Intelligent Efficiency Conference

Mainstreaming Intelligent Efficiency

Hyatt Regency San Francisco • San Francisco, CA • November 16-18, 2014

CONFERENCE PROGRAM

Sunday, November 16

12:00 pm to 7:00 pm	**REGISTRATION OPEN**	*Market Street Foyer*
5:00 pm to 7:00 pm	**OPENING RECEPTION**	*Market Street Foyer*

Monday, November 17

7:00 am to 7:30 pm	**REGISTRATION OPEN**	*Market Street Foyer*
7:30 am to 8:30 am	**CONTINENTAL BREAKFAST**	*Grand A*
8:30 am to 9:00 am	**WELCOME**	*Grand BC*

Speakers:
Steve Nadel, *American Council for an Energy-Efficient Economy*
Helen Burt, *Pacific Gas & Electric*
Ethan Rogers, *American Council for an Energy-Efficient* Economy

9:00 am to 10:00 am	**KEYNOTE**	*Grand BC*

Speaker: **Ben Bixby,** *Nest Labs*

10:00 am to 10:30 am	**AM BREAK**	*Grand Ballroom Foyer*

10:30 am to 12:00 pm **PLENARY SESSION** *Grand BC*

Intelligent Efficiency: The Big Picture

Session Moderator: **R. Neal Elliott**, *American Council for an Energy-Efficient Economy*

Panelists: **Michael Sachse**, *Opower*
Scott Bernstein, *Center for Neighborhood Technology*
Clay Nesler, *Johnson Controls*
Gene Rodrigues, *ICF International*
Rona Newmark, *EMC Corporation*

Description: Over the past six years ACEEE has worked with representatives from the information and communications and energy efficiency communities to define the concept of Intelligent Efficiency. Intelligent efficiency has emerged as a result of technology developments that have enabled system-level efficiency opportunities that were not possible just a few years ago. We have identified three manifestations of intelligent efficiency: people-centered, technology-centered and service-oriented. We see examples of all three manifestations in all sectors of the economy. This panel will discuss the technology and market changes that have made intelligent efficiency possible and explore how far intelligent efficiency can take us.

12:00 pm to 1:30 pm **LUNCH** *Grand A*

Speaker: **Brewster McCraken**, *Pecan Street Research Institute*

1:30 pm to 3:00 pm **CONCURRENT SESSIONS**

Session 1A *Grand B*

Big Data & Intelligent Efficiency

Session Moderator: **Kathrin Winkler**, *EMC*

Panelists: **Jim Merriam**, *Efficiency Vermont*
Sam Hamilton, *Johnson Controls*
Dian Grueneich, *Stanford University*
Jamison Shaver, *GE Software*

Description: An examination of how Big Data will change energy management in the next generation grid and for energy users large and small. The panel will examine implications of the dramatic expansion of sensor deployment in the grid and in grid-connected devices, and of the use of Big Data analytics to manage increasingly dynamic interactions between them. We will ask whether Big Data is an incremental or transformative change in how energy is delivered and consumed, and consider both the new opportunities and emerging challenges that it will bring.

Session 1B *Grand C*

Intelligent Building Technology & Energy Efficiency for Affordable Housing

Session Moderator: **Christopher Lloyd**, *Verizon Office of Global Corporate Citizenship*

Panelists: **Suzanne Russo**, *Pecan Street Research Institute*
Thomas Lee, *Enterprise Community Partners*
James Lewis*, Heartland Alliance Housing*
Matt Smith, *San Diego Gas & Electric*

Description: This session will feature discussants from the community development, real estate, foundation, utility, and research communities involved in energy efficiency for affordable housing. Topics include cost-effective solutions to integrate emerging technologies with traditional approaches to energy efficiency services in underserved communities; examples of intelligent building technologies that did and did not work when deployed at scale; how the digital divide in low-income and senior communities impacts the ability of these residents to participate in utility demand management programs and to take advantage of free or low-cost tools to reduce their energy bills; smart home technologies that help seniors save money on their energy bills, provide health monitoring services, and improve quality of life; how to select the best suite of technologies and energy efficiency services for different projects; the role of utilities in providing energy management services.

