



LABS FOR THE 21ST CENTURY

VOLUNTARY PARTNERSHIP PROGRAM FACTSHEET

What is the Laboratories for the 21st Century Partnership Program?

The Laboratories for the 21st Century (Labs21) Partnership Program is a new voluntary effort being developed by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). The Partnership Program, a key component of the broader Labs21 initiative, is being launched with a pilot phase. Both the initiative and the partnership program will focus on improving laboratory energy and water efficiency, encouraging the use of renewable energy sources, and promoting environmental stewardship in U.S. laboratories.

What are the Benefits of Becoming a Labs21 Partner?

Applying the Labs21 Approach can provide the following benefits to participating laboratories:

- Lower laboratory utility and operating costs.
- Reduced health and safety risks.
- Improved facility management.
- Reduced pollution and greenhouse gas emissions.
- National recognition and an enhanced image.
- Access to technical assistance.
- Opportunities for regulatory relief.

What is the Labs21 Program?

Labs21 is a program developed and sponsored by EPA and DOE to improve the environmental performance of U.S. laboratories. The program consists of three key components:

- **Labs21 Partnership Program:** Labs21 will establish voluntary partnerships with interested public and private sector labs. Working with Labs21, each partner will set voluntary energy and water efficiency goals and measure and report the success of their efforts.
- **Training:** Labs21 will provide training and other opportunities to exchange technical information with the laboratory community, including continuing to sponsor the annual Labs21 conference.
- **Tool Kit:** Labs21 is developing a series of tools for the laboratory community, including an Internet-accessible compendium of case studies, performance metrics, and planning guidance to facilitate innovations in laboratory design and operation. It will build upon the *Design Guide for Energy-Efficient Research Laboratories* developed by the Lawrence Berkeley National Laboratory.

Quantifying the Benefits of Labs21

Using the Labs21 Approach, EPA and DOE believe that laboratories can achieve significant energy savings. EPA applied the Labs21 Approach at its Ann Arbor, Michigan, laboratory and has reduced its annual electric demand by nearly 70 percent and its utility costs by 70 percent. Assuming that 50 percent of U.S. laboratories achieve a 30 percent reduction in energy consumption, the United States could reduce its annual energy consumption by 84 trillion BTUs, which is equal to the electricity consumed by 2.2 million U.S. households. An efficiency improvement of this magnitude would save \$1.2 billion annually.

In addition to the cost savings, the environmental benefits of the potential energy savings also are significant. Conserving 84 trillion BTUs of energy would decrease carbon dioxide (CO₂) emissions by 16.7 million tons, which is equivalent to removing 3 million automobiles from U.S. highways or preserving 56 million trees from harvest. This, in turn, will help reduce the threat of global climate change caused by greenhouse gases such as CO₂ in the atmosphere.

What is the Labs21 Approach?

Labs21 is dedicated to the pursuit of sustainable, high-performance, and low-energy laboratories that will:

- Minimize overall environmental impacts.
- Protect occupant safety.
- Optimize whole building efficiency on a life-cycle basis.
- Establish goals, track performance, and share results for continuous improvement.

Labs21 seeks to create environmental showcase laboratories by encouraging laboratory owners, operators, and designers to adopt the “Labs21 Approach.” To demonstrate their commitment to this philosophy, Labs21 Partners will pursue the following:

- Adopt energy and environmental performance goals.
- Assess opportunities from a “whole buildings” approach.
- Use lifecycle cost decision-making.
- Commission equipment and controls in new construction and retrofit projects.
- Employ a broad range of sustainable energy and water efficiency strategies.
- Measure energy and water consumption and track emission reductions.
- Evaluate on-site power generation, combined heat and power technologies, and renewable power purchases.
- Specify “green” construction materials.
- Promote energy and water efficiency operation and training efforts.
- Explore sustainable design opportunities beyond the building site.

