

Better Buildings is a national leadership initiative calling on corporate chief executive officers, university presidents, utilities, state and local officials, and other leaders to make substantial commitments to improve the energy efficiency of their buildings and plants, save money, and increase competitiveness. The cornerstones are a commitment to a 20% or more savings target across the organizations' portfolios and a commitment to share strategies that work, substantiated by energy data across the portfolios. The U.S. Department of Energy (DOE) is expanding this initiative to engage leaders in a set of Better Buildings Accelerators designed to demonstrate specific innovative approaches, which upon successful demonstration will accelerate investment in energy efficiency.

Through the Smart Labs Accelerator, DOE will work with universities, federal agencies, national laboratories, hospitals, and corporations to advance strategies that rapidly improve energy efficiency in laboratory buildings.¹ Accelerator partners will set a target to improve energy efficiency across their portfolio of laboratory buildings by at least 20% in ten years or less, and select one laboratory to meet a shorter-term reduction target through a series of low- and no-cost measures. Partners will work together to develop standardized approaches to overcoming common barriers to energy efficiency in laboratories such as insufficient energy performance measurement methods and resistance to implementing efficient operational procedures. DOE will work with partners to document model approaches to reduce energy consumption that include operational changes, technological upgrades, and strategic energy management approaches.

Goals of the Smart Labs Accelerator:

- ▶ **Demonstrate** best practice approaches to increasing energy efficiency in laboratories with an integrated approach to building and laboratory equipment, and operational practices.
- ▶ **Detail** no- and low-cost energy-saving practices, and create resources that help laboratory personnel identify and implement these opportunities.
- ▶ **Advance and mature** industry-driven guidance on energy metering and benchmarking in laboratories, and refine common approaches to measuring whole building energy performance.
- ▶ **Identify** code-related barriers to energy efficiency and develop recommendations for change.
- ▶ **Develop** recommendations for post-Accelerator next steps.

Why Reducing Energy Use in Laboratories is Important:

A typical laboratory is 3-to-4 times more energy intensive than an average commercial building and can account for up to 70% of a given campus' energy footprint, making laboratories a key focal area for energy and carbon management strategies at universities, corporations, national laboratories, hospitals, and federal agencies. Further, as the engines of scientific and technological innovation that help power the U.S. economy, laboratories are expected to grow in number and energy consumption in future years.

Forward-leaning laboratories have demonstrated energy efficiency improvements of 20% to 40% by applying energy management practices, smart operational changes, and new technologies. If all laboratory buildings in the country improved their energy efficiency by 20%, annual energy and cost savings could reach about 40 trillion BTUs and \$1 billion.²

1. A laboratory is a facility that provides controlled conditions in which scientific or technological research, experiments, and measurement may be performed.

2. Cost-savings estimate derived from a 2009 analysis of CBECS data conducted by LBNL.

Benefits to Partners:

- ▶ **Develop** and utilize model approaches to improving energy efficiency in laboratory buildings. Work with peers to share and refine integrated strategies that overcome barriers to saving energy and reducing costs in laboratories.
- ▶ **Access** tools and resources on energy metering and performance tracking. Accelerator partners gain access to tools, analysis and resources that lay out potential solutions for measuring energy consumption, analyzing use patterns, and calculating energy performance improvement. With better measurement techniques, laboratory owners can gain insights into the performance of their buildings that will allow them to more confidently justify and install efficiency improvements.
- ▶ **Identify** new ways of saving energy. Accelerator partners will work with DOE experts and outside stakeholders to better understand and more easily implement operational practices that save energy.
- ▶ **Receive** national recognition. Get recognized by DOE for your leadership in reducing energy use and developing innovative approaches for others to follow. Raise the visibility of your energy efficiency efforts within your organization and the public.

Accelerator Partner Agrees to:

- ▶ **Establish** a 10-year energy efficiency target of at least 20%, across their portfolio of laboratory buildings. Identify and implement no- and low-cost savings measures at one laboratory to achieve a near-term target of at least 5% prior to the end of the 3-year Accelerator period. Provide DOE with details on the measures taken and savings achieved.
- ▶ **Develop** and share with DOE a comprehensive road map to achieving the 20% target that includes strategic energy management approaches, technological upgrades, capital investment plans, and operations and maintenance changes. Implement at least one capital investment project and/or establish a strategic energy management plan by the close of the Accelerator.
- ▶ **Collaborate** with partners and DOE to develop appropriate metering and energy performance measurement approaches. By the end of year one, develop a metering plan, baseline and accompanying metrics that measure whole building energy performance.
- ▶ **Participate** in peer exchanges and other forums to discuss code-related barriers and potential solutions.
- ▶ **Share** results and lessons learned with DOE and other Accelerator partners, including solutions to other sustainability challenges, such as water use reductions.

The U.S. Department of Energy Agrees to:

- ▶ **Provide** technical expertise and training.
- ▶ **Create and facilitate** networking and technical peer exchange opportunities to help partners share best practices and innovative solutions.
- ▶ **Develop** technical tools and other resources necessary to meet the goals of the Accelerator.
- ▶ **Recognize** partner's innovative solutions on the DOE Better Buildings website, national conferences, etc.