Session 1C *Sea Cliff B*

Leveraging Intelligent Efficiency through Local Policy Drivers

Session Moderator: **Marzia Zafar**, *California Public Utilities Commission*

Panelists: **Joe Phillips**, *IBM*
Barry Hooper, *San Francisco Department of the Environment*
Joseph Oldham, *California Local Government Commission*

Description: This session will address policies local governments need to enable the implementation of intelligent efficiency solutions in cities. Topics include understanding city motivations, procurement practices, leveraging local entrepreneurship to put city data to public use, and peer learning networks and commitments among cities.

Session 1D *Sea Cliff C*

Data Driven Approaches to Optimizing Building Energy Performance

Session Moderator: **Mohsen A. Jafari**, *Rutgers University*

Panelists: **Jessica Granderson**, *Lawrence Berkeley National Laboratory*
Erin Hult, *Lawrence Berkeley National Laboratory*
Andrew Stryker, *DNV GL*
Claude Godin, *DNV GL*

Description: From remote energy audits to ongoing commissioning, recent times have seen a multitude of software solutions claiming to realize cost-effective operational savings. How effective are these? Can they help unlock deeper savings or are they just skimming the surface?

Session 1E *Sea Cliff D*

Automakers, Utilities and the Grid: How a New Communication Platform Can Maximize Efficiency

Session Moderator: **Jessica Harrison**, *DNV GL*

Panelists: **Karen Glitman**, *Vermont Energy Investment Corporation*
Dan Bowermaster, *Electric Power Research Institute*
Sebastian Kaluza, *BMW*

Description: Electric utilities continue to improve the carbon footprint of their industry, but they are also are well positioned to support efficiency in another industry vertical, namely transportation. With adequate regulatory support, utilities could prove to be important to supporting EV adoption and transforming the automobile market. This session will explore how communication among EVs, people, and the grid can maximize energy savings associated with EVs, and the role of utilities in supporting this outcome.

3:00 pm to 3:30 pm **PM BREAK** *Grand Ballroom Foyer and Sea Cliff Foyer*

3:30 pm to 5:00 pm **CONCURRENT SESSIONS**

Session 2A *Grand B*

Intelligent Efficiency 101

Session Moderator: **Jeffrey Perkins,** *Energy Resource Solutions*

Panelists: **Jud Virden**, *Pacific Northwest National Laboratory*
Ammi Amarnath, *Electric Power Research Institute*
David Isaacs, *Semiconductor Industry Association*

Description: This session will feature presentations and a panel discussion on the major components of intelligent efficiency (Big Data, data analytics, Internet of Things, and "smart" things, ubiquitous internet). It is intended to be an introductory session for those not familiar with Intelligent Efficiency and also an opportunity to discuss definitions and overarching opportunities and challenges.

Session 2B *Grand C*

Promise and Potential of Integrated Buildings

Session Moderator: **Clay Nesler**, *Johnson Controls*

Panelists: **Tushar Dave***, Enlighted, Inc.*
Andrea Curry*, Shift Energy*
Joe Stagner, *Stanford University*
Leo Carrillo, *Pacific Gas & Electric*

Description: With a host of new technologies including sensors, controls, smart apps and smart equipment there is the potential to transform buildings into connected, responsive and adaptive intelligent systems. Based on real world examples, this session should explore what is the opportunity (and cost) of energy savings from such buildings and how can we get there sooner.

Session 2C *Sea Cliff B*

City Scale Energy Management

Session Moderator: **Paul Hamilton**, *Schneider Electric*

Panelists: **Rose Shaver**, *Schneider Electric*
Dave Goddard*, Cisco Systems*
Bill Mitchell*, Microsoft*

Description: Rapid advances in technology, connectivity, and data availability are changing the landscape and opportunities for city scale energy management. What tools and systems will be most impactful in the future? What benefits can these systems provide to utilities, customers and local governments? What should we expect from the next generation of this technology?

Session 2D *Sea Cliff C*

Finance - How Intelligent Efficiency Will Facilitate More Financing of Energy Efficiency

Session Moderator: **Casey Bell**, *American Council for an Energy-Efficient Economy*

Panelists: **Mike Gordon***, Joule Assets*
Patrick O'Neill, *NorthWrite*
Richard Jones, *Hartford Steam Boiler Inspection and Insurance Co.*

Description: This session will explore how the superior data gathering and reporting features of Intelligent Efficiency will facilitate easier and cheaper assessment of financial risk and thereby increase the volume of financing of energy efficiency.

