



Powering Resilient Communities Through Advanced Energy Technologies

Forum Program

February 25, 2020

Long Beach Convention Center



Presented by





Dear attendees:

I am pleased to welcome you to the California Energy Commission's Electric Program Investment Charge (EPIC) Forum: Powering Resilient Communities through Advanced Energy Technologies. Since 2015, the Energy Commission's EPIC program has hosted events that showcase new clean energy technologies, foster regional innovation, and encourage investment in advanced clean energy solutions.

Panels and discussions throughout the day's event will bring together energy policy experts, leaders from California's innovative technologies sector, and EPIC awardees to discuss the emerging blueprint for strengthening community resilience.

The forum will explore advancements in clean energy solutions and examine the role innovative technologies play in increasing resiliency in the face of California's wildfire outbreaks and other climate-related impacts. The breakout sessions will feature discussions on commercial uses for forest biomass, utilizing big data to predict weather patterns, and maintaining power with clean energy technologies. Additionally, the forum will focus on the benefits and challenges faced when deploying advanced technologies at mass-scale.

The EPIC Forum, *Powering Resilient Communities through Advanced Energy Technologies*, is made possible by the generous support of our sponsors. These sponsors provided the financial resources to help make this event possible and contributed their time and perspective to assist in preparing a fresh and action-oriented discussion. The Energy Commission sincerely appreciates the event sponsors for supporting this vital conversation on how to build a more resilient tomorrow.

The Commission, sponsors, and endorsing organizations hope you will take the knowledge you gain during today's forum and join us in the effort to promote resilience through energy innovation.

Thank you for contributing your time to today's important conversation and welcome to the EPIC Forum: Powering Resilient Communities through Advanced Energy Technologies. We are glad to have you here and look forward to the dialogue.

Sincerely,

A handwritten signature in black ink that reads "Janea A. Scott".

Janea A. Scott
Vice Chair California Energy Commission



Networking Opportunities to Enable Technology Transfer!

For Investors

Are you interested in learning more about a specific EPIC project and investment opportunities?

Network with EPIC awardees and tech vendors:

- Lunch – 12:15 p.m. to 2:00 p.m.
- Reception – 3:45 p.m. to 4:45 p.m.

Schedule a meeting with an EPIC awardee:

- Learn.meetatepic.com/techtransfer

For EPIC Awardees

Are you interested in securing complimentary guidance from an internationally recognized innovation accelerator?

Visit LARTA Institutes's vendor table:

- Lunch – 12:15 p.m. to 2:00 p.m.
- Reception – 3:45 p.m. to 4:45 p.m.

Schedule a meeting with a LARTA Institute rep:

- David Berokoff - dberokoff@larta.org
- Carlos Gutierrez - cgutierrez@larta.org

Connect with innovative clean energy leaders

#MeetAtEPIC

EPIC Awardees:



Andromeda Power creates solutions for optimal fast charging anytime, anywhere, from a variety of energy sources.



The strategic goal of the awardee California Hub for Energy Efficiency Financing (CHEEF) is to grow the private capital market for EE financing in California, and to evaluate the effectiveness of various types of financial incentives for energy efficiency financing.



Charge Bliss, Inc is a leader in design, engineering, construction, and operation of renewable energy microgrids.



ChargePoint operates the world's leading and most open EV charging network and builds all the technology that supports it.



Element 16 is an industrial efficiency company that utilizes molten sulfur heat storage to provide unique solutions to challenging energy problems.



Hyperlight Energy invents, develops and manufactures renewable energy products.



Polaris is the leader in connecting agricultural customers with energy market incentives and revenue that automates irrigation control and provides operational visibility.

