

Building
Pacific Northwest
National Laboratory's
Research Campus
of the Future



World-Class National Laboratory for the 21st Century



Dr. Len Peters

Dispensing his unique brand of advice, Yogi Berra once said, “If you don’t know where you’re going, you’ll end up somewhere else.” At the Department of Energy’s Pacific Northwest National Laboratory, we knew where we were headed in 1965 when Battelle took over management of PNNL for DOE. Our compass was set on future success. Early leaders looked across the vast, sagebrush dotted land in southeastern Washington state and envisioned developing a resource that would not only serve the needs of the government, but private industry as well.

Decades later, Battelle and DOE have invested millions in modern buildings and infrastructure that enable our researchers to deliver science and technology solutions for our community, the region, nation, and even around the globe. Today—just as we were four decades ago—we are charting a new course that holds much promise.

The foundation we are building upon is solid, formed from many years of significant scientific and technical achievements to keep the nation secure with a high quality of life. Our plan for the future is even more ambitious than our early visionaries could have conceived. We intend to be world-class in our science and technology and expand the local research base. We are resolved to strengthen our existing partnerships with federal agencies and regional organizations and reach out to new potential partners. And, most importantly, we are pursuing a bold vision for a Research Campus of the Future. This future campus will include cutting-edge facilities and will be supported by an adjacent science and technology park that will inspire innovative new public and private research enterprises.

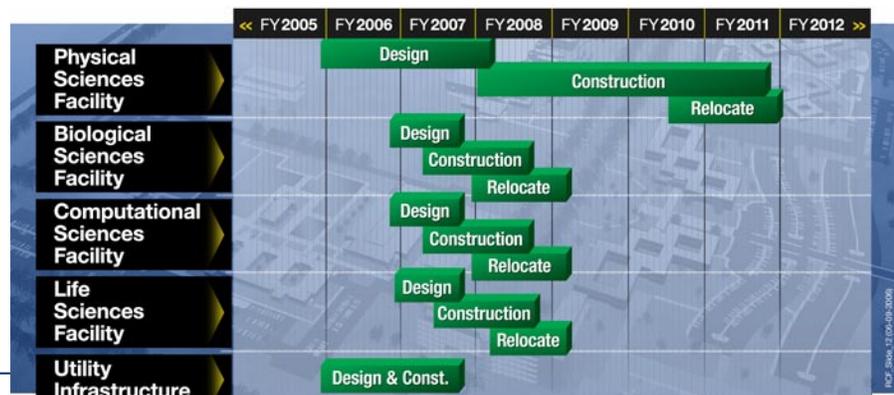
Sherwood Fawcett, PNNL’s first director, noted shortly after the Laboratory began, “We are moving into exciting and challenging times.”

Those same words still ring true today.

Dr. Len Peters, Director of Pacific Northwest National Laboratory



“PNNL is one of the ‘crown jewels’ in the Department of Energy’s system of national laboratories, and its contributions are vital to maintaining U.S. preeminence in science, technology and innovation, which depends on the continued availability of the most advanced scientific research facilities for our researchers.” Paul Kruger, Manager, Pacific Northwest Site Office, U.S. Department of Energy



PNNL’s schedule for building the Research Campus of the Future.

Our Vision

PNNL's vision for the Research Campus of the Future is to create a DOE 21st century campus that enables world-class science and engineering and its translation to solutions for energy, environment, and national and homeland security.

A Critical First Step

We plan to build our future campus in phases, beginning with the most critical phase of replacing scientific capabilities housed in DOE's nearby Hanford Site's 300 Area. These critical capabilities include most of the Laboratory's biology research, a significant portion of its chemistry; all its radiochemistry research; and unique capabilities in detection technology, radiation dose certification, environmental research, and advanced energy materials. These capabilities support national and homeland security missions by detecting and preventing the proliferation of weapons of mass destruction, and detecting and assessing threats. They also are key to solving some of the nation's most pressing problems in energy production and the environment.

