

Monday, August 18, 2014

ACEEE Summer Study at Asilomar, California

Building on Our Success: Turning Bold Goals into Big Savings



Jennifer Amann
Buildings Program
Director, ACEEE

The efficiency community has many successes to celebrate. The programs and policies that we have championed have resulted in more efficient homes and commercial buildings. According to the US DOE Energy Information Administration (EIA), the average U.S. household used 20% less energy in 2009 than in 1980 and in the commercial sector, energy use intensity dropped by the same amount between 1979 and 2003—the long-awaited

Commercial Buildings Energy Consumption Survey (CBECS) data expected in Spring 2015 will give us better insight into trends over the past decade. Recent successes will bolster these trends. As we celebrate these successes, how can we ensure continued success towards increasingly aggressive energy and climate goals?

One widely-touted goal calls for a shift to zero net energy new construction by 2030 (and in California, the state efficiency strategy calls for zero-net energy homes by 2020). While we've seen strong progress in recent building codes, we need creative new approaches to code design and implementation to close the gap between current practice and a future zero-net energy baseline. In the near term, complementary policies, such as building energy rating and disclosure, and programs will be needed to pave the way for stronger codes. These issues are the subject of a forthcoming ACEEE report scheduled for release in September and we anticipate that this will continue to be a big part of our agenda moving forward.

With the support of the efficiency community, the Obama administration is 70% of the way towards meeting its goal of cutting three billion metric tons of CO₂ emissions by 2030 through appliance standards completed during the President's two terms. Substantial technical potential for further energy efficiency improvements and energy savings remain. Can the existing approach to appliance standards provide the next three billion tons of CO₂ or will the current standards regime need

Continued on back page

Sunday's Plenary: The Future of High Energy Savings



Sila Kiliccote (pronounced kill-a-CHOtay) and Patrick Hughes, co-chairs of the 18th biennial Summer Study, welcomed the gathered attendees at Merrill Hall last night for the opening plenary. The theme of this year's conference is The Next Generation: Reaching for High Energy Savings, and Sila asked the three plenary speakers to help us see the future of energy efficiency 10 years from now.

Tom Eckman, Director of the Power Division of the Northwest Power and Conservation Council, helped us to "sort through fads, trends and fundamentals." Tom started by reminding us of how much has changed since 1992. Mark Zuckerberg was then 8 years old, and an 18 watt CFL cost \$18 (\$30 in 2014 \$). Back then he forecast that "utilities would still be driving energy efficiency, and future efficiency efforts would focus on market transformation," so he's shown himself to be a good predictor. One of his predictions for tonight was: behavior-based programs are the future (as well as a Summer Study panel).

To help predict the future, Tom showed us his version of Ohm's power triangle. Eckman's efficiency triangle uses formulas based on Immoral Waste, Illegal Practices, and Unprofitable Programs. (You'll have to check with him for the actual mathematical relationships.) Suffice it to say that Immoral waste will help identify and change "bad" behavior. The messages to consumers won't change, but our ability to deliver them will, thanks to Nest and Opower.

Continued on page 2



Tom Eckman, Mick Schwedler, and Falk Meissner

Sunday's Plenary, cont.

Illegal practices will be outlawed by more stringent building codes and standards—30 new federal efficiency standards that will take effect this decade!

Harking back to “The Graduate,” Tom assured us that “controls are the next plastics.” Embedded sensors and short interval metering will improve the accuracy and lower the costs of verification and impact evaluation. The Internet of Things will allow for leveraging customer usage and needs.

Low cost sensors will permit development of evaluation technologies that use streaming data for real-time feedback on both conservation measures and contractor performance. This will permit whole building system performance measurement, facilitate payment for performance, and reduce regulatory lag and risk.

On the future of unprofitable programs, Tom reminded us that efficiency will still need to be more affordable than the alternative—“if the price is right, let’s make a deal!”. Stock data will tell us what’s out there to retrofit. But we will need to know “flow” data on sales and shipments, to assess current market conditions in order to design effective programs.

In summary Tom assured us that past investments in energy efficiency are now returning interest. Technologies and practices that did not exist in 1992, have now made energy efficiency possible. We changed social norms and helped to “create an energy efficiency industry whose business model relies on selling efficiency, and have made energy efficiency profitable.”

Mick Schwedler, Manager of Applications Engineering at The Trane Co., reminded us that in 2024, we’ll have six years left to reach 2030 goals for improving HVAC. He reminded us that momentum equals mass x velocity: in order to change momentum, there has to be a force. “There are innovators, fast followers, and then there’s the HVAC industry.” Things in the industry are moving slowly, but in a positive direction.

Mick echoed Tom’s sense of changing social morals, and environmental stewardship. Companies are designing energy efficient buildings, with dashboards on energy use in the lobby, because “it’s the right thing to do.”