EPIC Private Vendors:



AGENDA

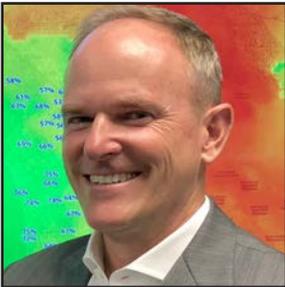
Registration Open	8:00 AM - 3:15 PM
Welcome / Opening Remarks: Vice Chair Jenea A. Scott, CEC	9:15 AM - 9:30 AM
Panel 1 • Creating a Resilient Energy System in the Face of Natural Disasters	9:45 AM - 10:45 AM
<p>California wildfires have been growing in frequency and destructiveness, with 2018 being the worst fire year on record. Communities are working to navigate the diverse terrain of challenges to prevent disaster and respond quickly and effectively. To ensure critical infrastructure and services are maintained during a disaster, leaders are looking to implement revolutionary clean energy technologies to keep power on during outages. Join a living room style chat to gain new understanding of response efforts and technologies that strengthen our electric system, help shape resiliency planning, and ensure critical care can still be provided to millions of Californians during disasters.</p>	
Breakout 1 • Don't "Shrub" it Off: Forest Biomass and its Many Uses	11:00 AM - 12:15 PM
<p>As forest management becomes increasingly important to mitigate the frequency of wildfires, interest in finding commercial uses for forest biomass has grown. Hear from EPIC awardees as they discuss technology solutions and barriers to convert forest biomass into renewable energy and other uses.</p>	
Breakout 2 • Earth, Wind & Fire: Utilizing Big Data to Navigate Extreme Weather in California	11:00 AM - 12:15 PM
<p>The science is clear: climate change is provoking extreme weather events. To help mitigate and adapt to climate change impacts, leaders are looking towards innovative tools to improve forecasts of extreme weather-related risks to the grid. Dive into a solutions-driven conversation on how advances in climate science, big data, and machine learning are coming together to predict threats and vulnerabilities to the electricity system.</p>	
Breakout 3 • Savvy Solutions: Using Clean Energy Innovations to Maintain Power	11:00 AM - 12:15 PM
<p>In response to climate change, electricity customers and communities are deploying new clean energy technology solutions to reduce their carbon footprint. Many of these solutions – including solar, energy storage, and electric vehicles – are also being used to provide power during outages. Join a panel of EPIC awardees as they discuss first-of-their-kind technology projects that are helping to maintain power and increase resiliency in their communities.</p>	
Networking & Vendor Session	12:15 PM - 2:00 PM
Panel 2 • Today's Leaders on Scaling Energy Solutions for Resiliency and Climate Action	2:00 PM - 3:15 PM
<p>Ensuring resiliency for today's wildfire outbreaks and disasters necessitates multidimensional solutions and innovative technologies. To do this effectively requires fresh and new investment ideas to scale clean energy solutions. Join an interactive discussion on creative opportunities to scale advanced energy technologies for mass deployment.</p>	
Closing Remarks	3:15 PM - 3:30 PM
Reception	3:45 PM - 4:45 PM
Port of Long Beach Harbor Tour	4:00 PM - 5:30 PM

Aboard the 90-minute narrated excursion, you will get close to operations at the second-busiest Port in the nation. See towering cranes, the most advanced and green terminal in the world, new infrastructure projects such as the Gerald Desmond Bridge Replacement, and possibly even catch a glimpse of local marine life. You will also learn about the variety of groundbreaking green programs the Port has implemented to reduce the environmental impact of operations.

NOTE: Please avoid discussing CPUC ratemaking proceedings that are open or subject to a rehearing application. If such proceedings are discussed as part of presentations or Q&A, then parties or interested persons involved in those discussions will be subject to CPUC reporting requirements under Rule 8.3 of the CPUC's Rules of Practice and Procedure.

BREAKOUT 2 | ADRIAN ALBERT - Founder and Chief Executive Officer, Terrafuse


Adrian Albert is the founder of Terrafuse, where he leads AI technology development. Previously, he was a machine learning research scientist at Lawrence Berkeley National Lab, where he conducted research on designing machine learning algorithms incorporating physical knowledge for scientific applications. He completed postdoctoral research at MIT working on deep learning for remote-sensing imagery, and obtained his Ph.D. in electrical engineering at Stanford with a thesis on machine learning for energy grids. He was one of the first machine learning scientists at startup C3.ai, working on AI methods for energy and industrial systems. Since its founding in 2018, Terrafuse has received I-Corps and SBIR grants from the National Science Foundation, a Microsoft AI for Earth grant, and has been a finalist in the MIT VMS Demo Day.