Session 2E *Sea Cliff D*

Personal Mobility Options

Session Moderator: **Shruti Vaidyanathan**, *American Council for an Energy-Efficient Economy*

Panelists: **Anthony Shaw**, *ITS America*
Sharon Feigon, *Shared-Use Mobility Center*
Beaudry Kock, *RideScout*

Description: Use of information and communications technology in a passenger transportation system that improves access to destinations and activities while reducing energy consumption. Topics might include the use of mobile computing to improve public transit and car- and bike sharing services, and the integration of autonomous cars and electric cars into the urban environment.

5:30 pm to 7:30 pm **ALLY RECEPTION** *Hospitality Room*
(*This reception is for current ACEEE Ally members by invitation only.)*

6:00 pm to 8:00 pm **RECEPTION** *Atrium*

Tuesday, November 18

7:00 am to 5:00 pm **REGISTRATION OPEN** *Market Street Foyer*

7:30 am to 8:30 am **CONTINENTAL BREAKFAST** *Grand A*

8:30 am to 10:00 am **PLENARY SESSION** *Grand BC*

National Policies to Developing Broader Adoption of Intelligent Efficiency

Session Moderator: **Chris Hankin**, *Digital Energy and Sustainability Solutions Campaign*

Panelists: **Stephen Harper**, *Intel*
Andrew McAllister, *California Energy Commission*
Abigail Daken, *U.S. Environmental Protection Agency, ENERGY STAR ® program*
R. Neal Elliott, *American Council for an Energy-Efficient Economy*
Carla Frisch, *U.S. Department of Energy*

Description: Various market failures and barriers exist that have impeded the proliferation of these technologies to the degree warranted by the benefits they can deliver. This panel will explore what tools major governments have at their disposal to help deliver on the promise of intelligent efficiency, for instance, by leading by example, improving infrastructure, removing regulatory barriers, creating new or updated incentives (to include those impacting utilities), or causing relevant data to be unleashed.

10:00 am to 10:30 am **AM BREAK** *Grand Ballroom Foyer*

10:30 am to 12:00 pm CONCURRENT SESSIONS

Session 3A *Grand B*

City Scale Analytics

Session Moderator: **Harvey Michaels**, *Massachusetts Institute of Technology*

Panelists: **Martha Amram,** *Wattzon*
Caroline Keicher, *Institute for Market Transformation*
Kat Donnelly, *Empower Efficiency*

Description: Recent innovations posit that community scale energy analytics, collective intelligence and goal-setting, and social networks are not only helpful but necessary to achieving all of the efficiency we need to preserve our climate. This session will explore why and how cities/communities have, or may, use big-data driven tools.

Session 3B *Grand C*

Residential Energy Management Systems

Session Moderator: **Kara Saul-Rinaldi**, *Home Performance Coalition*

Panelists: **Matthew Plante***, EcoFactor*
Scott McGaraghan*, Nest Labs*
Kevin Hamilton, *Opower*

Description: Can home energy management move beyond "smart" thermostats to become simple, intuitive, and real energy saving devices. This panel will engage technology companies and experts in a dialogue about the benefits of HEMs technology in increasing home energy performance, enhancing EM&V, uncover valuable energy data, and opening up a key gateway to new funding for residential energy efficiency improvements. Learn about the findings from a recently-released report from the National Home Performance Council and find out how the current state of the smart grid and the smart home can help achieve the true potential of home energy management.

Session 3C *Sea Cliff B*

Community Resilience & Smart Infrastructure

Session Moderator: **Vicki Arroyo**, *Georgetown Climate Center*

Panelists: **Brent Dorsey***, Entergy Corporation*
Dick Bratcher, *DNV GL*
Abigail Hopper, *State of Maryland*

Description: State and local governments are increasingly interested in prioritizing resilient investments: those that can withstand the greater frequency and intensity of weather events due to climate change, as well as other risks. How can intelligent efficiency enable smarter investments and help to proactively create more resilient infrastructure and communities without significantly increasing utility bills or taxes?

