California Public Utilities Commission

Climate Adaptation Equity Workshop

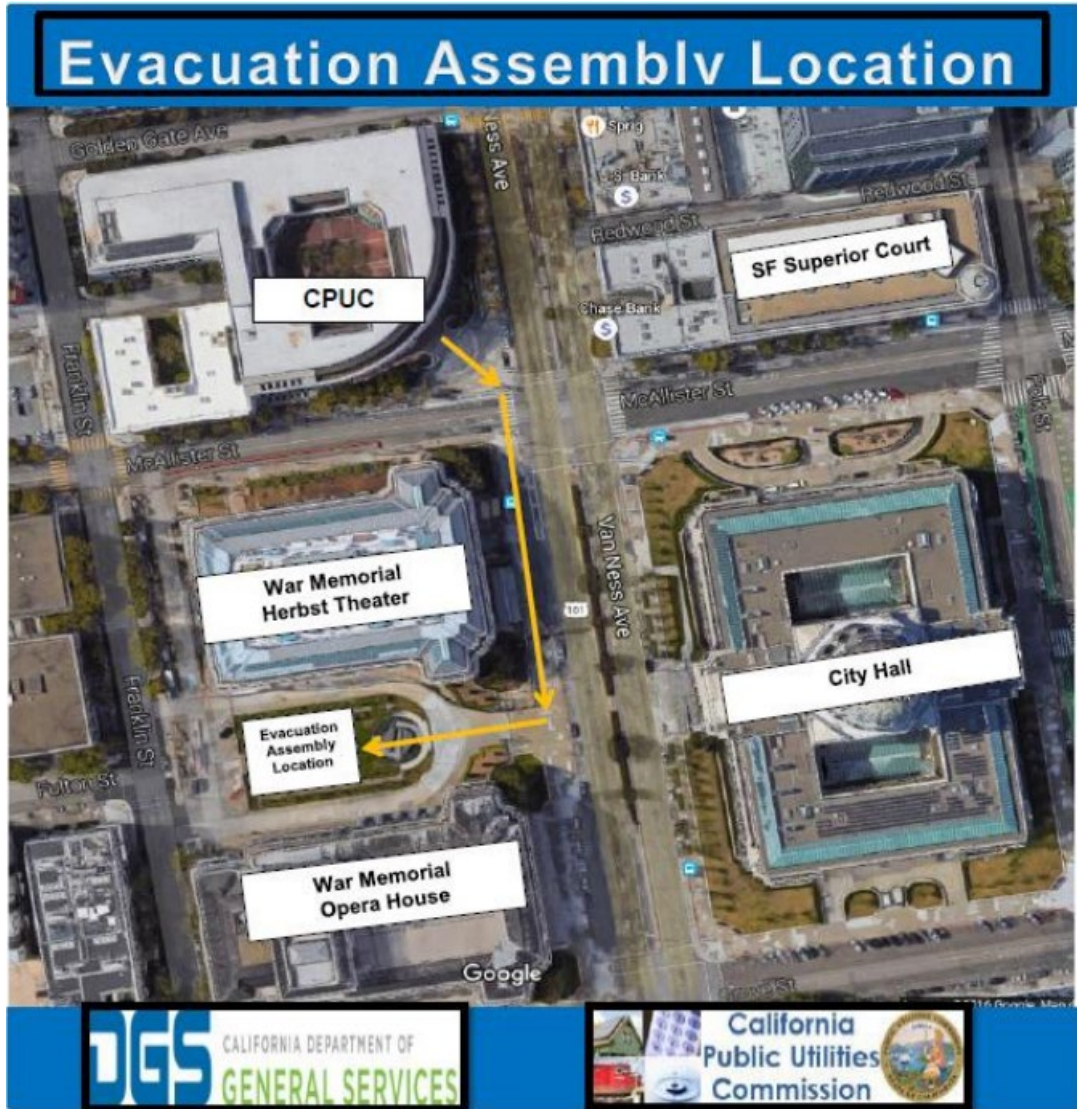
Climate Adaptation Proceeding (R.18-04-019)

