

2018

**UC DAVIS ENERGY
AFFILIATES FORUM**

April 19, 2018

Introduction

The UC Davis Energy and Efficiency Institute and its affiliated research centers host an annual **Affiliates Forum**. Affiliates provide partnership opportunities and critical funding that supports our research, education, and engagement initiatives, enabling us to generate meaningful impact. This meeting provides a unique opportunity to engage with the latest R&D and program initiatives at UC Davis and to network and explore innovative energy solutions across sectors. Attendees include current affiliates, potential affiliates, as well as current and potential collaborators at UC Davis and state and non-profit agencies.

The theme of our 2018 forum is *Integrated Energy Solutions*. Given the complex and changing dynamic of the energy industry, integrated resources and demand side management will be critical to achieving a safe, reliable, equitable, and sustainable energy system.



Agenda

8:30am – 9:00am

Breakfast

9:00am – 9:10am

Welcome

Paul Dodd

Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives

Office of Research

9:10am – 9:20am

Introduction to the Energy and Efficiency Institute

Professor Mark Modera

Interim Faculty Director

Energy and Efficiency Institute

9:20am – 9:45am

Research Center Highlights

Professor Michael Siminovitch, Director

California Lighting Technology Center

Professor Frank Loge, Director

Center for Water-Energy Efficiency

Professor Vinod Narayanan, Associate Director

Western Cooling Efficiency Center

9:45am – 10:30am

Keynote – Future of Energy/Integrated Resource Management

Ron Nichols

President

Southern California Edison

10:30am – 10:45am

Break

10:45am – 12:15pm

Moderated Discussion: Integrated Resource Management—Challenges and Opportunities

- Southern California Gas Company
George Minter
Regional Vice President, External Affairs and Environmental Strategy
- Sonoma County Water Agency
Dale Roberts
Principal Engineer
- California Public Utility Commission
David Peck
Energy Advisor to President Michael Picker
- California Independent System Operator
Jim Price
Senior Advisor Engineering Specialist
- Walmart
Jim McClendon
Director of Engineering

12:15pm – 12:30pm

Education Highlights

*Professor Alissa Kendall, Chair
Energy Graduate Group*

12:30pm – 1:45pm

Lunch with Student and Staff Poster Session

1:45pm – 3:15pm

Session: Implementing Integrated Resource Management in the Marketplace

- General Services Administration
*Kevin Powell
Green Proving Ground Program Manager*
- California Technical Forum
*Annette Beitel
Facilitator*
- California Energy Alliance
*Doug Avery
Co-Chair*
- California Energy Product Evaluation Hub
*Theresa Pistochini
Engineering Manager, Western Cooling Efficiency Center*

3:15pm – 3:30pm

Break

3:30pm – 4:45pm

Breakout Sessions by Sector (Water, Cooling/Heating, Lighting)

*Professor Michael Siminovitch, Director
California Lighting Technology Center*

*Professor Frank Loge, Director
Center for Water-Energy Efficiency*

*Professor Mark Modera, Director
Western Cooling Efficiency Center*

4:45pm – 6:15pm

Happy Hour

6:15pm – 7:30pm

Dinner with Keynote

*Professor Joseph Clarke
Mechanical and Aerospace Engineering
University of Strathclyde*



Keynote Speakers



Ronald O. Nichols

Ronald O. Nichols is president of Southern California Edison (SCE). He is responsible for external affairs, compliance, power production and procurement, and other operations. Nichols has more than 35 years of experience in the electric and water utility industry. He has been a strategic and operational advisor to utilities, state and local government, power suppliers and the financial community on complex energy and utility matters throughout the United States, particularly in the West. Prior to joining SCE in 2014, Nichols served for three years as General Manager of the Los Angeles Department of Water and Power. Previously, Nichols was a managing director at the energy practice of Navigant Consulting and a co-founder and Senior Vice President of Resource Management International, an energy and water utility consulting firm. Nichols is a graduate of the University of California, Davis with a degree in agricultural economics and business management.



