

CALIFORNIA INSTITUTE FOR TELECOMMUNICATIONS  
& INFORMATION TECHNOLOGY

# **CALPLUG** **WORKSHOP**

**APRIL 17, 2023 | 10 AM - 5 PM**

Continuing to work together to find applicable technological  
solutions to address the climate crisis via decarbonization  
for our one planet and all its inhabitants.

UNIVERSITY OF CALIFORNIA IRVINE  
CALIT2 BUILDING AUDITORIUM



# WORKSHOP AGENDA

## CALPLUG RESEARCH AND PROJECTS

### 10:00 am Welcome

**G.P. Li**, Calit2/California Plug Load Research Center and SMART IAC

### 10:10 - 10:40 Plug and Process Loads - Latest News

10:10 || **Doug Johnson**, Consumer Technology Association (CTA)

10:25 || **Kim Trenbath**, National Renewable Energy Laboratory (NREL)

### 10:40 - 11:20 CalPlug and SMART IAC Updates

10:40 || **Katie Gladych**, Plug Load Energy Testing to Inform Codes and Standards (PLETICS) & Low Power Mode

11:00 || **Chelsea Choudhary**, Sustainable Manufacturing Alliance for Research and Training Industrial Assessment Center (SMART IAC)

### 11:20 - 11:45 Future of Electrification

**Caitlin Murphy**, National Renewable Energy Laboratory (NREL)

*Lunch Break (11:45 - 1pm)*

## SMART ENERGY BUILDING MANAGEMENT, CLIMATE CHANGE MITIGATION

### 1:00 - 1:25 How Smart Buildings Can Help a Greener Grid

**Antonio Corradini**, Alternative Energy Systems Consulting (AESC)

### 1:25 - 1:50 Building to Grid: Thermostats and Microgrids

**Therese Pepper**, California Institute for Energy & Environment (CIEE)

### 1:50 - 2:15 What Happens When We Use Low Carbon Fuels in Applications Like Water Heating and Cooking?

**Vince McDonell**, Advanced Power & Energy Program (APEP), UCI

### 2:30 - 3:00 Project Aurora, Empowering the Unhoused

**Philip Roberts**, LADWP Consultant



# WORKSHOP AGENDA

(continued)

*Mid-Afternoon Break (3:05 - 3:15pm)*

**3:15 - 3:40 Foodservice Plug Loads**

**Todd Bell** – Frontier Energy

**3:40 - 4:05 Customer Gaming Console Use & Energy Efficiency**

**Ann Davis** – LADWP Consultant

**4:05 - 5:00 PANEL Discussion of Guest Speakers**

**5:00 pm Networking Reception**



# MEET THE SPEAKERS



**Todd Bell**

Sr Program Manager,  
Frontier Energy

Todd Bell is a Sr Program Manager with Frontier Energy's Commercial Food Service (CFS) Energy Efficiency Division which operates the Food Service Technology Center (FSTC) located in San Ramon, CA. The FSTC is an equipment testing, and training facility wholly devoted to promoting energy and water efficiency in the commercial food service industry. He is responsible for the FSTC's energy audit and kitchen equipment specification review services, which examine the cooking, exhaust ventilation, refrigeration, water heating and sanitation equipment in commercial food service operations to identify utility saving opportunities. Essentially the "man in the trenches", Todd visits commercial food service sites ranging in size from relatively modest full-service restaurants to very large production kitchens found in hotels and business & industry dining facilities.



**Chelsea Choudhary**

Program Manager  
SMART IAC, UC Irvine

Chelsea Choudhary is the Program Manager for the UCI SMART IAC (Sustainable Manufacturing Alliance for Research and Training Industrial Assessment Center), which provides energy consulting services to local manufacturers and commercial building occupants, while training students in energy efficiency and sustainability. Her prior roles have spanned various manufacturing industries, including designing steel utility structures, validating industrial equipment, and quality engineering for medical device manufacturers. Chelsea earned her B.A. in Physics from Illinois Wesleyan University and M.S. in Mechanical Engineering from Bradley University and was a part of Bradley's Industrial Assessment Center team.



**Antonio Corradini**

CEO and Principal Engineer,  
Alternative Energy Systems  
Consulting (AESC)

Antonio Corradini is a Professional Engineer in both Italy and California. He received his Bachelor and Master of Science in Mechanical Engineering from the University of Brescia in Italy and his master in business administration from the University of California San Diego. Today Mr. Corradini lead Alternative Energy Systems Consulting, a Southern California based energy consulting firm delivering energy programs in many States within the US. Mr. Corradini hold a California C-10 license that also his company to self-perform installation of energy efficiency, solar and battery technologies to the various customer that want to embrace sustainability. His area of expertise includes energy efficiency, demand response, self-generation, regulatory compliance and emerging technologies.



# MEET THE SPEAKERS



**Ann Davis**

Consultant  
LADWP

Over the last 25 years Ann has specialized in translating market research data into meaningful, actionable insights. She has worked across a variety of sectors including CPG, Tech, HBA, Food & Beverage, Services and Utilities. Projects range from customer satisfaction and concept testing to more complex choice modeling and market segmentation. Ann has worked with RKS for the past 8 years on a wide variety of projects for utilities across the country. Additional superpower: mother of twins. Ann's education includes a Bachelor's in Psychology at Iowa State University, Master's in Consumer Behavior at Purdue University, and PhD in Consumer behavior at Purdue University.



