



# EPIC POLICY+INNOVATION FORUM

FEBRUARY 18, 2021

## EPIC POLICY + INNOVATION FORUM REPORT

EPIC POLICY + INNOVATION  
COORDINATION GROUP

**FEBRUARY 2021**

This report was completed by The Accelerate Group, a consultant to the California Public Utilities Commission and the Project Coordinator for the EPIC Policy + Innovation Coordination Group. The information herein was collected and summarized by the Project Coordinator, with input from members of the EPIC Policy + Innovation Coordination Group, and does not reflect an official position of the California Public Utilities Commission.



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# FORUM SUMMARY

The California Public Utilities Commission (CPUC) held its first Electric Program Investment Charge (EPIC) Policy + Innovation Forum on February 18, 2021, to better connect energy research, development, and deployment (RD&D) projects with current and emerging policy issues. The Forum’s goal was to highlight the results of the EPIC Policy + Innovation Coordination Group’s collaboration on equity, wildfire mitigation, transportation electrification, and utility Public Safety Power Shutoff RD&D projects.

EPIC is the largest state-level public interest electricity RD&D program in the nation, driving investments in emerging technologies to ensure the state’s energy policy goals are achieved. The CPUC created the Policy + Innovation Coordination Group to support targeted feedback among policymakers and EPIC innovators.

Panelists and participants in the Forum shared direct experiences from RD&D projects on the policy obstacles to new and emerging technology adoption, discussed ways to use these lessons to inform ongoing and upcoming CPUC proceedings, and identified new opportunities for coordination and collaboration to accelerate energy innovation.

There were 386 stakeholders that participated in the day-long event, including California Public Utilities Commission and California Energy Commission staff and Commissioners; research, development, and deployment (RD&D) project leaders; utilities; technology solution providers; researchers; and community representatives.

## Key recommendations

### Next steps to support coordination and collaboration

TRANSPORTATION  
ELECTRIFICATION

1. The CPUC’s Transportation Electrification workshops and workstreams should look at ways to share high temporal and spatial resolution data, such as feeder models and load data, with developers deploying EV charging infrastructure, or alternatively providing EV charging projects with signals to follow or with safe load envelopes to operate within. ([p. 9](#))

TRANSPORTATION  
ELECTRIFICATION

2. Through pilots and RD&D projects, projects should continue to test and validate the ability of commercial electric vehicle supply equipment and vehicles to communicate with each other and with utility signals for grid needs. ([p. 9](#))

TRANSPORTATION ELECTRIFICATION	3. Convene conversations between vehicle manufacturers and the research community to compile large EV charging datasets to help stakeholders get better visibility into charging behavior support policy around EV charging station deployment, incentives, rates, and managed charging strategies. ( <a href="#">p. 9</a> )
EQUITY	4. Community- and DAC-focused EPIC projects should be required to work alongside community members and community-based organizations to co-create project goals, create transparent and clear decision-making processes, hire local, and be designed around the most vulnerable. ( <a href="#">p. 11</a> )
EQUITY	5. Community-based organizations should be leveraged in EPIC projects to provide leadership roles beyond just outreach, as paid project team members with significant expertise. ( <a href="#">p. 11</a> )
EQUITY	6. EPIC projects can measure success in promoting equitable access by first co-designing outcomes with the community, collecting core data related to these outcomes, and then conducting quantitative and qualitative assessments to see if projects are reaching those goals. Projects should also be flexible and open to adjusting project design if goals are not being met. ( <a href="#">p. 11</a> )
WILDFIRE MITIGATION	7. New collaborative research opportunities should be explored around building next generation wildfire models that can easily incorporate new data inputs as climate changes are observed, as climate is changing faster than models can be updated (an “update science” button). ( <a href="#">p.13</a> )
WILDFIRE MITIGATION	8. Government, utilities, and researchers should work together to create an open-source climate data enterprise, modeled after the National Weather Service, that pulls together a vast infrastructure that can make current weather data and climate projections easily available, provides access to models and analytical tools, and publishes metrics for utility operations and decision-making. ( <a href="#">p.13</a> )
PSPS	9. Regulators should convene developers, utilities, and local governments to standardize designs and building codes to speed up permitting and the interconnection process, allowing for modular and scalable plug-and-play designs, with a goal to get to a development timeline of less than six months. ( <a href="#">p. 15</a> )
PSPS	10. Utilities should enable secure access to local grid and customer data, as well as to technical personnel, to allow communities to quickly assess the feasibility of microgrid projects. ( <a href="#">p. 15</a> )
PSPS	11. In the new community microgrid programs, utilities should follow the lead of communities for defining and determining community resiliency needs, in coordination with decarbonization strategies, and work closely with communities and developers early on as partners to enable community efforts. ( <a href="#">p. 15</a> )

