support assistance requirements for communities surrounding Brookhaven National Laboratory and Argonne National Laboratory. PILT payments are negotiated between the Department and local governments based on land values and tax rates.			
Total, Laboratories Facilities Support	21,448	22,165	29,461

Explanation of Funding Changes

FY 2007 vs. FY 2006 (\$000)

General Purpose Facilities (GPF)

- Increase is due to the initiation of funding for the three new subprojects, two subprojects received final funding in FY 2006..... +2,295

Environmental Safety & Health (ES&H)

- Increase is due to the start of the LBNL Seismic Safety Upgrade of Buildings, Phase I, and a ramp-up of funding for the SLAC Safety and Operational Reliability Improvements subproject per the construction funding plan..... +7,956

GPP

GPP activities are supported in other SC program budgets in FY 2007..... -2,970

PILT

- PILT funding is maintained..... +15

Total Funding Change, Laboratories Facilities Support..... **+7,296**

Excess Facilities Disposition

Funding Schedule by Activity

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Excess Facilities Disposition	6,051	14,491	16,348

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 also cleans-up facilities for reuse when such reuse is economical and provides needed functionality.

Benefits

This subprogram reduces the long-term costs, risks, and liabilities at the SC laboratories associated with excess facilities by removing them or 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 representing the EFD subprogram and SC research program offices. The estimated backlog of non-contaminated or slightly contaminated facilities at the beginning of FY 2007 will be approximately \$100,000,000, including approximately \$70,000,000 of work to decontaminate and decommission (D&D) the remainder of the Bevatron Complex at the Lawrence Berkeley National Laboratory (LBNL).

In FY 2007, the EFD subprogram will continue D&D of the Bevatron. This effort, whose total cost is estimated to range from \$67,000,000 to \$84,000,000, will, by FY 2011, eliminate a legacy facility which ceased operation in 1993, and free up 127,000 square feet—approximately 7.5% of the total usable land at the LBNL site—for programmatic use. Both laboratory and office space are in critically short supply at LBNL. The shortage of onsite space has necessitated leasing of approximately 95,000 square feet in offsite buildings. Continued reliance on an aged and decaying physical plant impedes research, reduces productivity, and makes recruitment and retention of top-quality scientists and engineers much more difficult. Removal of the Bevatron will free up land for re-development to support on-going and new mission work.

The EFD subprogram will also demolish contaminated, legacy facilities at BNL and ORNL, whose continued deterioration presents an increasing risk to the workers and the environment, and for which SC can “bank” space to meet the requirement for offsetting new construction with elimination of excess space. These facilities include Building 650 at BNL, and Buildings 2018, 3008, and 3111 at ORNL.

The EFD subprogram does not fund projects that replace currently active and occupied 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.

Detailed Justification

(dollars in thousands)

FY 2005	FY 2006	FY 2007
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Excess Facilities Disposition..... **6,051** **14,491** **16,348**

In FY 2005, funding of \$6,051,000 supported the projects listed below and allowed for the clean-up/removal of an estimated 100,000 square feet of space:

- Ames (\$150,000) – Waste Handling Facility Closeout and Demolition, Phase 2, and Demolition of the Hydrogen Test Cell Facility (approximately 900 square feet)
- ANL-E (\$1,457,000) – Bldg. 202, Room Q-183 Former Animal Injection Laboratory Remediation, Bldg. 202, W-Wing (W-036, W-123, W-127, W-135) Demolition, Bldg. 370 Alkali Metal Loop Demolition, Bldg. 40 Demolition, Phase 1, Bldg. 205 K-116 Remediation and Bldg. 325C Demolition (approximately 3,600 square feet)
- BNL (\$405,000) – Demolition of Buildings 428, 118B, 933B, 934 and Partial Demolition of Buildings 197 and 527 (approximately 6,400 square feet)
- FNAL (\$125,000) – Demolition of Buildings 903, 951, 993, T009, T023, T115, T158, T072, 144, 145, 146, 147 and 947 (approximately 5,800 square feet)
- LBNL (\$1,360,000) – Development of Conceptual Design, Environmental and CD-1 Documentation for the Bevatron Disposition Project
- LLNL (\$150,000) – Demolition of Magnetic Fusion Energy Legacy Facilities at Building 445, Phase 2 (approximately 4,000 square feet)
- ORISE (\$565,000) – Demolition of Building 26 (approximately 12,800 square feet)
- ORNL (\$1,688,000) – Demolition of Buildings 1000, XH1326, XH1401 and XH1327 (approximately 67,000 square feet)
- PPPL (\$55,000) – Demolition of Health Physics Calibration and Service Laboratory (approximately 2,200 square feet)
- Other miscellaneous projects (\$96,000)

In FY 2006, funding of \$14,491,000 will support the projects listed below and allow for the clean-up/removal of an estimated 87,000 square feet of space:

- Ames (\$45,000) – Waste Handling Facility Closeout and Demolition (9,000 square feet)
- ANL-E (\$770,000) – Bldg. 374A Demolition Project, Demolition of Bldg 40, Phase II, and Site Beryllium Remediation, Heavy Isotopes Hood/Equipment Demolition and Bldg. 205 F-111 (approximately 11,000 square feet)
- BNL (\$600,000) – Demolition of Buildings 86, 527, Phase II, 422 (partial), 650A, 628, 492, and Demolition of Building 650, Phase I (approximately 18,000 square feet)
- FNAL (\$125,000) – Demolition of Two Muon Enclosures (approximately 800 square feet)

(dollars in thousands)