Meghan Cook – CPUC Climate Adaptation Analyst

August 27, 2025

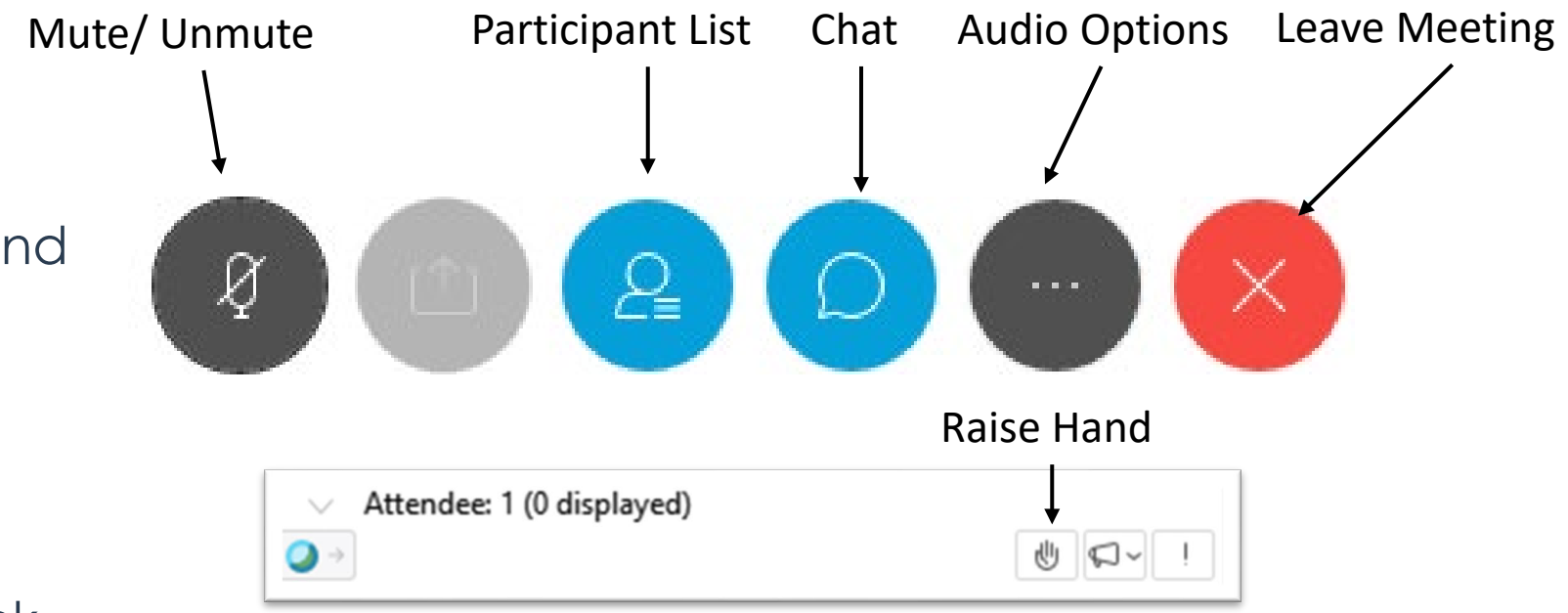
Welcome & Introduction

Restrooms & Safety Procedures



- Restrooms available across the courtyard. Go through the "Auditorium" doors and turn right.
- In event of evacuation, please exit the Courtyard and down the front steps, turn right (south on Van Ness Ave) past the War Memorial Herbst Theater to the Garden Plaza, between the War Memorial and the Opera House.

Webex Logistics



- Today's presentations (.pdf) and agenda are available on the WebEx link under "Event Material." Type the password "ADAPT" into the box and click "View Info"
- **Please note this meeting is being recorded.**
- Please submit questions for speakers in the Chat Box or raise your hand to be unmuted by staff.
  - *3 to raise hand and *6 to unmute/mute over the phone
- Questions will be read aloud by staff (Reminder: Mute back!)