About one-third of PNNL's total campus footprint and nearly 50 percent of its experimental laboratory space are located in 300 Area facilities. The



"Pacific Northwest National Laboratory does nonproliferation work for NNSA, and is "quite important" to NNSA. I think that I am now the largest single customer of the lab..." Ambassador Linton Brooks, National Nuclear Security Administration, House Armed Services Committee, Subcommittee on Strategic Forces, Hearing on the DOE FY 2005 Budget



World-renowned PNNL research capabilities located in the 300 Area of Hanford support the U.S. government's missions in homeland and national security, energy, environment and basic research.





“The Lab is a valuable national asset and a foundation for the future of the Tri-Cities. Providing for a workable transition into new lab space will help ensure that PNNL is well positioned to be a growing force as we work to prepare our community for life after Hanford.”
U.S. Rep. Doc Hastings



“Investing in PNNL pays dividends for our state in jobs and economic development, and it pays dividends for our country in science and solutions. That’s why I’ve been proud to fight for the funding we need to move forward.” U.S. Senator Patty Murray during a visit to the Lab, December 2005

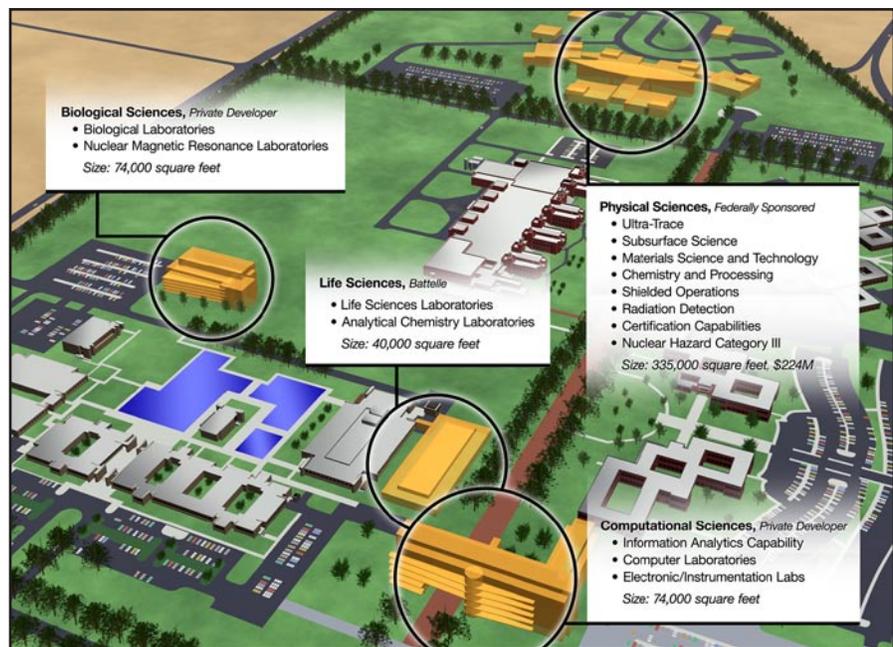
Laboratory has until 2010 to transition from the facilities it occupies. The entire 300 Area is slated to be cleaned to industrial use standards by 2012, six years ahead of the Tri-Party Agreement milestone.

Nearly 1,000 employees out of PNNL’s 4,200 workforce support work in the 300 Area and about a third, or \$200 million, of PNNL’s \$725 million R&D activities are based in these buildings. The research includes programs for clients such as DOE’s Office of Science (SC), the National Nuclear Security Administration (NNSA), Department of Homeland Security (DHS) and the intelligence community.

These client-driven programs vary from national security to environmental research. For national and global security clients, PNNL scientists have developed two devices used to verify compliance with the Nuclear Test Ban Treaty by detecting the presence of radioactive materials from nuclear weapons testing. These monitoring devices are being stationed around the globe.

Researchers in the 300 Area also have designed an automated instrument for clients that allows fast and safe measurement of radioactive materials in aged nuclear waste stored in single- and double-shell underground storage tanks at Hanford.