COMMUNITY CONVERSATION	12. Utilities should identify community liaisons who can serve as a single point of contact to help disadvantaged communities retrofit and upgrade infrastructure and leverage multiple funding streams. To enable comprehensive projects like those identified by the City of Richmond, communities will have to bundle electric vehicle incentives, SGIP incentives, and energy efficiency dollars, as well as other financing. <a href="#">(p. 17)</a>
COMMUNITY CONVERSATION	13. Program administrators and regulators should evaluate their funding structures to determine whether they are sufficiently able to reach the communities most in need. That evaluation should include an examination of initial goal setting, technical assistance, program rules and requirements, and funding levels. <a href="#">(p. 18)</a>
COMMUNITY CONVERSATION	14. Support communities with additional information and resources for their fleet electrification efforts, including online tools, planning grants, and low-cost financing for electrification projects. <a href="#">(p. 20)</a>
BREAKOUT SESSION	15. As work continues to identify sources of funding to support technical assistance for communities to participate in EPIC projects and other opportunities, communities should leverage the new “places” page on the California Energy Commission’s Empower Innovation platform ( <a href="https://www.empowerinnovation.net">https://www.empowerinnovation.net</a> ) to build out a community profile and identify local plans and needs for energy innovation. <a href="#">(p. 22)</a>
BREAKOUT SESSION	16. The CPUC is working to implement SB 676, and is leading workshops and workstreams to address different VGI open questions. Stakeholders should engage in Automated Load Management and managed charging topics through the CPUC workshops as they seek to address obstacles and challenges to these strategies. Utilities should work to identify how to define and standardize ALM technology and communications so it can be incorporated into design standards for projects. <a href="#">(p. 23)</a>
BREAKOUT SESSION	17. To increase knowledge sharing among wildfire mitigation pilots and investments, the CPUC should evaluate creating a forum for knowledge-sharing that brings together utilities, technology solutions providers, regulators, communities, and utilities from other states, to share technology and risk assessments strategies, with a focus on: what technologies have been tested, what has and hasn’t worked, common agreements on data sharing, and pilots that can leverage combinations of technologies for wildfire risk reduction. <a href="#">(p. 25)</a>
BREAKOUT SESSION	18. As part of working groups and discussion in the R19-09-009 proceeding, the CPUC should examine the feasibility of allowing for multi-customer microgrid islanding during blue sky events (i.e., normal days without extreme weather events) to enable customers to maintain reliability during maintenance or in anticipation of PSPS events, for power quality, and for market participation. <a href="#">(p. 26)</a>

# BACKGROUND

## What is the Policy + Innovation Coordination Group?

The California Public Utilities Commission (CPUC) oversees and monitors the implementation of the ratepayer-funded Electric Program Investment Charge (EPIC) research, development, and deployment program. For current EPIC funds from investment periods 1, 2, and 3, there are four program administrators: the California Energy Commission (CEC), Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E).

In Decision 18-10-052, the CPUC established the Policy + Innovation Coordination Group (PICG)—comprised of a Project Coordinator, the four Administrators, and the CPUC—to increase the alignment of EPIC investments and program execution with CPUC and California energy policy needs.

## Partnership Area Workstreams in Fall and Winter 2020

In August 2020, the California Public Utilities Commission (CPUC) launched four Partnership Areas where RD&D projects funded through the CPUC's EPIC Program could accelerate innovation and create a positive feedback loop between the State's electricity RD&D efforts and emerging energy policy challenges: equity, transportation electrification, wildfire mitigation, and public safety power shutoffs. The Partnership Areas were identified as critical and timely for decision-making for 2020.

To facilitate productive input, the Policy + Innovation Coordination Group established workstreams for each Partnership Area to allow RD&D project leaders and stakeholders to share their direct experience in RD&D projects, identify policy obstacles to new and emerging technology adoption, help inform Commission proceedings and other policy deliberations, and create new collaborations to accelerate energy innovation.

More information on the EPIC Policy + Innovation Coordination Group and the 2020 workstreams can be found at: [www.epicpartnership.org](http://www.epicpartnership.org).

## Presentations & Panelists

<b>Presenter / Panelist</b>	<b>Organization</b>
President Marybel Batjer	California Public Utilities Commission
Commissioner Martha Guzman Aceves	California Public Utilities Commission
Commissioner Clifford Rechtschaffen	California Public Utilities Commission
Chair David Hochschild	California Energy Commission
Commissioner Karen Douglas	California Energy Commission
Caroline Thomas Jacobs	Director, Wildfire Safety Division, CPUC
Zachary Lee	PowerFlex Systems
Jordan Smith	Southern California Edison
Gustavo Vianna Cezar	SLAC National Accelerator Laboratory
David Diaz	Active SGV
Amee Raval	Asian Pacific Environmental Network
Alexandria McBride	City of Oakland
David Saah	SIG-GIS
Nisha Menon	San Diego Gas & Electric
Nanpeng Yu	University of California – Riverside
Marna Schwartz	City of Berkeley
Vipul Gore	Gridscape Solutions
Nikky Avila	PG&E
Andrew Barbeau	EPIC PICG Project Coordinator

# WELCOME AND KICKOFF

10:00 AM – 10:15 AM

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**Commissioner Martha Guzman Aceves**  
California Public Utilities Commission



**Chair David Hochschild**  
California Energy Commission



**Andrew Barbeau**  
EPIC PICG Project Coordinator

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## Summary

Commissioner Guzman Aceves provided introductory remarks on the work of the EPIC Policy + Innovation Coordination Group during 2020 and highlighted the role of research & development in finding solutions for our communities and our world.