Today's Agenda

Time	Content	Presenters/Participants
Introductory Information		
9:30 AM	**Welcome**	Meghan Cook - CPUC
9:40 AM	**Commissioner Opening Remarks**	Commissioner Houck
9:50 AM	**Overview & Background**	Meghan Cook – CPUC
IOU Roundtable: Identifying and Prioritizing Equity in CAVA Lessons Learned and Proposals for Refinement		
10:10 AM	**PG&E Presentation**	Nathan Bengtsson & Maegan Cowan – PG&E
11:10 AM	***Break***	
11:20 AM	**Facilitated Roundtable Discussion**	Various Stakeholders and Experts
12:00 AM	***Lunch Break***	
Integration of Equity Metrics into CAVA Process		
1:30 PM	**Panelist Presentations**	Various Stakeholders and Experts
2:10 PM	**Break and Interactive Activity**	
2:25 PM	**Facilitated Discussion**	Panelists
2:55 PM	***Break***	

Today's Agenda (continued)

Time	Content	Presenters/Participants
Refinement of Community Engagement Requirements for CAVA Process		
3:05 PM	**Panelist Presentations**	Various Stakeholders and Tribal Representatives
3:45 PM	**Break and Interactive Activity**	
4:00 PM	**Facilitated Discussion**	
Next Steps & Closing Remarks		
4:30 PM	**Closing Remarks**	Commissioner Houck Meghan Cook – CPUC
4:45 PM	**Adjourn**	

Community Agreements

- Workshop is structured to stimulate an honest dialogue and engage different perspectives
  - Keep comments friendly and respectful
  - Be present (as few additional screens as possible)
  - Assume best intentions but be mindful of impact
  - One person speaking at a time
  - Amplify underrepresented voices
  - Half thoughts are welcome
- Chat feature is only for Q&A or technical issues

Purpose of Workshop: Improve Equity Considerations for IOU Climate Adaptation Vulnerability Assessments (CAVAs)

CAVAs: Informational long-term planning reports to identify and mitigate risks to energy infrastructure due to climate change

Objective: 1) Engagement: Gather input to refine existing requirements for Community Engagement to inform CAVAs for; **2) Quantitative:** Discuss methods and criteria needed to measure equity impacts of CAVAs within climate adaptation planning

Outcome: Workshop input will inform a Staff Proposal and a future CPUC Decision to improve Equity guidance and impacts, anticipated in early 2026

Opening Remarks

Commissioner Darcie L. Houck

Background: Climate Adaptation Proceeding

Climate Adaptation Proceeding - (R.)18-04-019

Purpose: Requires IOUs to assess forecasted extreme climate impacts on energy infrastructure and IOU operations *decades* into the future and identify options to mitigate threats by developing and submitting to CPUC:

- Climate Adaptation Vulnerability Assessment (**CAVA**) every 4 years
- Community Engagement Plan (**CEP**) one year before their CAVA

Equity Targets: Disadvantaged and Vulnerable Communities (**DVC**) defined as: 1) Tribes, 2) 25% highest CalEnviroScreen scores, 3) median income less than 60% of state median

Informational: CAVAs are also used to inform nearer-term focus Risk Assessment Mitigation Phase (RAMP), general rate cases (GRCs), and may be used in other long-term planning proceedings (e.g., Integrated Resource Plans (IRP), Distributed Energy Resources (DER), Long-term Gas Planning)

Alignment with State Climate Adaptation Strategy Priorities

- Strengthen protections for climate vulnerable communities
- Bolster public health and safety to protect against increasing climate risks
- Build a climate resilient economy
- Make decisions based on the best available climate science