FY 2005	FY 2006	FY 2007
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- LBNL (\$10,900,000) – This funding will support activities required to execute total removal of the Building 51/Bevatron complex, including: surveys and planning activities, such as engineered plans and specifications for the demolition of the Bevatron and Building 51; waste management plan; characterization plan; health & safety plan; and community relations plan. The FY 2006 funding will also support utility relocations, preliminary hazardous material abatement, and removal of abandoned electrical equipment
- LLNL (\$150,000) – Demolition of Magnetic Fusion Energy Legacy Facilities at Building 445, Phase 3 (approximately 7,000 square feet)
- ORISE (\$768,000) – Demolition of Building SC-5, Large Animal Containment Facility (approximately 5,600 square feet)
- ORNL (\$858,000) – Demolition of Solway and Freels Bend Excess Facilities (approximately 36,000 square feet)

FY 2006 funding also includes \$275,000 to conduct External Independent Reviews (EIRs) of SLI construction projects.

In FY 2007, funding of \$16,348,000 will support the projects listed below, allowing the clean-up/removal of an estimated 22,000 square feet of space:

- ANL-E (\$500,000) – Building 205 F-111 Vault Cleanup & Hood Demolition (Phase 3 Vault/Corridor Cleanup)
- BNL (\$697,000) – Continued demolition of Building 650
- LBNL (\$14,000,000) – Continued demolition of the Bevatron
- ORNL (\$976,000) – Cleanout and deactivation of Building 3503, and demolition of Buildings 3008, 3111, and 2018 (approximately 22,000 square feet).

FY 2007 funding also includes \$175,000 to conduct External Independent Reviews (EIRs) of SLI construction projects.

Note: Individual EFD 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	6,051	14,491	16,348
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Explanation of Funding Changes

FY 2007 vs. FY 2006 (\$000)

Excess Facilities Disposition

- The increase is primarily for demolition of the Bevatron (+\$3,100,000), offset by a reduction in funding for demolition or cleanup for re-use of excess or unusable facilities other than the Bevatron (-\$1,243,000)..... +1,857

Oak Ridge Landlord

Funding Schedule by Activity

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Oak Ridge Landlord.....	5,039	5,028	5,079

Description

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

Benefits

This subprogram maintains continuity of operations at the Oak Ridge Reservation and the Oak Ridge Office by minimizing interruptions due to infrastructure and/or other systems failures. The subprogram also provides Payment 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 2005	FY 2006	FY 2007
Roads, Grounds and Other Infrastructure and ES&H Support and Improvements	2,448	1,781	2,051
Road maintenance, reservation mowing, and bridge inspections.			
General Purpose Equipment (GPE)	—	219	—
Purchase of heavy equipment (e.g., bulldozer, dump truck, and road roller).			
General Plant Projects (GPP)	—	200	200
Major road repair.			
Payment in Lieu of Taxes (PILT)	2,300	2,550	2,550
PILT to the City of Oak Ridge, and Anderson and Roane Counties.			

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Reservation Technical Support	291	278	278
Includes meteorological monitoring system, public warning siren system, ORR command media, and records management.			
Total, Oak Ridge Landlord	5,039	5,028	5,079

Explanation of Funding Changes

FY 2007 vs. FY 2006 (\$000)

Oak Ridge Landlord

Additional funds are provided to support an increase in maintenance and repair of ORO-managed roads (+\$270,000) offset by decrease from one time GPE funding in FY 2006 for heavy equipment to be used for road repair (-\$219,000). +51

Health and Safety Improvement

Funding Schedule by Activity

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
Health and Safety Improvement.....	4,960	—	—

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.

Detailed Justification

(dollars in thousands)

FY 2005	FY 2006	FY 2007
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Health and Safety Improvements	4,960	—	—
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In FY 2003, Congress directed the NRC and OSHA to perform inspections at the 10 SC laboratories. The purpose of these inspections was to identify those deficiencies that would need to be corrected if the Department were regulated by these agencies, and to provide recommendations for improved health and safety practices.

The NRC and OSHA inspections were performed in FY 2003 and FY 2004. Most of the deficiencies identified by the NRC were of administrative nature that would have to be corrected if the SC laboratories became regulated by the NRC. The OSHA inspections identified numerous safety deficiencies, including problems with electrical hazards, machine guarding, legacy material removal, material handling, ladder compliance, inadequate building egress, crane hazards, exhaust ventilation, and eyewash station availability and operability. To correct these deficiencies, SLI funding was provided to the affected laboratories in FY 2004 and FY 2005.

The Health and Safety Improvements subprogram was discontinued in FY 2006 because most of the OSHA findings have been corrected, and correction of remaining deficiencies will be funded by the laboratories, primarily via overhead.

Capital Operating Expenses and Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2005	FY 2006	FY 2007
General Plant Projects.....	—	3,170	200
General Purpose Equipment.....	—	219	—
Total, Capital Operating Expenses.....	—	3,389	200

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2005	FY 2006	FY 2007	Unapprop. Balance
07-SC-04 Science Laboratories Infrastructure, Project Engineering Design	N/A	N/A	—	—	8,908	—
04-SC-001 Science Laboratories Infrastructure, Project Engineering Design	N/A	986	4,960	2,970	—	—
03-SC-001, Science Laboratories Infrastructure, Project Engineering Design	N/A	1,089	313	—	—	—
MEL-001, Science Laboratories Infrastructure Project.....	N/A	N/A	14,423	14,720	19,033	47,829
Total, Construction/PED.....			19,696	17,690	27,941	