Chair Hochschild provided comments on the need to accelerate work on climate solutions and resilience, as evidenced by the recent extended blackouts in Texas. Chair Hochschild also thanked the CPUC for its historic vote in August 2020 to extend the EPIC program, and the partnership between CEC and CPUC on RD&D, for the next decade. Finally, the Chair urged that EPIC should continue lifting up and supporting communities that have been hardest hit by pollution.

# TRANSPORTATION ELECTRIFICATION PANEL

10:15 AM – 10:55 AM

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**Commissioner Clifford Rechtschaffen**  
California Public Utilities Commission



**Zachary Lee**  
PowerFlex Systems



**Jordan Smith**  
Southern California Edison



**Gustavo Vianna Cezar**  
SLAC National Accelerator Laboratory

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## Summary

Commissioner Rechtschaffen opened the Transportation Electrification panel discussion with comments on how transportation electrification is critical to California’s decarbonization efforts. The Commissioner stressed the need for innovation and coordination around the issues of bringing costs down, including through rates and rate design; increasing consumer awareness; ensuring convenience, including by ensuring EVs and charging stations reach low- and moderate-income communities; making sure electrification doesn’t adversely affect the grid; and taking advantage of electric vehicles as a grid asset to promote reliability, integrate renewables, and address resiliency needs.

Panelists discussed key learnings from the Transportation Electrification Workstream, including:

- Learning 1: Software solutions can reduce grid infrastructure upgrades costs in installing EV infrastructure.
- Learning 2: Leveraging managed charging as a solution to reduce grid upgrade costs can be accomplished by sharing more grid infrastructure data, or by establishing managed charging standards.
- Learning 6: There is a clear path for V2G with DC-based charging systems with smart inverters.
- Learning 7: Consistent standards will support development of V2G with AC-based charging systems.
- Learning 9: Workplace charging has potential benefits for supporting the grid and can be the easiest to incorporate into managed charging.
- Learning 10: Compiling large, anonymized EV datasets for the research community, utilities, solution providers, and policymakers can help them plan for and optimize electric vehicle charging.

## Key Recommendations

- The CPUC's Transportation Electrification workshops and workstreams should look at ways to share high temporal and spatial resolution data, such as feeder models and load data, with developers deploying EV charging infrastructure, or alternatively providing EV charging projects with signals to follow or with safe load envelopes to operate within.
- Through pilots and RD&D projects, projects should continue to test and validate the ability of commercial electric vehicle supply equipment and vehicles to communicate with each other and with utility signals for grid needs.
- Convene conversations between vehicle manufacturers and the research community to compile large EV charging datasets to help stakeholders get better visibility into charging behavior to support policy around EV charging station deployment, incentives, rates, and managed charging strategies.

# EQUITY PANEL

10:55 AM – 11:35 AM

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**Commissioner Karen Douglas**  
California Energy Commission



**David Diaz**  
Active SGV



**Amee Raval**  
Asian Pacific Environmental Network



**Alexandria McBride**  
City of Oakland

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## Summary

Commissioner Karen Douglas framed the discussion around the need to find ways to enable the state's more vulnerable communities to be able to manage through changes and challenges caused by climate change. The Commissioner highlighted that 65% of CEC's technology development and deployment funds have gone to projects located in and benefiting low-income and disadvantaged communities, and that the CEC and CPUC have a shared vision to integrate equity into research & development.

Commissioner Douglas mentioned that the work of the PICG has been valuable in bringing together lessons learned from a number of projects funded through the EPIC program, and highlighted the

importance of engaging communities meaningfully, from concept to implementation and project handoff. She highlighted the learning from the workstream that engaging communities early is essential so that they can co-create project goals and take part in the innovation process.

The panelists discussed key learnings from the Equity Workstream, including:

- Learning 1: Community engagement in RD&D should start before site selection.
- Learning 2: Local credibility and knowledge are vital to community buy-in and project impact.
- Learning 3: Community engagement should be used to co-create project goals, and not be seen as a checkbox.
- Learning 4: Benefitting a community requires more than simply locating a project there.
- Learning 7: Early engagement strategies should be tailored to meet specific needs for each community.
- Learning 8: Project leaders and researchers should engage CBOs as paid project partners to achieve equitable research.