BREAKOUT 2 | CHRIS ARENDS - Meteorology Program Manager, San Diego Gas & Electric


Chris Arends is the Meteorology Program Manager for San Diego Gas & Electric (SDG&E), one of Sempra Energy's regulated California utilities. As the Meteorology Program Manager, Arends has full managerial and technical responsibility for the provision of weather products and forecasts that enable situational awareness and address impacts to operations. Prior to joining San Diego Gas & Electric (SDG&E), Arends was a US Navy operational meteorology and oceanography officer experienced in providing strategic and tactical forecasting services and risk reduction products to ensure well-informed operational decisions.

BREAKOUT 3 | JOE BOURG - Director of Resource Acquisition and Development, Olivine


Joe Bourg is the Director of Resource Acquisition and Development for Olivine. He has over thirty years of experience in the energy industry, with a focus on Distributed Energy Resource (DER) technologies and services. Mr. Bourg leads Olivine projects in the areas of DER technology and program valuation, design, and deployment. He provides technical leadership on utility DER programs including analytical framework development, DER technical and market potential assessment, Virtual Power Plant (VPP) resource analysis and program design, and strategic technology deployment.

PANEL 2 | MICHAEL COLVIN - Director • California Energy Program, Environmental Defense Fund


Michael Colvin is the Director of Legislative and Regulatory Affairs, California Energy Program at Environmental Defense Fund. Based out of EDF's San Francisco office, Michael focuses on building decarbonization, gas utility business models, wholesale electricity markets and transportation electrification matters. Across each of these issues, Michael focuses on minimizing investment risk and aligning utility incentives with affordable, clean and safe energy services.

PANEL 1 | FASSIL FENIKILE - Assistant Vice President, AT&T



Fasil Fenikile served as a telecommunications advisor to the CPUC for eight years and prior to that served the CPUC in various roles as a Utilities Engineer in the telecommunications and water industries. Prior to his current appointment, Fasil co-lead a team of experts from AT&T and other carriers that collaborated with CPUC and CalFire in the creation of CPUC's wild fire threat maps and fire safety regulations, the development of CPUC's de-energization (Public Safety Power Shut-off) policies, and the development and implementation of dozens of safety regulations applicable to communications and electric utilities. He is a registered electrical engineer and holds a graduate degree in business management. Fasil currently leads AT&T's Regulatory Affairs team in California. He focuses on both national and state communications regulatory issues.

BREAKOUT 3 | JAMIE FINE - Senior Economist and Director of Energy Research, Environmental Defense Fund



James "Jamie" Fine works to reduce the impacts of energy systems used to power buildings, transport and service people, and produce and move goods. His areas of research and advocacy include design and implementation of market-based policy, modeling the economic, air quality, and health consequences of policy decisions, deploying smart grids for environmental and electricity customer benefits, and facilitating the meaningful involvement of community stakeholders in environmental planning.

PANEL 1 | JANA GANION - Sustainability and Government Affairs Director, Blue Lake Rancheria



Jana Ganion is the Sustainability and Government Affairs Director for the Blue Lake Rancheria. Jana has established the Tribe's strategy for zero-carbon resilience. Her development experience includes low-carbon community-scale and facility-scale microgrids, electric vehicle (EV) infrastructure, strategic planning in sustainability, climate action (mitigation and adaptation), emergency preparedness, and economic enterprise development. Jana works on policies, programs, and investments to achieve rapid, cost-effective transition to decarbonized and resilient communities for the resulting social, environmental, and economic co-benefits.

BREAKOUT 2 | KORY HEDMAN - Program Director, ARPA-E



Dr. Kory W. Hedman currently serves as a Program Director at the Advanced Research Projects Agency-Energy (ARPA-E), a part of the U.S. Department of Energy. His focus at ARPA-E includes electric power systems, management of renewable and distributed resources, grid resilience, and electric energy markets. Prior to ARPA-E, Hedman was an Associate Professor at Arizona State University's School of Electrical, Computer, and Energy Engineering. In 2017, President Obama awarded him the Presidential Early Career Award for Scientists and Engineers. Hedman holds six degrees. He earned an M.S. and Ph.D. in operations research from the University of California, Berkeley. He also holds B.S. and M.S. degrees in economics and B.S. and M.S. degrees in electrical engineering.