Maintaining these capabilities is necessary to ensure that research critical to our nation continues. Building a Research Campus of the Future will require a \$224 million investment by the government that will consolidate laboratories onto one site, reduce the overall campus footprint, and modernize laboratories and offices. PNNL’s campus is proposed to be funded by SC, NNSA, DHS and private developers.



PNNL’s Research Campus of the Future includes four proposed new facilities.

Joint Acquisition Strategy—Government and Private Industry

PNNL's funding to date currently is on target:

- In fiscal year 2004, Congress reprogrammed \$1.6 million from its budget to help fund conceptual designs for PNNL facilities.
- In fiscal year 2005
 - Congress allocated \$10 million to PNNL to fund design activities for 300 Area replacement facilities. PNNL selected CUH2A, an architecture engineering and planning firm headquartered in Princeton, N.J., to develop conceptual designs.
 - DHS allocated \$2 million to help PNNL plan for the transition.
 - The Washington State Legislature allocated \$5 million to the city of Richland to bring infrastructure improvements—water, sewer and power—to the Research Park at the north end of Richland, which includes PNNL and one of its proposed new facilities.
- In 2006, Congress allocated \$18 million to fund definitive designs for PNNL replacement facilities. (This was an increase of \$10 million over the President's 2006 request.)
- There is \$7.9 million proposed in the 2007 federal budget to continue work.



"The lab (PNNL) is going to continue to play a key role in federal research missions, and it is a key asset in the Tri-Cities innovation economy that will be the hallmark of this region for generations to come. It is a jewel for this community, this state and the Pacific Northwest." U.S. Senator Maria Cantwell, Fifth Annual IT Day, May 4, 2005

Five Facilities by 2010

PNNL's Research Campus of the Future plan includes building five new facilities by 2010 to house staff, equipment and capabilities displaced from the 300 Area. The buildings include the Physical Sciences, Computational Sciences, Biological Sciences and Life Sciences facilities. The future campus also includes building the joint Washington State University and PNNL Bioproducts, Sciences, and Engineering Laboratory. These facilities will be built using a mix of both public and private financing, an approach supported by DOE.

Physical Sciences Facility

Some of PNNL's replacement space is proposed to be in the 335,000-square-foot federally sponsored Physical Sciences Facility. The PSF is proposed to be located just north of PNNL's current campus. This \$224-million, state-of-the-art facility will house all of PNNL's nuclear and radiological capabilities which are important to the government's future missions in countering terrorism, and in addressing other national and homeland security challenges. The PSF will include scientific research in:

- Ultra-trace and low-level detection and characterization of radionuclides for detecting the proliferation of weapons of mass destruction.



Physical Sciences Facility

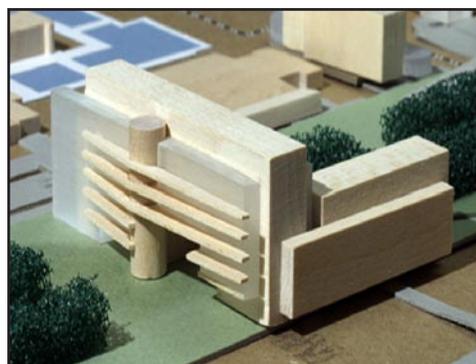


“Oregon’s collaboration with PNNL will prove a powerful asset in helping position the Pacific Northwest to compete successfully in markets worldwide, including emerging markets in new energy.” Oregon Gov. Ted Kulongoski, Bi-State Metropolitan Forum (Portland), March 3, 2006

- Subsurface science for environmental remediation science, carbon sequestration and radiological complementation of capabilities provided by the Environmental Molecular Sciences Laboratory.
- Materials science and technology for development of unique materials for advanced energy systems.
- Chemistry and processing for fundamental and interfacial radiochemistry, closing nuclear fuel cycles, and for programs in signatures and observables of nuclear proliferation.
- Shielded operations for receipt, sampling, examination, characterization, and disposition of highly radioactive experimental materials in support of many missions.
- Radiation detection for uncovering weapons of mass destruction and terrorist activities as well as for attribution in support of treaties and agreements
- Certification capabilities for traceable calibration of radiation detection and analysis instruments for homeland security.
- Nuclear Hazard Category III.