## Key Recommendations

- Community- and DAC-focused EPIC projects should be required to work alongside community members and community-based organizations to co-create project goals, create transparent and clear decision-making processes, hire local, and be designed around the most vulnerable.
- Community-based organizations should be leveraged in EPIC projects to provide leadership roles beyond just outreach, as paid project team members with significant expertise.
- EPIC projects can measure success in promoting equitable access by first co-designing outcomes with the community, collecting core data related to these outcomes, and then conducting quantitative and qualitative assessments to see if projects are reaching those goals. Projects should also be flexible and open to adjusting project design if goals are not being met.

# WILDFIRE MITIGATION PANEL

12:35 PM – 1:15 PM

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**Caroline Thomas Jacobs**

Director, Wildfire Safety Division, California Public Utilities Commission



**David Saah**

SIG-GIS



**Nisha Menon**

San Diego Gas & Electric



**Nanpeng Yu**

University of California, Riverside

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## Summary

Caroline Thomas Jacobs, Director of the Wildfire Safety Division at the California Public Utilities Commission, provided introductory remarks outlining the seriousness and urgency of the need for more and better data to understand fires, the grid, and wildfire risk. Director Jacobs pointed to the tragedy of the fires of 2020—9,600 fires, 4 million acres burned, 10,000 buildings destroyed, 21 deaths, and a record-breaking number of unhealthy air pollution days—and the work the CPUC is doing to reach an outcome of having zero grid-related wildfires and associated impacts. This work is guided by the principles of collaborating effectively and breaking down silos, looking at wildfire risk and exposure from a local perspective, thinking long-term, and driving risk-informed and data-supported decision-making.

Director Jacobs highlighted how several of the Wildfire Mitigation Workstream learnings discuss the need for data: more data, better data, centralized data, and shared data. The Director shared that the CPUC's new 2020 framework for Wildfire Mitigation Plans builds on these learnings and includes categories for risk assessment and data governance, and looks forward to what these efforts highlighted by the workstream will be able to contribute to.

The panelists discussed key learnings from the workstream, including:

- Learning 1: Wildfire models and climate forecasting tools need better and more consistent input data.
- Learning 3: Open source and standardized weather data sets will accelerate research and modeling of wildfire threats and increase transparency of utility decision-making.
- Learning 6: Cost-effective wildfire management depends on being able to granularly assess risk.
- Learning 8: There is no playbook or "recipe" for wildfire mitigation strategies or deployment of technologies.
- Learning 10: Compiling accurate, complete, and current data on electric grid assets is essential to performing predictive maintenance on the distribution grid.
- Learning 11: A centralized, integrated hub for sensor and situational awareness tools can create greater insights and quicker responses compared to the siloed system that exists today.

## Key Recommendations

- New collaborative research opportunities should be explored around building next generation wildfire models that can easily incorporate new data inputs as climate changes are observed, as climate is changing faster than models can be updated (an "update science" button).
- Government, utilities and researchers should work together to create an open-source climate data enterprise, modeled after the National Weather Service, that pulls together a vast infrastructure that can make current weather data and climate projections easily available, provides access to models and analytical tools, and publishes metrics for utility operations and decision-making.

# PUBLIC SAFETY POWER SHUTOFFS PANEL

1:15 PM – 1:55 PM

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**President Marybel Batjer**  
California Public Utilities Commission



**Marna Schwartz**  
City of Berkeley



**Vipul Gore**  
Gridscape Solutions



**Nikky Avila**  
PG&E

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## Summary

CPUC President Marybel Batjer kicked-off the Public Safety Power Shutoff Panel by highlighting the reality that wildfire seasons in California are starting earlier, and ending later, stating that reliable electricity service is essential to the safety and well-being of Californians. Every time the utility shuts off the power, President Batjer said, it is trading the safety and immediate well-being of its customers to mitigate wildfire risk, and the effects on peoples' lives are very real.

President Batjer outlined the steps that the CPUC is taking to make utilities improve their management of public safety power shutoff events. Those steps include: requiring the utilities to consult with local communities and others to hear directly about the impacts of PSPS in the

community and to incorporate the feedback into their planning; to expand the hours of community resource centers; and identifying more people medically at risk from an extended power outage. Going forward, President Batjer said that the CPUC will be engaging in strict oversight of Southern California Edison due to mismanagement of PSPS events in 2020, and will be working with utilities to improve performance and planning for 2021.

President Batjer introduced the panel conversation by noting that the EPIC program will accelerate innovation to help solve these challenges. Panelists discussed the following key learnings from the Public Safety Power Shutoff Workstream:

- Learning 1: Creating standardized pathways for community energy and microgrid projects will enable more projects to be successful.
- Learning 2: Communities should design community-focused energy projects that address their core objectives and recognize their unique needs.
- Learning 4: Communities and developers need access to local grid and customer data to be able to design community energy solutions and multi-site microgrids.
- Learning 6: Allowing multi-customer microgrids to use existing distribution lines or cross rights-of-way will enable low-cost and quicker deployment.
- Learning 7: Clearly defined operational responsibilities can help enable multi-customer microgrid solutions.