BREAKOUT 3 | CHRISTINE HOUSTON - Manager of Sustainable Practices, Port of Long Beach

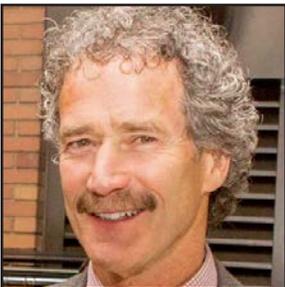

Christine Houston is a geologist with over 40 years of experience, 24 of which have been at the Port of Long Beach. As Manager of Sustainable Practices, Christine oversees environmental investigations, multi-million-dollar remediation projects, construction and operational practices, and spearheads the Port's Energy Planning activities. One important focus of her work is fortifying the power system's resiliency as it relates to the Port's zero-emission goals. More recently, Christine successfully applied to the California Energy Commission for a \$5M grant to demonstrate a microgrid at the Port's critical emergency response facility.

BREAKOUT 3 | BRYAN HUBER - Chief Innovation Officer, CleanSpark LLC


Bryan Huber serves as the Chief Innovation Officer of CleanSpark, a San Diego -based technology company with a suite of software, products, and services that enable large power users to meet their objectives for utility cost savings, greenhouse gas reductions, and energy security by actively managing their power generation and energy storage resources. Bryan's background includes executive positions spanning feasibility, design, finance, implementation, and operational stages of complex power projects. As a co-founder of CleanSpark, he has also been integrally involved in the company's software and control technology supporting optimized design and operation of distributed energy projects.

BREAKOUT 1 | KEVIN KUNG - Founder and Chief Technology Officer, Takachar


Kevin Kung is the co-founder and CTO of Takachar. From 2012 to 2017, Kevin built Takachar's core technology as part of his Ph.D. research in the field of biofuels and renewable energy at the Massachusetts Institute of Technology (MIT), with the support of the Tata Trusts. Prior to that, Kevin had six years of experience conducting engineering design in resource-constrained settings. In 2015, Kevin co-founded a company (Safi Organics) in Kenya that produces carbon-negative, high-yield fertilizer from crop residues, improving farmers' harvest yields by 30 percent.

BREAKOUT 1 | JONATHAN KUSEL - Founder and Executive Director, Sierra Institute


Jonathan Kusel is the founder and Executive Director of the Sierra Institute for Community and Environment. He has led the Sierra Institute for 25 years, which has been working to improve the health of landscapes and rural forested communities by bringing people and ideas together. He conducted pioneering work to develop the concept and assessment of community capacity. The Clinton Administration named Dr. Kusel to Northwest Forest Management team to assess communities in the Northwest. Dr. Kusel led both the community assessment and public involvement teams for the Congressionally funded Sierra Nevada Ecosystem Project. From 2000-2004, Kusel led the USDA-funded Pacific West Community Forestry Center that focused on underserved tribal communities, natural resource workers, and harvesters in Washington, Oregon, and California.

BREAKOUT 1 | CATHY LEBLANC - Executive Director, Camptonville Community Partnership



Cathy LeBlanc is employed by Camptonville Community Partnership (CCP) as the Executive Director and Rural Health Advocate to promote the voice of the community to advocate for sustainable rural health. Her personal mission is to empower community members to have their voice heard by educating and engaging them in the civic processes that inform and guide decision makers. Additionally, for the last decade, Cathy has represented her community's interest in forest biomass energy development, and is actively working with community partners and funders to develop a local biomass facility. Camptonville Community Partnerships is a recent EPIC Grant awardee.

PANEL 2 | AUDREY LEE - Vice President • Energy Services, Sunrun



Audrey Lee, Ph.D., is Vice President at Energy Services. Audrey deploys and aggregates home solar, batteries, and other energy services to serve residential customers, utilities, and grid operators in creating a more affordable, clean, reliable electricity grid. She leads Grid Services, Advanced Product, and Data Science teams at Sunrun. Previously, she built the analytics and operations platform at Advanced Microgrid Solutions to optimize a 50 MW fleet of customer-sited batteries as a virtual power plant in Southern California. Prior to that, Audrey led policy and analysis at the CA Public Utilities Commission President's office, Harvard University, U.S. Department of Energy, and the International Energy Agency.