Adopting the Labs21 Approach involves evaluating a laboratory’s energy use from a comprehensive perspective when considering efficiency improvements. This requires focusing on all of a laboratory’s energy systems and wastes, including its HVAC and electrical power supply, rather than focusing on specific energy-using components.

The resulting showcase facilities will reduce emissions, streamline energy and water usage, and decrease overall costs—all while preserving the integrity of the laboratory’s mission.

How Can I Become a Labs21 Partner?

The Labs21 Partnership Program will evolve over a 4- to 5-year period through two phases: Pilot and Implementation. During the Pilot phase, Labs21 will work closely with a select group of public and private sector laboratories to define the scope of the pilot projects, provide technical assistance, and develop a method to measure and evaluate the success of each project. Pilot Partners must be willing to commit to the following:

- Conducting a specific pilot project at one facility using the guidelines developed by Labs21 when designing a new laboratory or retrofitting an existing facility.
- Adopting the Labs21 Approach for improving energy and water efficiency at the pilot project facility.
- Assisting the Labs21 program in developing a method to measure and evaluate the success of the project.
- Granting EPA and DOE permission to publicize partnership activities.
- Participating in the annual Labs21 conference by reporting progress of the pilot project.

Labs21 agrees to support the efforts of the Pilot Partners by doing the following:

- Providing technical assistance, which may include developing an energy audit protocol or reviewing a laboratory design.
- Providing opportunities for education and training on laboratory energy and water efficiency.
- Working to identify the value of associated emission reductions and applying the value to laboratory efficiency improvements.
- Developing a series of tools to promote innovations in laboratory design and operation.
- Recognizing Pilot Partners through an awards program, publications, and the Labs21 Web site.
- Developing case studies documenting successful efforts to reduce the environmental impacts of U.S. laboratories.
- Holding an annual Labs21 conference to facilitate information exchange and recognize Partners for their participation.
- Facilitating opportunities for regulatory relief.

What is the Role of Labs21 Supporters?

Those individuals who are interested in championing the efforts of Labs21, such as energy savings contractors, trade associations, and independent energy consultants, may choose to participate in the program as Supporters.

Given the size and diversity of the laboratory community, Supporters will play a critical role in helping EPA and DOE raise awareness about Labs21 within different industry sectors as the program continues to grow.

Roles for Supporters include promoting the Labs21 program to their members, customers, and clients; assisting with the annual Labs21 conference; and helping to support the development of the Labs21 program beyond the pilot phase.

The Labs21 Team will recognize Supporters in a variety of ways, including acknowledgements in promotional materials, on the Labs21 Web site, and at the annual conference.

For more information on becoming a Labs21 Supporter, including a sample Supporter agreement, visit our Web site at www.epa.gov/labs21century/support/index.htm.

What Types of Projects Will Labs21 Pilot Partners Undertake?

Each Pilot Partner will have its own goals and unique needs. For some Partners, it might make sense to begin with a complete energy and water audit. The Labs21 program will help Pilot Partners find an experienced energy auditor to perform the audit. The audit would develop an efficiency baseline for the facility, document building configuration and energy use characteristics, and identify energy and water conservation measures. Other Partners might need a different level of support, which can be negotiated with Labs21 as part of the Pilot Partner application process. Pilot Partners also will help define the participation requirements for future Partners who join Labs21 at the conclusion of the pilot phase.

The Labs21 program offers two categories of participation: Partners and Supporters. Partners will include laboratory owners and operators that commit to the Labs21 Approach for new construction and retrofit projects. Supporters will include any individual or group willing to promote the objectives of the Labs21 program such as energy savings contractors, trade associations, independent energy consultants, architecture firms specializing in laboratory design, and laboratory equipment manufacturers.



LABS FOR THE 21ST CENTURY

How Can I Learn More About Labs21?

Visit the Labs21 Web site at

<www.epa.gov/labs21century>

for more information on the Labs21 Partnership Program
and other components of the program, including the annual conference.