## Key Recommendations

- Regulators should convene developers, utilities, and local governments to standardize designs and building codes to speed up permitting and the interconnection process, allowing for modular and scalable plug-and-play designs, with a goal to get to a development timeline of less than six months.
- Utilities should enable secure access to local grid data and customer data, as well as to technical personnel, to allow communities to quickly assess the feasibility of microgrid projects.
- In the new community microgrid programs, utilities should follow the lead of communities for defining and determining community resiliency needs, in coordination with decarbonization strategies, and work closely with communities and developers early on as partners to enable community efforts.

# COMMUNITY CONVERSATION

EPIC POLICY + INNOVATION COORDINATION GROUP

## COMMUNITY CONVERSATIONS

11:35 AM - 12:05 PM

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### COMMUNITY CONVERSATION

#### **Making the case for updating older buildings in Disadvantaged Communities**

*Join a conversation with Denée Evans, City of Richmond, to discuss challenges making the business case for updating older buildings in DACs.*

Denée Evans, with the transportation department of the City of Richmond, described how people in Richmond have had difficulty for a long time participating in the renewable energy transition. Denée identified the barriers that they have seen that have limited this participation, including:

- Longstanding structural and programmatic barriers, such as neighborhoods being excluded from transportation hubs and planning
- Inadequate business and financing strategies to retrofit aging buildings
- A lack of meter-based data for energy planning and evaluations
- High levels of renters and people with lower incomes
- Difficulty communicating with residents with limited English
- A lack of full community engagement

Denée described the challenges Richmond residents face, including the 3,000-acre Chevron refinery that has created a significant amount of pollution in the community historically. Ten out of 18 census tracts in Richmond are designated as DACs by the CA Healthy Place Index. Almost 10% of households in Richmond do not own a vehicle.

While the community wants to take aggressive steps to cut air pollution, improve health, create healthier buildings, support electric shuttles and electric vehicle services, increase resiliency, create community emergency centers, and address the digital divide, Richmond are limited to what they can do with their existing community support facilities.

Denée pointed specifically to the Parchester Village Community Center as a prime example of the obstacles Richmond is having to address. The Parchester Village Community Center is located in a planned community of 400 single story homes, a community that is nearly 80% African American. While the community wants to implement Electric Vehicle Supply Equipment, solar panels, or even air conditioning at the site, the facility lacks the infrastructure to accommodate such equipment, as the Center’s electrical panel is old and built to current capacity.

The city has been struggling with a budget deficit and has been unable to spend resources on infrastructure projects. As a result, public-private partnerships have proven elusive. COVID-19 has impacted the city’s staffing levels and its ability to facilitate this work. When projects are moving, such as with their EVgo project, the city has shown it can and will move quickly, but still faces delays dealing with PG&E. Other restrictions on utility offerings, such as a 10-stall charging minimum required by PG&E for its EV incentives, have prevented Richmond from participating.

### **Key Recommendation**

- Utilities should identify community liaisons who can serve as a single point of contact to help disadvantaged communities retrofit and upgrade infrastructure and leverage multiple funding streams. To enable comprehensive projects like those identified by the City of Richmond, communities will have to bundle electric vehicle incentives, SGIP incentives, and energy efficiency dollars, as well as other financing.

## COMMUNITY CONVERSATION

### **Overcoming challenges to DACs participating in EPIC**

*Join a community conversation with Garrett Wong to discuss ways to support Disadvantaged Communities addressing community energy needs.*

In a Community Conversation, Garrett Wong, Climate Program Manager of the County of Santa Barbara, described his experience with the EPIC program, highlighting the challenges that many disadvantaged communities have with pursuing grants and participating in the program. Garrett urged the program administrators to think deliberately about how to focus on increasing equity from several different lenses:

- **Procedural Equity:** Evaluating whether decision-making is inclusive and accessible and occurs early and often. Garrett described ways to increase equity in process, including

through language access, stipends, childcare support, and in accessible locations for conversations.

- **Distributional Equity:** Defined as how funds, time, attention, and other resources are allocated across communities.
- **Structural Equity:** Defined as being conscious of the institutions that govern and manage the use of resources, adoption of laws, enforcement, and developing rules, and the voices that determine those laws and rules.
- **Transgenerational Equity:** Defined as how historical actions (e.g., slavery, redlining) have had impacts that cut across time and limit the accumulation of generational wealth.

