

Office of Science Infrastructure Modernization Initiative

A critical element in the execution of the SC mission is the management of 10 world-class laboratories, which are often called the “crown jewels” of our national research infrastructure. The national laboratory system, created over a half-century ago, is the most comprehensive research system of its kind in the world. The mission of the Science Laboratories Infrastructure (SLI) program within SC is to support the conduct of SC and other DOE research missions (national defense, energy efficiency, nuclear energy, fossil energy, etc.) at SC laboratories by funding line item construction for revitalization and repair of the general-purpose infrastructure, and by cleaning up and removing excess facilities that are not transferable to the Office of Environmental Management. This mission is executed in support of fundamental research programs in basic energy sciences, biological and environmental sciences, high energy and nuclear physics, fusion, and computational science.

Over the last ten years, the SLI program has constructed 186,000 square feet of new space that provides researchers and technical and support staff with modern facilities for conferencing, co-location of services, up-to-date cafeteria services and improved computing capabilities. These include the Research Support Building at Brookhaven National Laboratory, the Research Support Center at Oak Ridge National Laboratory, and the Computer and Support Addition at Thomas Jefferson National Accelerator Facility. The SLI program is currently constructing approximately 200,000 square feet of space for scientific and National and Homeland Security research facilities at the Pacific Northwest National Laboratory that will allow SC to vacate aging facilities in the Hanford 300 Area and make way for environmental cleanup. In addition to providing new, modern space at our laboratories, the SLI program has also renovated buildings at the Argonne, Brookhaven, Berkeley, and Oak Ridge national laboratories and the Stanford Linear Accelerator Center, rehabilitated site utilities at the Argonne, Brookhaven, Berkeley, and Oak Ridge national laboratories, and upgraded fire protection at the Argonne and Oak Ridge national laboratories.

Even with these investments and increased maintenance expenditures, however, many of the over 2,000 buildings in the SC laboratory system have reached or are near the end of their serviceable lives. Many laboratory facilities and utility systems are not adequate to support the scientific mission in the future because they do not meet the requirements of a modern research facility.

To more fully address the needs of our laboratories and ensure their continued vitality, SC is taking an integrated approach to improving the mission readiness of our facilities. This approach includes a significant capital investment program coupled with elimination of excess facilities and a sound maintenance program. The Infrastructure Modernization Initiative encompasses the first two elements of that approach. Under the initiative, SC provides capital investment through the SLI budget for needed general infrastructure improvements. These investments will revitalize our ten laboratories over the next ten years, and will allow SC to provide the modern laboratory infrastructure needed to deliver the advances in science our Nation requires to remain competitive in the 21st century, and to correct longstanding deficiencies while ensuring laboratory infrastructure provides a safe, quality workplace. This initiative is a critical element for SC to achieve DOE Strategic Goal 3.2, which is to deliver the scientific facilities, train the next generation of scientists and engineers, and provide the laboratory capabilities and infrastructure for U.S. scientific primacy.

To manage and execute the Infrastructure Modernization Initiative effectively, the SLI program uses the Ten Year Site Planning portion of SC Annual Laboratory Plans (ALP) to guide investments. (see <http://www.sc.doe.gov/sc-31/infrastructure/tysp08.shtml>) The Annual Laboratory Plans integrate scientific planning with infrastructure/operational planning by directly tying proposed investments to identified mission capability gaps. This provides a clear picture of the mission readiness of each laboratory, the capability gaps, and the action plan to fill those gaps. This action plan represents a commitment on the part of both SC and the laboratory to fund the necessary investments to ensure the future mission readiness of each laboratory. These action plans, specifically the investments proposed for line item SLI funding, form the basis for projects included in the Initiative. These projects:

- Renovate or replace space that does not meet research needs,
- Replace facilities that are no longer cost effective to renovate or operate,
- Modernize utility systems to prevent failures and ensure efficiency, and/or
- Remove excess facilities to allow safe and efficient operations.

Construction

Each of the Annual Laboratory Plans presented to SC established the importance of the Infrastructure Modernization Initiative to the accomplishment of their scientific goals. This initiative will invest approximately \$2 billion over the next ten years. The construction portion of the five year plan includes a significant ramp-up from \$67 million in FY 2008 to over \$200 million in FY 2011 and beyond to complete the projects started during FY 2008 and FY 2009 and undertake additional projects in future years. The increases shown here are necessary to fully implement the initiative.

One project in the initiative is currently underway at Oak Ridge National Laboratory. This project will construct a new chemical sciences, materials science, and technology core capabilities laboratory that will allow researchers to move from the aging 4500 Complex.

Three additional projects were proposed in the FY 2009 budget request.

- Replacement of seismically poor facilities at Lawrence Berkeley National Laboratory with a new laboratory/office building, upgrade of the Hazardous Waste Handling Facility, and modernization of another laboratory/office building supporting Life Sciences research.
- Construction of a new building with state-of-the-art laboratories, associated offices and support space for energy-related research and development at Brookhaven National Laboratory.
- Renovation of the Thomas Jefferson National Accelerator Facility's Test Lab Building, which is critical to the laboratory's cryomodule development and production activities, and construction of new space that will eliminate severe overcrowding and improve workflow and productivity.

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