**Katie Gladych**

Project Manager,  
CalPlug UC Irvine

Katie Gladych joined CalPlug in 2019, with a background in energy policy. She received her dual-degree MA in Social Sciences and Contemporary European Studies from the University of Bath in the UK and the Humboldt Universität zu Berlin, Germany. She also holds a BA from Lawrence University in Wisconsin. Her previous work focused on the Energiewende (energy transition) in Germany using interdisciplinary research methods from political science and behavioral economics. At CalPlug, she studies plug load user behavior and utility energy efficiency programs, with an additional focus on improving state and federal codes and standards.



**Doug Johnson**

Vice President,  
Consumer Technology  
Association (CTA)

Doug Johnson is vice president of emerging technology for the Consumer Technology Association (CTA), North America's largest technology trade association. CTA's members are the world's leading innovators - from startups to global brands. CTA owns and produces CES® - the most influential tech event in the world. Doug is responsible for public policy issues affecting product development, operations, sales and marketing across the consumer technology industry. He serves as an advocate for the industry before regulators and legislators at the local, national and international levels on policy matters concerning emerging technology, artificial intelligence, drones, energy efficiency, regulatory reform, voluntary agreements, policy alignment, and non-tariff barriers to trade.



# MEET THE SPEAKERS



**G.P. Li**

Director and Professor,  
CalPlug UC Irvine

G. P. Li is a professor at the University of California, Irvine, with appointments in Electrical Engineering and Computer Science and Biomedical Engineering, and Materials and Manufacturing Technology program. Dr. Li serves as director of California Institute for Telecommunications and Information Technology (Calit2), which develops solutions for digital transformation of energy and environmental industrial sectors. Dr. Li is also director of the Integrated Nanosystems Research Facility (INRF) in The Henry Samueli School of Engineering, which researches and develops sensors and actuators for industry 4.0 applications. He also directs the California Plug Load Research Center (CalPlug), which research and develop solutions for improving flexible demand plug loads' energy efficiency and their active management.



**Vincent McDonell**

Director,  
UCI Combustion Laboratory

Vince McDonell is an adjunct professor of mechanical and aerospace engineering, and associate director of UC Irvine's Combustion Laboratory. His research includes combustion, alternative fuels, gas turbines, sprays, diagnostics, combined heat and power, emissions and autoignition/flashback



**Caitlin Murphy**

Group Manager,  
National Renewable Energy  
Laboratory (NREL)

Caitlin Murphy works at the National Renewable Energy Laboratory (NREL) as a Senior Energy Analyst and Group Manager within the Strategic Energy Analysis Center. Her research explores how technology innovation, end-use electrification, and energy policies could impact the evolution and operation of the U.S. energy system, with a focus on renewable-storage hybrid systems. Prior to joining NREL, Caitlin served as AAAS Science & Technology Policy Fellow within the U.S. Senate and the U.S. Department of Energy. She received her Ph.D. in Geophysics from Caltech and her B.S. in Environmental Science from MIT.



# MEET THE SPEAKERS



**Therese Peffer**

Associate Director,  
CITRIS Climate and CIEE

Therese manages and conducts research in smart building technologies, building-to-grid, demand response, demand flexibility, and smart grid research projects with the objective of creating comfortable and energy efficient livable spaces. She serves as an Associate Director for CIEE and for the CITRIS Climate initiative and is the co-Chair of the annual Behavior Energy and Climate Change conference. She is currently managing the Energy Commission funded EcoBlock and large commercial decarbonization projects and the Dept. of Energy-funded Brick project. Previous research includes energy consumption displays, thermostats, consumer behavior, and user interface usability research. Therese completed a Ph.D. in Architecture with an emphasis on building science at UC Berkeley. As an architect, she worked in San Francisco and Pismo Beach, CA. Therese earned a Master's degree in Architecture at the University of Oregon.



**Phillip Roberts**

Consultant,  
LADWP

Known as the "The Quintessential American Cleantech Entrepreneur" by Corporate Vision Magazine and others, Phillip Roberts is a serial entrepreneur, co-founder of Xponential Battery Materials ("XBM USA"), MODZE, LLC, NetZero Energy Systems, ("NZE") Inc. and co-founded capitalized, and sold many businesses, including multiple advanced lithium battery material companies over the past 20 years. Phil has over 35 years of successful management experience in major energy corporations, as a product inventor/small business owner/entrepreneur.



**Kim Trenbath**

Lead & Systems Engineering,  
National Renewable Energy  
Laboratory (NREL)

Dr. Kim Trenbath is the innovation lead for systems technology research and development in the Building Technologies and Science Center at the National Renewable Energy Laboratory (NREL). She directs a portfolio of projects on technology research, market transformation, field validation, and workforce development. She works on plug and process load efficiency, commercial building heating, ventilating, and air conditioning, automated fault detection and diagnostics, commercial building sensors and controls, and advanced technologies that will make buildings grid interactive. She leads the U.S. Department of Energy (DOE) Better Buildings Alliance Plug and Process Loads Technical Team. She also serves as the NREL lead for the DOE-funded JUMP into STEM building science competition for university students. While earning her Ph.D in Atmospheric Science at the University of Colorado, she researched climate change and indoor air quality.