Specifically, Garrett pointed to the application process as a significant barrier for communities to participate in the EPIC program. Funding opportunities are limited to the topic areas decided by funding institutions and not by communities. Technical requirements and knowledge needs create a barrier for most communities. Short timelines create false urgency and rushed decision-making. This means the programs only reach people who know what to look for, how to apply, and what the technical requirements are, and who have the foresight to think about what it means to be a decarbonized community or a grid-interactive community. The effort it takes to apply for a grant creates a steep hill to climb in terms of resources, technical capability, timing, leadership, and community support.

### **Key Recommendation**

- Program administrators and regulators should evaluate their funding structures to determine whether they are sufficiently able to reach the communities most in need. That evaluation should include an examination of initial goal setting, technical assistance, program rules and requirements, and funding levels.
  - **Initial goal setting:** how to incorporate community needs in the initial establishment of funding areas, strategies and solicitations, and to continue to organize work around community needs, rather than funding moments.
  - **Technical assistance:** opportunities for up-front technical assistance or planning funds to support communities without the resources to put together projects and applications, or, alternatively, the opportunity to reimburse communities for reasonable application expenses. Communities that apply expend significant time and resources to put together applications competing against other disadvantaged communities, with the losers stuck with unreimbursed costs.
  - **Program rules and requirements:** examining match funding requirements for disadvantaged communities that do not have resources, and rules that prohibit wealth sharing opportunities for projects.
  - **Funding levels:** how to consider that projects may cost more in disadvantaged communities where infrastructure is in disrepair and are not starting from a level playing field.

## Challenges/Opportunities in Municipal Fleet Electrification

*Hear from the cities of Fremont and Fresno on their goals to electrify their municipal fleets, and their obstacles and challenges.*

The breakout session brought representatives from the cities of Fremont and Fresno to discuss their community energy goals around transportation electrification, and electrification of municipal fleets, and to gain input or insights on addressing their obstacles and challenges. Rachel DiFranco, from the City of Fremont, started the community conversation with a presentation on their recent planning process for the electrification of their city fleet vehicles. Their study found:

- One-third of the city's fleet can be replaced with EVs that are currently on the market.
- The replacement of 189 vehicles with EVs would result in a \$3 million savings for the total cost of ownership for the vehicle component, but they need to figure out the charging infrastructure.
- The total cost of EV charging infrastructure is \$1.05 million, not including engineering and procurement management costs, and the city does not have a funding source for infrastructure.
- The total cost of EV charging includes managed charging, which reduces the total number of charging ports needed.
- Through this project, the city was able to develop informational resources that can be useful for the broader community, found at: [www.evfleet.tools](http://www.evfleet.tools).

Ann Kloose, from the City of Fresno, also led a discussion around the city's efforts around transportation electrification. Specifically, she identified the following challenges:

- The city is looking for insights on how to select the right organization to assess the opportunities and costs of electrifying their fleet, as they can't do it themselves due to a lack of personnel and expertise.
- Discussion included the benefit of having telematic data on existing vehicle driving patterns, which can allow cities to load that information into Lawrence Berkeley National Lab's myfleetbuy tool to see EV replacement options.
- The City of Fresno also highlighted the challenge of vandalism, theft, and damage from deploying some public EV charging infrastructure, and that is a challenge all communities will have to confront.

### Key Recommendation

- Communities have identified a need for additional information and resources to support their fleet electrification efforts, including planning and analysis tools, planning grants, and low-cost financing.

- Make communities aware of helpful tools, such as [www.evfleet.tools](http://www.evfleet.tools) and LBNL's myfleetbuy tool, to support municipal transportation electrification efforts.
- Increase planning grants for local governments to conduct sophisticated EV planning efforts that incorporate managed charging strategies and identify lifecycle cost comparisons.
- Identify funding or low-cost financing source for EV charging infrastructure to support municipal fleet electrification, as that cost is holding back communities.

# BREAKOUT SESSIONS

11:35 AM – 12:05 PM



## **What could Technical Assistance look like for Communities?**

How can we empower communities to take a leadership role in identifying their own needs and pursue EPIC and other funding?



## **Opportunities for standardizing "Automated Load Management."**

How can utilities, companies and regulators develop a consistent process for ALM to help offset upfront infrastructure costs?

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### BREAKOUT SESSION

## **What could Technical Assistance look like for Communities?**

*How can we empower communities to take a leadership role in identifying their own needs and pursue EPIC and other funding?*

The breakout session followed up on the key recommendations of the presenters from the Equity panel on the need to put community needs first in the development of EPIC-funded research, development, and deployment projects.

The focus on putting community needs first included recommendations around:

- Engaging communities long before site selection
- Building community capacity to lead
- Reforming funding structures to develop community-based organizations as project partners
- Actively engage communities throughout a project
- Ensuring long-term commitment and tracking after a project is done

In the breakout discussion, participants discussed challenges that communities face in participating in pilot projects or funding opportunities, particularly communities that are in unincorporated areas of the state. A key challenge identified by participants was that project applications typically require technical expertise that small communities or community organizations do not have. Further, these

communities often do not know who to reach to help address needs that they have already identified.