Mick predicted that in 10 years we’ll be using big data to figure out what’s going on in our buildings, recognize patterns, and find new ways to squeeze more efficiency out of company operations. In the meantime, however, he expects that while smaller HVAC systems won’t waste as much energy, a lot of buildings will have minimally compliant equipment, and will operate worse than designed.

Falk Meissner, VP of Strategy at Philips Lumileds, started his talk on trends in LED lighting and controls, with a beautiful replay of a NASA flyover our planet at night, showing light pollution, the light we don’t need. Falk outlined three macro trends: more light, energy efficient light, and intelligent digital light.

As light has become more affordable, and as more people move to cities (70% of global population by 2050), we use more light. Right now 20% of total world power is used by lighting.

Even with new LED luminaires taking over the lighting market and LED lights creating 130-200 lumens/watt, it’s getting harder to create new efficiencies. The trend of LED plus digitization will bring new value propositions and business models, building on new capabilities and extended ecosystems of big data clouds, consumer electronics, connectivity devices, and building management.

Connected lighting will impact all segments, be more human centric, offer full color control, mimic circadian cycles, allow for scene creation, and use of wireless lighting systems like ZigBee. Light will be offered as a service charge, for the lumens, not for the luminaires.

We ended the plenary with a vision of the future that is moving away from incentivizing energy efficient widgets to developing and implementing energy efficient building codes and standards, which will improve buildings’ actual performance using real time data.

ANNOUNCEMENTS

Got Something to Report?

If you have any announcements, updates, or information related to events here at ACEEE, drop them off at the **Surf and Sand** room to the attention of *The Grapevine* Staff in “Report Basket” or email them by 3:30 pm to twhite@homeenergy.org.

INFORMAL SESSIONS

2-4 pm

EIA Consumption Survey Updates: CBECS Results and New Directions for RECS

Tom Leckey, U.S. EIA

Room: Chapel

Intelligent Efficiency: Information Communication Technology and the Vast Opportunity for Energy Savings

Ethan Rogers, ACEEE

Room: Fred Farr Forum

Drought Mitigation: What's DSM Got To Do With It?

Mark Martinez, SCE

Room: Heather

Discussion on City Energy Project: Advancing Efficiency in Existing Buildings across Ten Cities

Kimi Narita, NRDC

Room: Kiln

Lessons Learned from Field Observations of Commercial Sector HVAC Technician Behavior and Laboratory Testing

Robert Mowris, Robert Mowris & Associates Inc.

Room: Scripps

ET Best Practices and Collaboration/ Partnership Opportunities

Edwin Hornquist, SCE

Room: Evergreen

Heat Pump Water Heaters: Ready for Prime Time!

Anthony Fryer, ASAP

Room: Triton

Accelerating Efficiency through National Technology Campaigns

Michael Deru, NREL

Room: Oak Shelter

Real Time Energy Management – Overview of Current Utility Programs and Challenges of Program Design

Philip Henderson, NRDC

Room: Acacia

My EUI is what? Why Can't I Meet My Energy Target?

Steve Selkowitz, LBNL

Room: Toyon

Maximizing Energy Efficiency Opportunity in Multifamily Housing (Show and Tell)

Janice Boman, ECOVA and
Lauren Ross, ACEEE

Room: Marlin

Pursuing Zero Net Energy Like We Mean It: A Tactical Plan for Achieving ZNE Homes by 2020

Pat Eilert, PG&E

Room: Dolphin

Beyond Direct Install – Adventures in the SMB Market

Jeremy Litow, PECl

Room: Sanderling

COMNET, Improving the Consistency, Reliability, and Credibility of Building Energy Models

Charles Eley, Eley Consulting

Room: Afterglow Living Room

Fuel-Switching to Electric Heat: The Next Big Residential Efficiency Measure?

Chris Neme, Energy Futures Group

Room: Embers Living Room

EM&V Under the EPA 111(d) Rule

Steve Nadel, ACEEE

Room: Nautilus

4-6 pm

Outdoor Pollutants to Indoor Spaces: Exploring Health and Energy Implications for Homes and Schools

Linda Wigington

Room: Hearth

Sustainable Energy for All Building Efficiency Accelerator Briefing

Lauren Gritzke, UN Foundation

Room: Chapel

The Move to Defund Efficiency Programs

Jeff Perkins, ERS

Room: Fred Farr Forum

Successful Practices for Combined Natural Gas and Electric Energy Efficiency Programs

Marty Kushler, ACEEE

Room: Heather

Applying Behavioral Strategies to Multifamily Buildings

Scott Kessler, TRC

Room: Kiln

Energy Efficiency and EPA's Section 111(d) Carbon Emissions Rule: Ideas for Improving EPA's Proposal

