



## BUILDING TECHNOLOGY & URBAN SYSTEMS ENERGY TECHNOLOGIES AREA



Vd. 1 | Issue 3 | March 29, 2018



### Lucid: A Fine Example of Industry Partnership

Welcome to the latest edition of our Building Technology & Urban Systems (BTUS) newsletter.

I thought I'd take this opportunity to highlight a successful industry partnership which was recently showcased on [energy.gov](http://energy.gov). It's a free tool to benchmark a building's energy use, and save money.

Those are the goals accomplished as the result of a partnership between Lucid Design Group of Oakland, CA, and Lawrence Berkeley National Laboratory (LBNL). The two were brought together by the Small Business Voucher (SBV) program, managed by the Office of Energy Efficiency & Renewable Energy (EERE).

The SBV program, administered by EERE's Technology-to-Market team, gives small businesses access to technical assistance from national labs. This helps companies overcome critical technology and commercialization challenges to bring the next generation of clean energy technologies to market.

Read all about it at this link: [energy.gov/eere/articles/lucid-and-lbnl-partnership-produces-free-tool-save-energy](http://energy.gov/eere/articles/lucid-and-lbnl-partnership-produces-free-tool-save-energy)

Enjoy reading the rest of our newsletter for all of the exciting research, programs and opportunities happening in Buildings research at Berkeley Lab.

Sincerely, Mary Ann Piette, Division Director, Building Technology & Urban Systems

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### Mentoring Women in Science, Technology, Engineering & Math at Berkeley Lab

Reshma Singh has taken on a lead role in the mentoring of tech women from the U.S. and throughout the world in STEM - Science, Technology, Engineering and Math.

"It is simply inspiring to mentor dynamic emerging women from across the globe, many of whom are overcoming huge economic and social hurdles. Being there once myself, it is particularly fulfilling to be a part of this movement to support a next



generation of women leaders in STEM, and help them blaze new paths. One of my mentees runs a unique STEM competition for girls in Zimbabwe, while another heads a cleantech company in Jordan and recently ran for national elections.”

Berkeley Lab hosted six TechWomen via an international program in 2017; three of those women were placed in ETA labs with Singh and Hanna Breunig of the Energy Analysis and Environmental Impacts Division. The women are early to mid-career STEM professionals, selected last year from

a pool of 3,500 applicants. Singh is continuing the trend, along with many other staff at Berkeley Lab, and will also be hosting a BHAVAN Fellow from India this year.

Find out more:

[www.techwomen.org/impact-story/aliya-janjua-and-reshma-singh](http://www.techwomen.org/impact-story/aliya-janjua-and-reshma-singh)

*BTUS Program Manager Reshma Singh focuses on energy data analytics, simulation, and IoT in buildings and cities. She is also author of the forthcoming report, “Transforming the State-Of-The-Art into Best Practice: A Guide for High-Performance Energy Efficient Buildings in India”.*



## New Site for FLEXLAB®; Introducing FLEXGRID

FLEXLAB, the world's most advanced energy-efficiency testbed recently launched a new website.

Learn about a new offering from the FLEXLAB team: FLEXGRID, a system that enables real-time comparisons between demand,

renewables, inverters and storage. FLEXGRID offers an unprecedented opportunity to research and develop technologies and controls that span both the supply and demand of the grid. With this highly instrumented and flexible infrastructure, separately metered and controllable inverters, batteries and building loads can be paired with innovative controls strategies to manage energy use and create value for utilities and customers.

Check out the new FLEXLAB website, and learn all about FLEXGRID: [flexlab.lbl.gov](http://flexlab.lbl.gov)



## BEST Center Annual Institute 2018

Berkeley Lab recently hosted a workshop where 43 faculty members from 32 colleges participated in

activities designed to generate ideas for enhancing post-secondary level programs in commercial Heating, Ventilating and Air Conditioning, energy management and building automation.



This was one day of a four-day annual Institute held by the Building Efficiency for a Sustainable Tomorrow Center (BEST) on January 4, 2018. The Institute, funded by the National Science Foundation and managed by Laney College in Oakland, CA, advances education for tomorrow's building technicians. Mary Ann Piette, BTUS Division Director and the project's lead, said that this is the fourth such event held at Berkeley Lab. Janie Page, program manager, organized the event, which combined lectures and hands on activities in support of the institute's theme, "Buildings as Information Systems".