### **Key Recommendation**

- As work continues to identify sources of funding to support technical assistance for communities to participate in EPIC projects and other opportunities, communities should leverage the new “places” page on the California Energy Commission’s Empower Innovation platform (<https://www.empowerinnovation.net/en/page/cec-en>) to build out a community profile and identify local plans and needs for energy innovation.

### BREAKOUT SESSION

## **Opportunities for standardizing “Automated Load Management”**

*How can utilities, companies, and regulators develop a consistent process for ALM to help offset upfront infrastructure costs?*

As electric vehicle charging infrastructure is deployed, the power requirements of medium- and heavy-duty and fleet vehicle charging infrastructure (and in some cases non-fleet passenger vehicle charging) will often exceed the existing electrical service capabilities of a customer. Most applications could require significant and costly upgrades, such as to electrical panels, main electrical rooms, electric service and transformers. Some applications may require additional upgrades on the feeder of the electric distribution system.

EPIC projects participating in the Transportation Electrification workstream identified that software-based energy management systems, which can limit the maximum charging level of a fleet of vehicles on the customer side of the service, have strong potential to avoid the need for additional and costly service upgrades and/or customer side electrical capacity upgrades. This managed charging would ensure that connected load does not exceed the rated capacity of the line serving it.

In the discussion, Jordan Smith identified that Southern California Edison is working with the CPUC to identify where the right application of Automated Load Managed technology is. He described that they are trying to formalize ALM as a standard piece of equipment that can be recognized and easily incorporated into design standards.

Some concerns were raised in the discussion about risks to EV adoption if there ends up being a lot of throttling of EV charging, through frequent and extended periods where EV charging is actively-

reduced, leaving EV owners with insufficient charge to commute or travel. The discussion centered around the option to set minimum levels of charging that would always be available.

Additional comments focused on the need for outcome-based price signals for all DERs with two-way communication. SCE identified that they are working on communication platforms, such as IEEE 2030.5, and that their work on a DERMS platform can enable communication with DERs and compensation for DER services, including for constrained circuits to avoid upgrades.

Discussion on avoiding distribution upgrades pointed to a recent CPUC decision on pilots to avoid distribution upgrades, and whether the right approach would be through the use of local time of use rates to reduce peak capacity needs, or whether a dynamic system (such as demand response) would be preferable. San Diego Gas & Electric's Taylor Marvin discussed how SDG&E has studied real-time pricing for electric vehicle customers, passing through the CAISO day-ahead energy price that also includes system and circuit adders applied to the top hours.

### **Key Recommendations**

- The CPUC is working to implement SB 676, and is leading workshops and workstreams to address different VGI open questions. Stakeholders should engage in Automated Load Management and managed charging topics through the CPUC workshops as they seek to address obstacles and challenges to these strategies. The utilities should work to identify how to define and standardize ALM technology and communications so it can be incorporated into design standards for projects.

# BREAKOUT SESSIONS

1:55 PM – 2:25 PM



## **How to design comprehensive pilots for Wildfire Mitigation**

How can we design comprehensive pilots that combine different grid and wildfire sensors and data silos into a central decision-making tool?



## **Operational responsibilities in microgrids**

How do we define operational responsibilities among microgrid operators, DER asset owners/operators, and utilities in microgrid projects?



## **Streamlining access to data for Advanced Energy Communities**

How can utilities, communities, and regulators enable streamlined access to load and grid data to help communities better plan projects?

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## BREAKOUT SESSION

### **How to design comprehensive pilots for Wildfire Mitigation**

*How can we design comprehensive pilots that combines different grid and wildfire sensors and data silos into a central decision-making tool?*

The breakout session focused on some of the key findings and opportunities for coordination and collaboration from the EPIC Policy + Innovation Coordination Group's Wildfire Mitigation Workstream which was held in the fall. Workstream participants highlighted that, often, technology that is being deployed to help with Wildfire Mitigation lives in silos. There are cameras for monitoring wildfire ignition, Unmanned Aerial Vehicles to observe equipment that might be at risk of failure, line sensors to detect faults before or after they happen, and machine learning pilots to better detect patterns in individual sensor data.

One emergent idea that came up in the workstream was to explore how utilities and researchers could design and implement pilot projects to pull this siloed information together to create a single assessment system. The breakout session focused on that question: Are there ways to better

prevent, mitigate, or respond to wildfires, and to minimize PSPS impacts, by leveraging multiple streams of information in a comprehensive way?

Participants discussed that comprehensive pilots can be looked at from two angles: vertical pilots would look at a full suite of technology in a focused geographic area, while horizontal pilots would take the shape of a technology incubator with utility, technology, and public policy representatives working collaboratively around a subject.