Joe Clarke

Joe Clarke is Director of the Energy Systems Research Unit (ESRU) and BRE Centre of Excellence in Energy Utilization at the University of Strathclyde in Glasgow. His research focuses on the role that energy systems simulation can play in helping to reduce energy demand, accelerate the take-up of renewable energy technologies, mitigate environmental impacts and improve human well-being. A major element of Clarke's research involves the development and dissemination of software tools for energy systems simulation, and the application of these in design, research and policy contexts.

Biographies: Speakers



Doug Avery

Doug Avery is a Certified Energy Manager with over 38 years of experience in the lighting industry. He has been a consultant for numerous utility companies, including Southern California Edison, Hawaiian Electric Company, Nevada Power Company and Central Maine Power. For the utilities, Avery has been responsible for developing Demand Side Management Programs related to the installation of efficient lighting systems as well as teaching classes on lighting technology, retrofit options and auditing procedures. Currently, he serves as co-chair of the statewide management team for the California Advanced Lighting Controls Training Program and President of the Board of Directors for the National Advanced Lighting Controls Training Program. Avery was one of the main leaders in the development of the Green Energy Jobs Creation program. Avery holds a degree in Physiological Psychology and is a member of the Association of Energy Engineers.



Annette Beitel

Annette Beitel has over twenty years' experience providing legal, regulatory, procurement, and management support to energy efficiency and renewable energy programs in California, the Midwest, and internationally. She currently facilitates the California Technical Forum (Cal TF) and is lead facilitator for the successful, long-standing Illinois Stakeholder Advisory Group, a forum authorized by the Illinois Commerce Commission (ICC) to build consensus and make recommendations to the ICC on the state's energy efficiency policies, portfolio and program design, administration, implementation, and evaluation. Beitel has recently been asked to lead the Illinois Low Income Energy Efficiency Advisory Committee. Earlier in her career, she practiced law in California and litigated matters before the CPUC. Beitel has a JD from studies at Harvard University and New York University, a Master of Science from the Massachusetts Institute of Technology, and a Bachelor of Arts with Honors from Wellesley College.



Paul Dodd

Paul Dodd is Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives at UC Davis. He has worked at the interface between industry, academia and government for over 20 years. Dodd is responsible for development of interdisciplinary research activities for the Davis campus and for coordinating the development of new strategic research partnerships. He also administers the Organized Research Units and Special Research Programs. Prior to UC Davis, Dodd was Director of the Industry Collaborative Programs at Science Foundation Ireland where he was responsible for large-scale collaborative research centers. In 2009-10, he worked in Silicon Valley with the Irish Government to develop research links between industry in the US and research groups in Ireland. Dodd holds bachelor and master's degrees in materials science from Trinity College Dublin and was awarded a Ph.D. from Queen's University Belfast.



Alissa Kendall

Alissa Kendall is a Professor of Civil & Environmental Engineering and Chair of the Energy Graduate Group at UC Davis. Her research applies principles of industrial ecology and environmental engineering by developing and implementing life cycle assessment (LCA) methods for vehicles and fuels, civil infrastructure, and food and bioenergy production systems with the ultimate goal of mitigating climate change and other environmental and resource challenges. Kendall's teaching interests mirror this interdisciplinary, problem-oriented research program. She teaches Life Cycle Assessment for Sustainable Engineering, a core class in the Energy curriculum, and an undergraduate class in Urban Systems and Sustainability. She has received a number of honors and awards related to research and teaching. Kendall holds a B.S. in Environmental Engineering from Duke University and an M.S. and Ph.D. from the University of Michigan, Ann Arbor.



Frank Loge

Frank Loge is Director of the Center for Water-Energy Efficiency, a professor in the Department of Civil and Environmental Engineering, and the current holder of the Ray B. Krone Endowed Professorship in Environmental Engineering at UC Davis. He began his career studying water and wastewater treatment and has developed a strong interest in the relationship between energy, water, and health. Loge advocates performing fundamental research to advance knowledge and developing and deploying technologies and policies that improve environmental quality and the efficiency of resource consumption. His research efforts focus on the energy and health implications of engineered and natural systems, designing sustainable systems and technologies, and entrepreneurship and finance. Loge holds a Ph.D. in Civil and Environmental Engineering from the UC Davis and is a licensed Professional Engineer in the state of California.