Read more: [buildings.lbl.gov/news/article/best-center-annual-institute-2018](https://buildings.lbl.gov/news/article/best-center-annual-institute-2018)

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## Summit on Air Conditioning Research

Stakeholders in government, business, and academia recently met to identify solutions to Mexico's growing space cooling (air conditioning) energy demand. The "Summit on Space Cooling Research Needs and Opportunities in Mexico" was convened by the Berkeley Lab Mexico Energy Initiative and United States Agency for International Development, in partnership with Mexico.

Read more about the event outcomes in this newsletter:

[berkeley-lab-experts-participate-in-sustainable-construction-seminars-in-mexico-449947](https://berkeley-lab-experts-participate-in-sustainable-construction-seminars-in-mexico-449947).

Information about the Berkeley Lab's Mexico Energy Initiative can be found at [ies.lbl.gov/region/mexico-energy-initiative](https://ies.lbl.gov/region/mexico-energy-initiative)

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## Replacing Natural Gas to Help Decarbonize UC

Universities across the United States have set ambitious goals to shrink their carbon footprints, including the University of California, which launched its Carbon Neutrality Initiative in 2013, aiming for carbon neutrality by 2025.

Amid broad support for climate action within the UC system, a big question looms: how to actually hit that target?

A 27-member team comprised of researchers, facilities managers, sustainability officers and students across the UC campuses released a report that helps answer this important "how" question. They present a feasible strategy to achieve a measure that would be especially game changing: replacing natural gas with climate-friendlier options.

"Some decarbonization pathways are surprisingly economical," said the report's lead author Alan Meier, a senior scientist at Berkeley Lab.

Read more: [newscenter.lbl.gov/2018/02/27/strategies-replacing-natural-gas-help-decarbonize-university-california/](https://newscenter.lbl.gov/2018/02/27/strategies-replacing-natural-gas-help-decarbonize-university-california/)

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## Piette at Sidewalk Labs in NYC

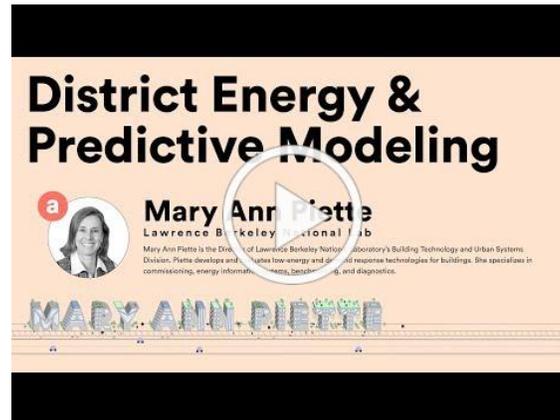
Buildings of the future will operate from models that look at several factors – outside temperature, the temperature desired inside, how many people are in the building and a number of other set points – to heat and cool buildings in the most energy-efficient manner possible. That was the crux of a December presentation by Mary Ann Piette, director of the Building Technology & Urban Systems Division. In addition, clusters of buildings will work together to take one building's excess heat or cooling and share it with another.

Piette made the presentation at Sidewalk Labs Idea Tour: Building the Energy Efficient Neighborhoods of

Tomorrow, held in New York City. She was one of five speakers exploring emerging technologies and design innovations that can lead to more sustainable cities.

More information about Sidewalk Labs Idea Tour and all presentations can be found at: [sidewalklabs.com/blog/building-the-energy-efficient-neighborhoods-of-tomorrow/](http://sidewalklabs.com/blog/building-the-energy-efficient-neighborhoods-of-tomorrow/)

Watch Mary Ann's talk, "District Energy & Predictive Modeling: Today & Tomorrow"



## Awards



### Award for Exceptional Societal Impact - Industrial Applications Team

The Department of Energy recently highlighted award-winning work being done in the Building Technology & Urban Systems Division (BTUS).

The Industrial Applications Team is the recipient of the Lab's prestigious 2017 Director's Award for Exceptional Societal Impact Achievement, in recognition of its contributions to the development and advancement of ISO

50001, the global standard for energy management business practices.