Session 3D *Sea Cliff C*

Interoperability: Barriers and Opportunities to Create Common Communication Protocols and Standards

Session Moderator: **Bruce Nordman**, *Lawrence Berkeley National Laboratory*

Panelists: **Stephen Palm**, *Broadcom*
Chris Calwell*, Consultant*

Description: Successful realization of the power that information technology can bring to building energy efficiency will require devices and systems to be able to communicate with each other and share information in common formats. This session will feature presenters the public and private sectors engaged in the establishment of open standards and common protocols so as to enable a true plug-n-play architectures. Presenters from public and private organizations involved associated initiatives.

Session 3E *Sea Cliff D*

Smart Manufacturing: Business Models and Marketplaces

Session Moderator: **Denise Swink**, *Smart Manufacturing Leadership Coalition*

Panelists: **Jim Davis,** *Smart Manufacturing Leadership Coalition*
Dominic O'Sullivan*, University of Cork, Ireland*
Marek Samotyj, *Electric Power Research Institute*
Enrique Herrera, *OSIsoft*

Description: Presenters from SMLC, government and industry will discuss today's gaps and challenges and the need for an open architecture Smart Manufacturing (SM) Platform and Marketplace. The session discusses the critical need to move forward collaboratively in the topical areas below to establish such an open source architecture platform that incentivizes a variety of stakeholders to participate and contribute innovation, thereby increasing intelligent efficiency in manufacturing.

12:00 pm to 1:30 pm **LUNCH** *Grand A*

The Energy Gang

Session Moderator: **Stephen Lacey**, *Greentech Media*

Panelists: **Jigar Shah**, *Jigar Shah Consulting*
Katherine Hamilton, *38 North Solutions*
Ben Bixby, *Nest Labs*
Kathrin Winkler, *EMC Corporation*

1:30 pm to 3:00 pm **CONCURRENT SESSIONS**

Session 4A *Grand B*

IT Security and Privacy and Intelligent Efficiency

Session Moderator: **Alan Rose**, *Intel Americas*

Panelists: **Jane Peters**, *Research into Action, Inc.*
Geoffrey Cooper, *McAfee*
Cameron Brooks, *e9 Energy Insight*
Lila Bailey, *Law Office of Lila Bailey*

Description: There is much concern over security and privacy of data and addressing these concerns is a requirement if intelligent efficiency is to gain broad acceptance. This session will feature presenters will discuss the challenges and likely solutions to create security at all levels within networks.

Session 4B *Grand C*

Strengthening Whole Building Programs

Session Moderator: **Dan Ohlendorf**, *Pacific Gas & Electric*

Panelists: **Tracy Narel***, U.S. Environmental Protection Agency, ENERGY STAR® program*
Leo Carrillo*, Pacific Gas & Electric*
Badri Raghavan*, FirstFuel Software*
Dian Grueneich*, Stanford University*
Rob Jenks, *C3*

Description: New advances in data analytics are rapidly changing the scope and viability of Whole Building approaches to energy efficiency programs. In the era of Big Data, the energy efficiency industry may no longer need to be exclusively reliant on traditional, engineering-based methods to value energy savings. The increasing availability of different types of high quality, high resolution building data, including weather and utility interval meter data, means that statistical approaches to savings valuation can deliver results that meet or exceed those of established approaches at a fraction of the cost. This will enable a new line of performance-based program offerings that unlocks "hard to reach" energy savings in existing commercial buildings while still meeting stringent quality requirements.

Session 4C *Sea Cliff B*

Community-based Program Design

Session Moderator**:** **Jennifer Edwards**, *Center for Energy and Environment*

Panelists: **Logan Soya***, Acquicore*
Mark Brown, *QuadROI*
Anne Evens*, Elevate Energy/My HomeEQ (invited)*

Description: How can cities use emerging energy data to develop, deploy and track energy efficiency programs for greater impact? This session will discuss use cases on the cutting edge of community-based intelligent efficiency—including remote analytics, streamlined district-scale program delivery, engagement of facilities staff, public-engagement platforms, and competitions.