Jim McClendon

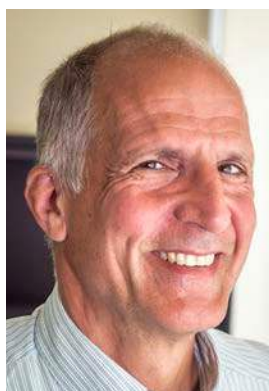
Jim McClendon is Director of Energy Efficiency for Walmart Stores, Inc. He joined Walmart in a leadership position to develop new prototype designs and identify retrofit strategies to reduce total energy consumption in new construction and the existing store base. From 2005 to 2012, McClendon led a team to reduce GHG consumption in their existing store base by 20% and to develop and open a new prototype that was 25% more efficient. In spring 2013, Walmart completed this GHG goal and stated a new energy goal of installing 7 Billion kW of renewable energy and reducing the global building footprint energy intensity 20% by 2020. McClendon leads a team in response to the energy reduction component of this goal. Prior to joining Walmart, he accumulated over 20 years of experience in the HVAC/R industry. McClendon is a registered Mechanical Engineer, as well as a CEM, CEA, IPMVP, LEEDAP & NEBB.

Biographies: Speakers



George Minter

George Minter is regional vice president of external affairs and environmental strategy for SoCalGas. He is responsible for the company's public affairs, community relations, public policy and energy and environmental affairs functions. Minter is a long-time policy professional specializing in energy and environmental matters, strategic planning, program development, communications and political advocacy. Before re-joining SoCalGas as senior director of policy and environment, Minter was managing principal for L.A.-based public affairs firms Greer/Dailey/Minter and GM Public Affairs. There he managed public policy initiatives and communications programs to approve large energy and land use projects. Prior to his career at SoCalGas, Minter was a political consultant handling local, state and national political campaigns, responsible for strategy development, campaign management, direct mail and television and radio production. Minter is a Phi Beta Kappa and honors graduate of the University of California at Berkeley.



Mark Modera

Mark Modera is Interim Faculty Director of the UC Davis Energy and Efficiency Institute, Director of the Western Cooling Efficiency Center (WCEC), Professor in the Departments of Civil and Environmental Engineering and in Mechanical and Aerospace Engineering, and is the Sempra Energy Chair in Energy Efficiency. Prior to joining WCEC, he worked at Carrier Corp., where he was Vice-President, and Lawrence Berkeley National Laboratory (LBNL). While at LBNL, Modera developed an aerosol-based duct sealing process, and subsequently established AeroSeal, Inc. to commercialize the technology. He has a diverse set of research interests, including energy efficiency, ventilation, and indoor air quality. Modera received a master's degree in mechanical engineering from the University of California, Berkeley and a Ph.D. in mechanical engineering from the Royal Institute of Technology in Stockholm.



Vinod Narayanan

Vinod Narayanan is Associate Director of the UC Davis Western Cooling Efficiency Center and Professor in the Department of Mechanical and Aerospace Engineering. He specializes in microscale flow and heat transfer for energy efficient applications, including solar thermal, solar fuels, thermal management, and phase-change heat transfer. Previously, Narayanan was a Professor in the School of Mechanical Industrial and Manufacturing Engineering at Oregon State University. He also is the past ASME Chair on the Heat Transfer in Multiphase systems committee and was conference chair for the 2015 International Conference on Nanochannels, Microchannels and Minichannels.



Theresa Pistochini

Theresa Pistochini is the Engineering Manager at the UC Davis Energy and Efficiency Institute (EEI) with 10 years' experience in applied research in energy efficiency in buildings, primarily in the areas of Heating, Ventilation, and Air Conditioning (HVAC). She led the development and construction of the HVAC testing laboratory in 2013 and is currently co-PI and Project Manager for the planned California Energy Product Evaluation Hub, a project sponsored by the California Energy Commission. The Hub will improve adoption rates of distributed energy resources by providing comprehensive product reviews compiled in an on-line Buyer's Guide targeted to the needs of institutions and their procurement staff. Pistochini provides technical management for the EEI engineering staff, reviewing project progress including experimental plans, analyses, results, and publications. She earned her M.S. degree from UC Davis and is a registered professional mechanical engineer in California.