BREAKOUT 1 | JIM MASON - Co-Founder and CEO, ALL Power Labs



Jim Mason is a General Specialist working at the intersection of engineering, anthropology and information science. He is a graduate of Stanford University, with degrees in Anthropology and Philosophy, after a long tour of Mechanical Engineering. From 1999-2006 he was the Founder and Director of the Rosetta Project: ALL Language Archive at the Long Now Foundation— a project to create an online archive of all documented human languages, currently the largest linguistic resource on the web. He also directed the permanent, outdoor New Guinea Sculpture Garden at Stanford. Jim is also the Founder and Director of The Shipyard collaborative art/build space for large-scale mechanical, kinetic and electronic art. As the Founder of ALL Power Labs, Jim is focused on creating tools for distributed power generation and open source comparative research in biomass thermal conversion.

BREAKOUT 3 | LELAND PRICE - Chief Financial Officer, Caban Systems



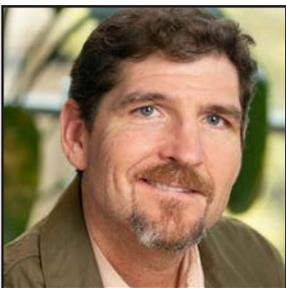
Leland Price is the Chief Financial Officer of Caban Systems, whose mission is to bring sustainable power solutions to the telecommunications industry. As CFO, Leland is responsible for fundraising, strategy & planning, and growth. Prior to Caban, Leland worked at SolarCity (now Tesla) as an early member of their structured finance team, which raised over \$3B in financing for solar leases and loans. Leland is a Chartered Financial Analyst and holds a BA in Computer Science from Brown University.

BREAKOUT 1 | CLIFFORD RECHTSCHAFFEN - Commissioner, CPUC


Clifford Rechtschaffen was appointed to the California Public Utilities Commission by Governor Jerry Brown on January 2017. At the CPUC, his key areas of interest include decarbonization, safety, environmental justice, and enforcement. Commissioner Rechtschaffen is the assigned Commissioner on several proceedings including risk assessment, emergency management and safety, transportation electrification, Renewables Portfolio Standard, affordability, and biomethane and renewable gas. He also co-leads several internal agency initiatives and efforts to make CPUC proceedings more streamlined and accessible to the public. Commissioner Rechtschaffen is the lead Commissioner on the BioMAT proceeding and leads the CPUC's biomethane injection and renewable gas proceeding.

PANEL 1 | ADAM ROSE - Director, Center for Risk and Economic Analysis of Terrorism Events


Dr. Adam Rose is a Research Professor in the University of Southern California Sol Price School of Public Policy and a Senior Research Fellow and Director of the Center for Risk and Economic Analysis of Terrorism Events (CREATE). He has spearheaded the development of CREATE's comprehensive economic consequence analysis framework and has done pioneering research on resilience at the level of the individual business, industry and national economy. He is currently the PI of a contract from the Critical Infrastructure Institute to measure the cost-effectiveness of static economic resilience tactics as the basis for the development of a Business Resilience Calculator decision-support software tool. Recently, he has advised government agencies in several U.S. states and regions on the development of cap & trade programs, and has advised several states on the employment impacts of climate action plans.

PANEL 2 | JP ROSS - Senior Director of Local Development, Electrification, and Innovation, East Bay CCA


JP Ross has been actively engaged with solar market development and commercialization since 1999. After completing a master's degree in Energy and Resources from the University of California at Berkeley, JP joined Greenpeace to advocate for wind and solar as an alternative to 50GW of new gas plants in response to the California energy crisis. JP then moved to Vote Solar, and successfully campaigned for California's Million Solar Roofs initiatives helping make solar energy the most cost-effective source of energy. JP led Vote Solar's activities in pro-solar rate design regulatory proceedings across the US. JP is now the Senior Director of Local Development, Electrification and Innovation at East Bay Community Energy, a CCA serving electricity to 1.5M people in Alameda County.

BREAKOUT 2 | DAVID SAAH - Associate Professor and Director of Geospatial Analysis Lab


Dr. Saah has been broadly trained as an environmental scientist with expertise in a number of areas including: landscape ecology, ecosystem ecology, hydrology, geomorphology, ecosystem modeling, natural hazard modeling, remote sensing, geographic information systems (GIS) and geospatial analysis. He has used these skills to conduct research primarily at the landscape level in a variety of systems. Dr. Saah has participated in research projects throughout the United States and internationally.