Computational Sciences Facility

Once built, the Computational Sciences Facility will be the gateway to PNNL’s future campus. The CSF, to be built by private developers, will house replacement computing capabilities in information analytics for identifying trends in massive data sets. These world-renowned capabilities will be critical for future DHS and other government missions. The CSF also will include computer labs, electronic and instrumentation labs, conferencing and symposium areas, and office space.



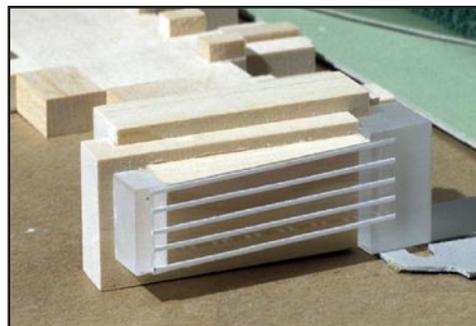
Computational Sciences Facility



“PNNL performs important research for the Department of Homeland Security, including programs in nuclear detection, standards development and certification for radiological detection technologies, and information analytics. We recognize the unique and world-class research staff and facility capabilities at PNNL and appreciate the work performed for us.” Dr. Maureen McCarthy, Director of the Office of Research and Development, Department of Homeland Security

Biological Sciences Facility

The Biological Sciences Facility, will house some of PNNL’s replacement capabilities in microbial and cellular biology and analytical interfacial chemistry. Built by private developers, the BSF will include biological laboratories and nuclear magnetic resonance laboratories for advanced genomic (genomes-to-life) research. It also will include offices and conference rooms.



Biological Sciences Facility

Life Sciences Facility

Battelle, which operates PNNL for DOE, will be sponsoring the Life Sciences Facility. This new building will contain some of PNNL's replacement capabilities in life sciences and analytical chemistry. The facility will contain laboratory space, offices and conference rooms.



Life Sciences Facility

Bioproducts, Sciences, and Engineering Laboratory

PNNL's future campus also will include the Bioproducts, Sciences, and Engineering Laboratory. The national lab is teaming with Washington State University to build BSEL, which will be located south of PNNL on the WSU Tri-Cities campus. At BSEL, researchers will develop basic process technologies for cost-effective conversion of corn, wheat and other agricultural commodities into chemicals. These chemicals are used as components of industrial and consumer products, including biofuel, plastics, paints, non-toxic solvents, textile fibers, antifreeze, toothpaste and foods.

The \$24-million laboratory will provide badly needed educational space for WSU students and an opportunity for PNNL researchers and WSU faculty to collaborate on research projects. BSEL will house research and teaching labs, and a development laboratory in its 2,500 square foot high-bay facility. Washington Governor Chris Gregoire added \$13.1 million in her capital budget to fund construction of BSEL, calling it one of the drivers in her plans for economic recovery in Washington state. BSEL also is an important element in Tri-City leaders' plans to expand WSU Tri-Cities to a four-year university. That new plan, supported by PNNL, aims to create ties between Columbia Basin Community College, WSU Tri-Cities and the national laboratory.

The Department of Energy's Office of Biomass Programs has invested significant capital at PNNL for equipment in bioresearch. This equipment will be transferred to BSEL once the facility is built. The Office of Biomass Programs is part of DOE's Office of Energy Efficiency and Renewable Energy.



"BSEL is one of the wisest investments we can make for the future of the Tri-Cities and for the entire state." Washington Gov. Chris Gregoire, Tri-City Herald



PNNL Laboratory Director Len Peters along with Washington Governor Chris Gregoire (left) and Senator Maria Cantwell (right) at the groundbreaking for the Bioproducts, Sciences, and Engineering Laboratory.



Bioproducts, Sciences, and Engineering Laboratory

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