Kevin M. Powell

Kevin M. Powell is the Director of Emerging Technologies for the General Services Administration's Public Buildings Service (PBS), and program director for the GSA Proving Ground (GPG). He focuses on identifying innovative technologies, practices and process that optimize how PBS designs, delivers and operates Federal buildings. Powell brings two decades of experience in design research and policy analysis. He manages a portfolio of over twenty active test bed projects in the areas of next generation building envelope, energy management, HVAC, lighting and lighting control systems. Powell has a longstanding commitment to improved real estate energy efficiency, deployment of next generation building technologies and smart growth policy. Powell received his master's degree in Architecture from the University of California at Berkeley.



David Peck

David Peck is serving as advisor to President Michael Picker in the California Public Utilities Commission (CPUC) since 2016, where he works on energy, safety, and transportation issues. He served as a supervisor in the Office of Ratepayer Advocates (ORA) on a variety of energy issues and natural gas issues from 2011 to 2016. From 2007 to 2011, he served as a senior analyst in ORA focusing on clean energy and long-term procurement planning issues. Prior to joining the CPUC, Peck was a systems design manager in semiconductor equipment manufacturing at KLA-Tencor. He was also a senior staff engineer automating the semiconductor manufacturing process at Motorola. Peck holds a Master's Degree in Industrial Engineering and Management Science from Arizona State University and a Bachelor's Degree in Industrial Engineering and Computer Science from the University of Wisconsin.

Biographies: Speakers



Jim Price

Jim Price is a Senior Advisor in Market and Integration Studies, in the Market Quality and Renewable Integration Division of the California ISO, providing technical analysis and policy development of efficient, well-functioning wholesale electricity markets. His work on market design includes integration of a range of energy and ancillary service products in the wholesale market, and coordination between the ISO's markets and other regions in the west. This includes working with other organizations on solutions for the integration of large amounts of renewable resources, dynamic transfers, demand response, and 15-minute real-time scheduling options to reduce barriers to integration of renewable resources and address other market inefficiencies, in addition to the Energy Imbalance Market that extends the ISO's markets to other balancing areas. Price received his B.S. from California Institute of Technology, and M.S. and Ph.D. from Stanford University in infrastructure planning and management.



Dale Roberts

Dale Roberts is Principal Engineer for the Sonoma County Water Agency where he is in charge of the Energy Resources Group. Roberts develops and implements projects to sustain the Water Agency's Carbon Free Water status by reducing energy demands and cost-effectively procuring renewable power to meet the Water Agency's power needs. He has over 25 years of engineering experience in the private and public sectors in project management, planning, design, and construction management of water, wastewater, cogeneration, and energy systems. Roberts graduated from the University of California Santa Barbara with degrees in Mechanical Engineering (BS) and in Environmental Studies (BA). He is a licensed Professional Engineer in the State of California in Civil Engineering and Mechanical Engineering.



Michael Siminovitch

Michael Siminovitch is Director of the UC Davis California Lighting Technology Center, Professor in the Department of Design, and the Arthur H. Rosenfeld Chair in energy efficiency. Siminovitch participated on the leadership team for California's Strategic Lighting Plan and helped lead efforts to improve the 2013 Title 24, Part 6 standards for exterior lighting. He co-authored the original California Advanced Lighting Controls Training Program and now serves on its board of directors. He also established the UC Davis Smart Lighting Initiative, one of the largest lighting retrofit projects in California, to reduce lighting energy use 60% below 2007 levels. In 2014, Siminovitch was selected by UC President Janet Napolitano as an inaugural member of the UC Global Climate Leadership Council. He received master's degrees in Industrial Design and Architecture from the University of Illinois and a doctoral degree in Architecture and Human Factors Engineering from the University of Michigan.

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