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Guest Editor Message

The Science of Scale-Up

One of the most rewarding aspects of working in BTUS is the breadth of research being conducted by colleagues literally just “down the hall." Building on our seminal R&D on building technologies and strategies over the last four decades, we’ve also been working hard to address the “science of scale up” – using scientific and technical approaches to address the urgent need to scale energy efficiency in the building sector. This month’s newsletter offers vignettes of our work on this front – including work on city-scale energy analysis with our new Urban Systems Group; the Scout tool which models national scale impacts of energy efficiency technologies and systems; and using ISO 50001 to systematize and institutionalize energy management practices.

It’s truly a delight to work on impactful research with my colleagues, industry partners, and sponsors.

Warm regards, Paul Mathew, Head, Whole Buildings Systems Department

Keeping Cool With Egyptian Blue

A color developed by Egyptians thousands of years ago has a modern-day application as well – the pigment can boost energy efficiency by cooling rooftops and walls, and could also enable solar generation of electricity via windows. The pigment’s fluorescence was found to be 10 times stronger than previously thought.

Read the full story:
newscenter.lbl.gov/2018/10/09/ancient-pigment-can-boost-energy-efficiency/

New App Models National Building Energy Use

scout
U.S. DEPARTMENT OF ENERGY

Looking around the typical home or office, many homeowners and employees will find a staggering amount of technology on display. Enter Scout, a software program developed by the U.S. Department of Energy Building Technologies Office (BTO) in partnership with Berkeley Lab and the National Renewable Energy

Laboratory (NREL).

Scout estimates the national impacts of emerging energy-efficient technologies and systems on building energy use and operating costs. With support from BTO, Scout is now available as a web-based application for sharing Scout's capabilities with the broader energy analysis community.

Read the full story:
buildings.lbl.gov/news/article/new-app-models-national-building

Berkeley Lab and BTUS Host International TechWomen

As part of Berkeley Lab's mission to bring science to the world, the Energy Technologies Area hosted three visiting scientists through the U.S. Department of State's Bureau of Educational and Cultural Affairs TechWomen program this past October. The goal is to empower, connect and support the next generation of women leaders in Science, Technology, Engineering & Math (STEM).

Read more:
buildings.lbl.gov/news/article/tech-women-berkeley-lab

Energy Costs and Mortgage Default Risk in Commercial Buildings

BTUS researchers, in collaboration with the University of California Berkeley's Haas School of Business, have shown that buildings with higher energy costs have higher mortgage default rates.

Building on these findings, the team is collaborating with lenders to highlight the impact of energy management practices on default risk. In addition, the team is developing a simple way to assess a building's energy risk during mortgage underwriting. The energy "Risk Score" would account for both the absolute level of energy usage and prices, as well as their volatility.

Read more here:
buildings.lbl.gov/cbs/energy-factors-commercial-mortgages

Analytics in Commercial Buildings: The Latest Trends

BTUS researchers recently presented energy-savings results from 73 commercial building owners and operators who are using Energy Management and Information Systems (EMIS) at their sites. In its second year of operation, the Smart Energy Analytics Campaign has gathered and analyzed data from over 400 million square feet of install space for efficiency insights and savings achieved by owners that are implementing EMIS, along with associated technology costs.

Link to year 2 results, Webinar Recording:
https://drive.google.com/file/d/1Bxt2QZPuez0ZtXqksQFYFvTTFZp5WkYs/view

Read "Energy Management and Information Systems Aid Efficiency" post at facilitiesnet:
www.facilitiesnet.com/buildingautomation/article/Energy-Management-and-Information-Systems-EMIS-Aid-Efficiency---17956

New and Improved: DOE 50001 Ready Navigator

Lawrence Berkeley National Laboratory is now hosting the DOE 50001 Ready Navigator, an online guide establishing an energy management system, with expanded content including the ability to support organizations with multiple facilities/sites through a central office management feature. The 50001 Ready Navigator is an online application that provides step-by-step guidance for implementing and maintaining an energy management system in conformance with the ISO 50001 Energy Management System Standard.

See the improved tool:
navigator.lbl.gov/

Awards

R&D 100 Awards

eProjectBuilder, an online data management tool for water/energy retrofits, recently received a 2018 R&D 100 award. eProject Builder is a secure, web-based tool developed with funding from the Department of Energy. It is the only nationwide system that standardizes the collection and tracking of information for energy/water retrofit projects implemented by energy service companies (ESCOs).

The $6 billion U.S. ESCO industry implements comprehensive projects that provide long-term cost, energy, and other resource savings in government, institutional, and private sector facilities. ePB enables facility owners and managers and their ESCOs to preserve, analyze, and track their energy project data, and to benchmark proposed projects against performance metrics across regions and market sectors.

Read more:
buildings.lbl.gov/news/article/rd-100-award-honors

Door & Window Magazine 2018 Green Awards

The BTUS Windows team was recently recognized with an Industry Partner Green Award from *Door & Window*. The magazine lauded the team's "multi-decade, collaborative efforts to develop more efficient products," pointing specifically to the Lab's new super window, which is estimated to be twice as insulating as 99 percent of currently available windows at a mainstream cost.

Read more:
mydigitalpublication.com/publication/

BTUS in the News...

- Utility Dive quoted Mary Ann Piette in a piece on utilities integrating strategies to pursue energy efficiency, demand response, and distributed resources.
- The Bulletin of Atomic Scientists and Mother Jones reported on a recent Lab project led by Evan Mills produced with the California Energy Commission to measure the significant energy consumption of video games.
- BBC Radio 4 produced a 28-minute piece on how to keep cities cool as summers get hotter; Ronnen Levinson is interviewed about cool roofs, starting around 23:00. MarketWatch also mentioned Lab research on how white roofs keep buildings cooler.
- Gulf Times quoted Levinson on paints that can keep buildings cooler.
- Paul Berdahl's work on Egyptian Blue, a reflective pigment, was widely covered by outlets including Newsweek, Engineering 360, and PV Magazine.

- Building Green quoted Charlie Curcija on the breakthroughs required for high-performance vacuum-insulated glazing for glass.

Building Technology & Urban Systems | Energy Technologies Area | Berkeley Lab

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See also: Department of Energy Building Technologies Office

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Lawrence Berkeley National Lab (Berkeley Lab) is located in the Berkeley Hills near UC Berkeley and conducts scientific research on behalf of the United States Department of Energy (DOE). It is managed and operated by the University of California (UC). The Laboratory overlooks the University of California, Berkeley.
Berkeley Lab addresses the world's most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab's scientific expertise has been recognized with 13 Nobel prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy's Office of Science. For more information, visit www.lbl.gov.
DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the United States, and is working to address some of the most pressing challenges of our time. For more information, see science.energy.gov.