Caroline Thomas Jacobs, Director of the Wildfire Safety Division at CPUC, said the key priorities are:

1. Creating more density of remote sensing devices in high-risk areas.
2. Exploring what combination of technologies prove to be the best at a) identifying and reducing risk, and b) identifying and responding to ignition when it does occur, and prioritizing those solutions in a local way.

SDG&E said they are looking at what solutions are able to get them the biggest risk reduction, as they know they can't do everything and they have to find the most cost-effective way of doing it.

To achieve those outcomes, participants noted that more communication has occurred between the utilities due to the Wildfire Mitigation Plan process, allowing utilities to explore different solutions and compare knowledge. To go forward, there has to be a perspective that localization doesn't mean every utility doing its own thing—it means that learnings from pilots can be beneficial across the board, and then utilities and communities can work together to see which solutions can be targeted to different geographic areas. Such sharing is beginning, but needs to be enhanced, within California, and among neighboring states that are facing similar challenges around the growing frequency and consequences of wildfires.

### **Key Recommendation**

- To increase knowledge sharing among wildfire mitigation pilots and investments, the CPUC should evaluate creating a forum for knowledge-sharing that brings together utilities, technology solutions providers, regulators, communities, and utilities from other states, to share technology and risk assessments strategies, with a focus on: what technologies have been tested, what has and hasn't worked, common agreements on data sharing, and pilots that can leverage combinations of technologies for wildfire risk reduction.

## Operational responsibilities in microgrids

*How do we define operational responsibilities between microgrid operators, DER asset owners/operators, and utilities in microgrid projects?*

One of the greatest challenges still to be solved for multi-customer microgrids, according to panelists at the second PSPS Workstream meeting and during the PSPS panel, is determining the roles and responsibilities of different operation actors in a multi-customer microgrid project. These projects are often envisioned as a collaborative effort between individual customers, DER owners and operations, third-party developers, and utilities operating the grid. EPIC projects and ongoing work by workstream participants are helping to add insight into who controls different microgrid assets spread across multiple customers and operators, and how that control occurs.

The discussion in the breakout session focused on the details and decision-making around the process of islanding multi-customer microgrids. Participants described scenarios where islanding during “blue-sky” conditions (i.e., normal days without extreme weather events) might be in customers’ interest, including pre-emptively for maintenance or PSPS events, to support power quality, as part of market participation, or to enable a seamless transition. Participants also discussed the interest in enabling more community control of potential multi-customer microgrids, such as in high fire threat districts, along single feeders, and to address equity concerns due to outages.

### Key Recommendation

- As part of working groups and discussion in the R19-09-009 proceeding, the CPUC should examine the feasibility of allowing for multi-customer microgrid islanding during blue sky events (i.e., normal days without extreme weather events) to enable customers to maintain reliability during maintenance or in anticipation of PSPS events, for power quality, and for market participation.

## **Streamlining access to data for Advanced Energy Communities**

*How can utilities, communities, and regulators enable streamlined access to load and grid data to help communities better plan projects?*

In the workstream meetings this fall, several Advanced Energy Community projects talked about their challenges in designing and developing microgrid and other community energy projects without being able to access information on the local grid infrastructure or customer energy data.

It is common that this information is considered confidential, for privacy and security reasons, but communities looking to develop projects to boost energy assurance, community resiliency, local environmental impacts, economic development, and other objectives need to have insight into this information to effectively design the site, size, infrastructure, and finance-ability of the projects. The breakout sessions discussed ways to better enable access to community energy data for such projects.

# APPENDICES

## Welcome and Introduction:

Video Recording: <https://vimeo.com/514406905>

## Transportation Electrification Panel

Video Recording: <https://vimeo.com/514416877>

Presentations:

[https://epicpartnership.org/resources/PICG\\_Forum\\_Transportation\\_Presentations.pdf](https://epicpartnership.org/resources/PICG_Forum_Transportation_Presentations.pdf)

## Equity Panel

Video Recording: <https://vimeo.com/514435213>

Presentations: [https://epicpartnership.org/resources/PICG\\_Forum\\_Equity\\_Presentations.pdf](https://epicpartnership.org/resources/PICG_Forum_Equity_Presentations.pdf)

## Wildfire Mitigation Panel

Video Recording: <https://vimeo.com/514541432>

Presentations:

[https://epicpartnership.org/resources/PICG\\_Forum\\_Wildfire\\_Presentations.pdf](https://epicpartnership.org/resources/PICG_Forum_Wildfire_Presentations.pdf)

## Public Safety Power Shutoffs Panel

Video Recording: <https://vimeo.com/514577475>

Presentations: [https://epicpartnership.org/resources/PICG\\_Forum\\_PSPS\\_Presentations.pdf](https://epicpartnership.org/resources/PICG_Forum_PSPS_Presentations.pdf)

More information on the EPIC Policy + Innovation Coordination Group and the Forum can be found online at [www.epicpartnership.org](http://www.epicpartnership.org).