Howard Geller, SWEEP

Room: Nautilus

Managing Trade Allies Effectively to Support Energy Efficiency Programs

Laura Giannini, TRC

Room: Scripps

Elevator Energy and Policy Opportunities: Raising Consciousness for Action

Harvey Sachs, ACEEE

Room: Evergreen

High-Rise Apartment Electricity Consumption Discussion

Tracy Xu, BC Hydro

Room: Triton

The Next Frontier: Challenges with Evaluating SEM Programs

Jennifer Barnes, TRC

Room: Oak Shelter

Working Together: How Utility Collaboration Can Amplify and Accelerate Emerging Technology Initiatives

My Ton, CLASP

Room: Acacia

Future Buildings A Century from Today

Nora Wang, PNNL

Room: Toyon

The Road to Hell is Paved with Good (Customer Engagement) Intentions

Phil Welker, PECl

Room: Marlin

Contractually Requiring Energy Performance in New Construction: How to Ask For and Expect High Performance

Shanti Pless, NREL

Room: Dolphin

Introducing...a New Zero Net Energy Tool!

Derek Jones, PG&E

Room: Sanderling

Chiller Plant Optimization – Not a Black Box – Should it Be Its Own Incentive Category?

Mark Gallagher, Armstrong

Fluid Technology

Room: Afterglow Living Room

On The Data Frontier: Utility/Academic Collaboration on Learning from Smart Meter Data

Sam Borgeson, Stanford University

Room: Embers Living Room

Monday Night's Plenary Speakers — Ron Binz & Kimberly Harris



Ron Binz, Public Policy Consulting Denver, Colorado

“Energy Utilities in a Distributed, Competitive, Low-Carbon World”

In June 2013, President Obama nominated Ron to become Chairman of the Federal Energy Regulatory Commission (FERC). His nomination was vigorously opposed by the coal industry and conservative political groups, who argued that he would be too friendly to low-carbon resources like

renewable energy and energy efficiency. Following a confirmation hearing before a committee of the U.S. Senate, Ron asked the President to withdraw his name from further consideration.

Today, Ron is a principal at Public Policy Consulting, specializing in energy economics and policy. His recent clients have included Tendril Networks, Steffes Corporation, Posigen, Dow Solar, Lawrence Berkeley National Laboratory, Ceres, the Energy Regulatory Commission of Mexico, the U.S. Department of Energy, Environmental Defense Fund, the Future of Privacy Forum and American Efficient, among others.



Kimberly Harris, CEO, Puget Sound Energy

“The Utility of the Future: Being Our Customers’ Energy Partner of Choice”

Kimberly J. Harris is President and CEO of Puget-Sound Energy. She is focused on providing PSE customers with safe,

dependable, and efficient energy service; and to helping customers learn more about the safe use of natural gas and electricity. She is

deploying new technologies that offer customers more choices for self-service and new ways to communicate with the company during storms and other events, as well as systems for more rapid utility response to power outages. In addition Harris is keenly aware that customers in today’s economy are concerned about managing their energy costs and on having more sources of clean renewable energy.

Building on Our Success, cont.


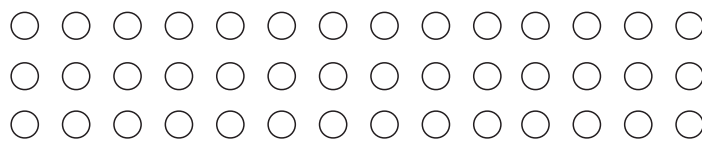
to evolve to deliver further savings from greater appliance and equipment efficiency? This question is the topic of a new research project launched by ACEEE and the Appliance Standards Awareness Project (ASAP).

We’d love your input and ideas for ways we can work together or areas where ACEEE can have the most impact. Please look for me or others from the ACEEE Buildings team—Harvey Sachs, Harry Misuriello, Sameer Kwatra, and Rachel Cluett—and let us know what’s on your mind.

Editor’s Note: Efficiency proponents have achieved sustained and accelerating improvements in appliance, equipment and lighting standards since the mid-1970s, with ASAP participating since its founding in 1999. This progress has been marked by multi-forum advocacy, shifting from federal rulemakings, to Congressional advocacy, to the courts, to the states and back again. —From ASAP’s website: <http://www.appliance-standards.org>

Thanks in advance for submitting Your ACEEE Conference Evaluation. We consider your feedback when planning for the next Summer Study.

- There are three ways to complete it:
 - In your Registration Packet. Drop the paper evaluations in the designated box in Surf and Sand.
- On the web: <https://www.surveymonkey.com/s/aceeess14>
- In the ACEEE Summer Study App: Click on the "Evaluation Survey" icon on the second page on icons.

is published by **Home Energy Magazine**

www.homeenergy.org

Tom White, Managing Editor

Steve Greenberg, Chris Stratton, Leslie Jackson, Reporters

Leslie Jackson, Production

THE GRAPEVINE DAILY NEWSLETTER
The Grapevine is published daily to highlight upcoming presentations and events, review events of the previous day, and list important announcements. It will be distributed each morning at breakfast in the **Crocker Dining Hall**, and in the **Surf and Sand** room. We welcome suggestions for the next day’s newsletter.