The team's accomplishments include leading research that has resulted directly in the development of the ISO 50001 Ready program introduced by the U.S. Department of Energy this year. More details about the ISO 50001 award can be found at: [energy.gov/eere/amo/articles/lawrence-berkeley-lab-team-receives-prestigious-award-iso-50001-research-and](http://energy.gov/eere/amo/articles/lawrence-berkeley-lab-team-receives-prestigious-award-iso-50001-research-and)

Other BTUS award winners:

- **Safety:** Ari Harding, Operations Manager, FLEXLAB:  
For his efforts to ensure that our workplace and research activities are safe, and for modeling exemplary behavior in promoting a culture of electrical safety throughout the Laboratory.
- **2017 Technology Transfer:** Retro-commissioning Sensor Suitcase Commercialization Team: Sam Fernandes (Program Manager), Jessica Granderson (BTUS Deputy for Research Programs), Guanjing Ling (Senior Scientific Engineering Associate), Robin Mitchell (Software Developer). "Berkeley Lab is pleased to recognize the Building Technology and Urban Systems Division's Retro-commissioning Sensor Suitcase Commercialization Team with the 2017 Director's Award for Exceptional Achievement in Technology Transfer."

For a complete listing of all 2107 LBL Director's Awards, please visit: [recognition.lbl.gov/laureates/](http://recognition.lbl.gov/laureates/)

"Living Lab"

## Research Recognized

A "Living Lab" model developed by Eleanor Lee, staff scientist at LBNL was recently selected to receive a Climate Leadership Award given by the Center for Climate and Energy Solutions to organizations working collaboratively.



The award, given to Goldman Sachs, was selected based on the "Living Lab" partnership between Goldman Sachs, Berkeley Lab and the Building Energy Exchange. Under research directed by Lee, Goldman Sachs reduced lighting energy use by nearly 80 percent in some areas via smart use of lighting and shading.

Find out more:

Energy Exchange: [be-exchange.org/](http://be-exchange.org/)

Center for Climate and Energy Solutions: [www.c2es.org/](http://www.c2es.org/)

News Article: [newscenter.lbl.gov/2017/07/10/shading-and-lighting-retrofits-slash-energy-use-in-new-york-living-lab-office-demonstration/facades.lbl.gov](http://newscenter.lbl.gov/2017/07/10/shading-and-lighting-retrofits-slash-energy-use-in-new-york-living-lab-office-demonstration/facades.lbl.gov)



### Gerald Robinson: 2017 Federal Energy and Water Management Award

Gerald Robinson recently received a 2017 Federal Energy and Water Management Award for his work as part of Federal Aggregated Solar Procurement Pilot (FASPP), a federal team that developed an innovative, multi-agency contract solution that saved the government millions of dollars.

Robinson worked with several agencies to conduct the first-ever aggregated procurement for on-site solar PV arrays. By pooling their buying power, the agencies made it easier and cheaper for vendors to respond to their solicitation, which led to a lower overall project cost. The coordinated effort created 93 U.S. jobs and saved the government an estimated \$13.8 million.

Out of the total number of sites in the contract, four achieved net zero; two sites incorporated battery storage; and four sites incorporated a new approach to EV chargers which were integrated with solar-shaded carports.

The effort inspired a parallel effort in Washington, D.C., called the Capitol Solar Challenge and a permanent, nationwide program called Affordable Power Infrastructure Partnerships.

Robinson is a program manager in the Building & Industrial Applications Department in BTUS Division.

Read more about the awards and winners at: [energy.gov/eere/articles/energy-department-announces-winners-2017-federal-energy-and-water-management-awards](http://energy.gov/eere/articles/energy-department-announces-winners-2017-federal-energy-and-water-management-awards)

## BTUS in the News...

- Alan Meier is quoted in an article in the [UCSB Current](#) on a new report supporting UCOP's Carbon Neutrality Initiative. (Feb. 27)
- Iain Walker is quoted in an article by [Professional Builder](#) on new ASTM standards for range hood pollutant removal developed at the Lab. (Jan. 4)
- European Council for an Energy Efficient Economy publishes column by Alan Meier on Appliance Standards. <https://www.eceee.org/all-news/columns/when-appliances-use-no-energy-and-self-disassemble-when-they-retire/> (Feb. 27)
- BTUS works with UC Berkeley on this project, mentioned in greenbuildermedia: [www.greenbuildermedia.com/news/cities-of-the-future-ecoblock-project-to-make-oakland-neighborhoods-emission-free](http://www.greenbuildermedia.com/news/cities-of-the-future-ecoblock-project-to-make-oakland-neighborhoods-emission-free) (Mar. 13)

**Mary Ann Piette**, Division Director, Building Technology & Urban Systems

**Jessica Granderson**, Deputy for Research Programs

**Christopher Payne**, Deputy for Operations

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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](http://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](http://science.energy.gov).

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