PANEL 1 | GENEVIEVE SHIROMA - Commissioner, CPUC



Genevieve Shiroma was appointed to the CPUC by Governor Newsom on Jan. 22, 2019. Prior to joining the CPUC, Commissioner Shiroma served as a member of the Agricultural Labor Relations Board since 1999, serving as chair since 2017 and from 2011 to 2014 and 1999 to 2006. Previously, she was Chief of the Air Quality Branch at the California Air Resources Board from 1990 to 1999 and as an air quality engineer from 1978 to 1990. From 1999 to 2018, Commissioner Shiroma was the elected director of Ward 4 of the Sacramento Utility Municipal District (SMUD). Commissioner Shiroma holds a Bachelor of Science degree in Materials Science and Engineering from UC Davis. Commissioner Shiroma manages the California Public Utilities Commission's rulemaking on microgrids and resiliency.

PANEL 2 | TOM TANSY - Chairman, SunSpec Alliance



Tom Tansy is Chairman of the SunSpec Alliance, where he leads the distributed energy industry's efforts to establish data and communication standards that enable seamless integration of solar PV and storage into the Smart Grid. The SunSpec Alliance has more than 100 stakeholders across the globe, including leading fleet operators, component suppliers, software developers, financiers, and utilities. SunSpec's areas of focus include grid integration, finance data interchange, O&M data interchange, and cybersecurity. Tom previously served as a board member for the Solar Energy Finance Association, as General Manager and Vice President of Business Development for Power-One and helped start electric vehicle manufacturer Zero Motorcycles.

BREAKOUT 2 | SUSAN WILHELM - Team Lead • Environmental Research, California Energy Commission



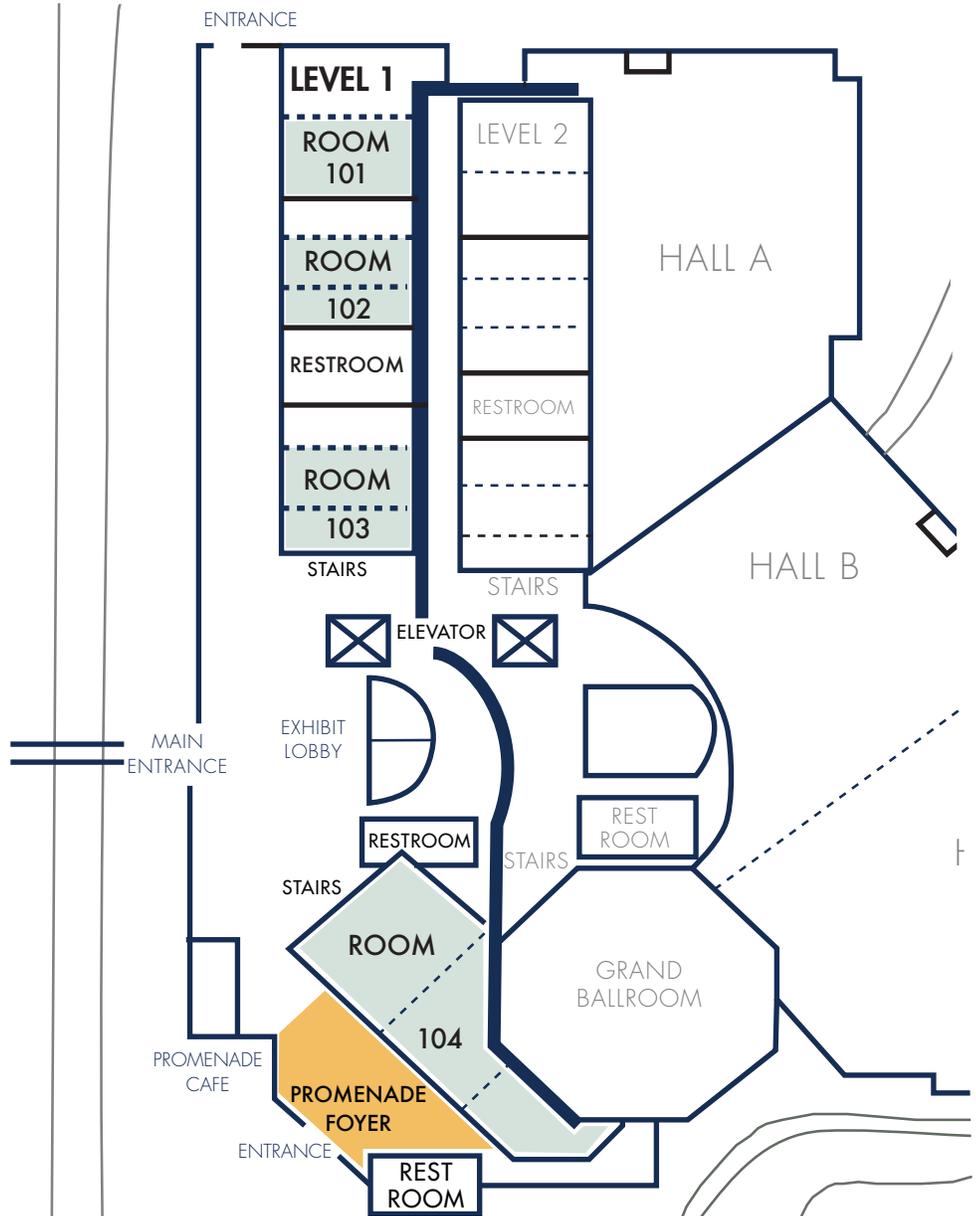
Susan Wilhelm is the team lead for energy-related environmental research at the California Energy Commission (CEC). Her team plans and manages a large portfolio of energy-related environmental research, including development of high-resolution climate projections, investigation of climate-related vulnerabilities to the energy system, and research related to methane emissions from the natural gas system. In addition, Susan's team manages risks posed by the energy system to ecosystems and public health as well as terrestrial and water resources.