Session 4D *Sea Cliff C*

Energy-Water Nexus

Session Moderator: **Scott Bryan**, *Imagine H2O*

Panelists: **Rowena Patawaran**, *Johnson Controls*
Justin Rundle, *Honeywell*
McGee Young, *Meter Hero*

Description: Water and energy are critical, mutually dependent resources. Integrated data-driven strategies for intelligent operations can allow cities and utilities to optimize their combined water-energy efficiency. Rowena Patawaran will provide an overview of control technologies in buildings, at water/waste water utilities, and at electric utilities. Justin Rundle will provide an in depth case study on control systems in a water distribution system. McGee Young will discuss how end user energy and water consumption data is used real time via a social media approach to facilitate demand side management. The Panel will then host a discussion with the audience about additional case studies and the future trends in the energy/water space.

Session 4E *Sea Cliff D*

Smart Freight

Session Moderator: **Therese Langer**, *American Council for an Energy-Efficient Economy*

Panelists: **Phil Kaminsky***, University of California- Berkeley*
Pete Routsolias, *Menlo Logistics*

Description: Information and communications technologies (ICT) can reduce the amount of fuel consumed in goods movement by helping shippers and carriers to operate vehicles more efficiently, make better use of the freight transport network, and reduce miles traveled. Topics for this session may include e.g.: applications of vehicle-to-vehicle communication to reduce commercial fuel consumption; use of ICT to expand intermodal freight options; and growth of collaborative distribution.

3:00 pm to 3:30 pm **PM BREAK** *Grand Ballroom Foyer and Sea Cliff Foyer*

3:00 pm to 4:30 pm **CONCURRENT SESSIONS**

Session 5A *Grand B*

Measurement & Evaluation 2.0

Session Moderator: **Ethan Goldman**, *Vermont Energy Investment Corporation*

Panelists: **Charlie Ellis**, *EnergySavvy*
Eric Masanet, *Northwestern University*
Rafael Friedmann, *Pacific Gas & Electric*

Description: Measuring efficiency with connected intelligent devices will facilitate M&V tools for next-generation measures and programs. The site-specific variations in savings estimates for Intelligent Efficiency measures require new mass-customized calculation approaches which take advantage of the continuous stream of data from connected devices. M&V 2.0 will provide utilities and efficiency programs the ability to "measure-as-you-go" by using the real-time data from smart meters, building and production management systems, and external sources to determine net savings under any conditions at any time. This session will bring together thought leaders in M&V 2.0 to discuss the latest tools and the results of demonstration projects.

Session 5B *Grand C*

Marketing - Selling Intelligent Efficiency

Session Moderator: **Logan Soya**, *Acquicore*

Panelists: **Sam Brooks,** *ClearRock*
Yann Palmore, *Pristine Environments*

Description: Market acceptance and adoption of IE technologies and practices will require consumers in all sectors to understand its features and benefits. This session will feature presentations and a panel discussion on how to convey to end users in different sectors (commercial, industrial, public, etc.) the value to them of IE. This session will highlight how efficiency intelligence can benefit the market and energy efficiency in general. Speakers will also talk about the barriers to adoption and explore ways to overcome them.

Session 5C *Sea Cliff B*

International Applications and Opportunities for Intelligent Efficiency

Session Moderator: **John Jimison**, *Energy Futures Coalition*

Panelists: **Skip Laitner,** *American Council for an Energy-Efficient Economy*
Matt Golden, *Recurve Inc.*
Catherine Diblle, *Dell Inc.*

Description: The focus of this panel will be on the overlap of smart-grid and other monitoring, control, and analysis technologies with physical energy-efficiency methods and practices, looking at lessons and examples outside the US. Panelists will discuss the use of intelligent efficiency in Europe and Asia and how the opportunities, practices, and achievements in those areas are likely to differ from those in the US.

Session 5D *Sea Cliff C*

Strategies and Technologies for Systematically Managing Plug-Loads

Session Moderator: **Sameer Kwatra**, *American Council for an Energy-Efficient Economy*

Panelists: **Chris Calwell**, *Consultant*
Pierre Delforge, *Natural Resources Defense Council*

Description: Plug-loads such as computers and peripherals, televisions and audio-visual accessories, office equipment, task lights and many others together consume more energy than any other major energy end-use in buildings. While significant device-level savings have been achieved in the past with energy conservation standards and rate payer funded programs, the next level of savings require a systemic approach to managing plug-loads. This session will explore innovative technologies and strategies for reducing the energy consumption from plug-loads.

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