EPIC Forum at the Long Beach Convention Center

Map Legend

- Level 1 Rooms
 - General Session:
 - Panels 1 and 2 • 104 A&B
 - Breakout 1 • 102 BC
 - Breakout 2 • 101 B
 - Breakout 3 • 103 BC
 - Lunch • 104 A&B

- Promenade Foyer
 - Registration





EMPOWER INNOVATION

CATALYZING THE CLEANTECH COMMUNITY

The Empower Innovation Network is a free online platform for all members of the cleantech community. Empower Innovation strives to accelerate cleantech development by providing easy access to funding opportunities, curated resources, and connections to people and organizations working to advance a clean energy economy for all.

We welcome everyone with an interest in cleantech, including startups creating new technology solutions, non-profit organizations seeking assistance for local communities, funding providers seeking applicants, and the many other members of a thriving innovation ecosystem.

The Empower Innovation Network can help you to:

- Access one of the largest collections of cleantech funding opportunities, including grants and pitch events
- Find teams for competitive grant applications through our partnership feature
- Save dates from our calendar of webinars, competitions, and cleantech conferences in California and beyond
- Manage personal resources and message other platform members from a custom user dashboard
- Explore our collection of startup and industry resources, save favorites, and create lists to share with others.

JOIN US AT EMPOWERINNOVATION.NET



The California Energy Commission’s Electric Program Investment Charge (EPIC) program invests more than \$130 million annually in scientific and technological research accelerating the transformation of the electricity sector to meet California’s energy and climate goals. The EPIC program benefits electricity ratepayers from the state’s three largest investor-owned utilities – Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas & Electric Company.

The Energy Commission is organizing and producing the EPIC event series in collaboration with the following organizations.



Gladstein, Neandross & Associates

Clean transportation and energy consulting firm with more than a decade of experience producing educational conferences and websites



Frontier Energy

Consulting firm with 30 years of experience in energy efficiency, clean transportation, and commercial food service, coupled with robust marketing, outreach, and management of stakeholder collaboratives



Larta Institute

LA-based nonprofit that maintains decades-long contracts with numerous federal agencies that are looking to accelerate technology transfer and commercialization



Sensis Cultural Change Agency

A cultural change agency that specializes in web development, with a core focus in user experience design, education, and outreach



Casamar

A California-designated Disabled Veteran Business Enterprise that has years of experience designing effective outreach programs



Register today to join us in Sacramento!

www.MeetatEPIC.com



epic
symposium

Inspire. Invest. *Innovate.*

APRIL 1 & 2, 2020

Sacramento State University

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2020 Forum Program