CAVA Requirements – Most Recently Updated in August 2024

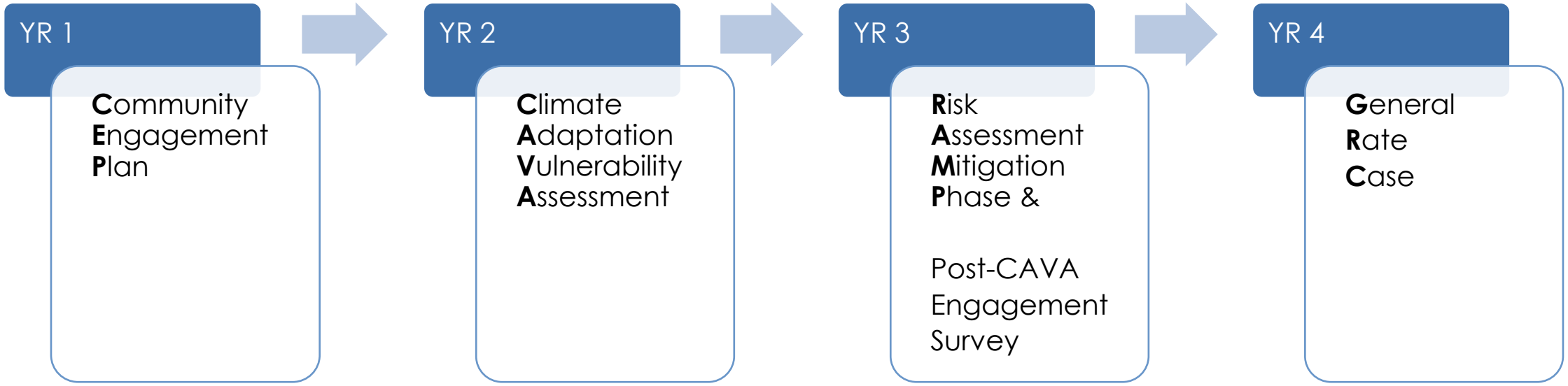
CAVAs must include:	
1.	Identify climate risk and conduct exposure analysis on infrastructure, operations, and service
2.	Consider the following climate risks: Temperature, sea level, variation in precipitation (snowpack, flooding, drought, subsidence), wildfire, and cascading impacts
3.	Utilize best available climate modeling requirements including baseline scenario, Global Warming Level approach, analyze specific degree scenarios (1.5 and 2 °C)
4.	Consider green and sustainable remedies for vulnerable infrastructure
5.	Include analysis of how IOUs promote equity in DVCs based on their adaptive capacity
6.	Include summary of CEP work in the CAVA and attached CEP to CAVA
7.	Use the two-step vulnerability methodology developed by DWR
8.	Include off-ramp for assets with low climate risk with mechanism to reassess those assets in the future

Additional CAVA Requirements

IOUs Must:

- Update climate modeling best practices as science evolves as per the California Climate Assessment and Cal-Adapt
- Publicly present and seek stakeholder and Tribal input on draft CAVAs 90 days prior to submitting to the CPUC
- Demonstrate **Incrementality**, **Prioritization**, **Cost-Effectiveness**, and **Justification** of any post-CAVA investment requests in GRC or other applications

CAVA Process – Typical Timeline



CAVA & CEP Submission Timeline is Staggered by IOU

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
SCE	CEP	CAVA & RAMP	Survey & GRC		**CEP**	**CAVA** & RAMP	Survey & **GRC**	**CEP**	**CAVA**	RAMP & Survey	**GRC**
PG&E			CEP	CAVA & RAMP	Survey & **GRC**	**CEP***	**CAVA***	RAMP & Survey	**GRC**	**CEP**	**CAVA**
SDG&E				CEP	**CAVA** & RAMP	Survey & **GRC**	**CEP**	**CAVA**	RAMP & Survey	**GRC**	**CEP**
SCG				CEP	**CAVA** & RAMP	Survey & **GRC**	**CEP**	**CAVA**	RAMP & Survey	**GRC**	**CEP**

**Note that CAVAs and CEPs move up one year starting in 2026 with PG&E as per D.24-08-005*
Items in bold will require review by CEI team staff

Current Proceeding Scope to Consider Improvements

1.	**Should the Commission refine requirements regarding consultations with DVCs and the preparation of CEPs adopted in D.20-08-046 with regard to large IOUs, including but not limited to:**
1.1	Additional guidance regarding the purpose and intended outcomes of the CEP and DVC consultation processes?
1.2	Ways to reduce consultation fatigue and/or coordinate with other proceeding outreach processes?
1.3	Modifications to the definition of DVC adopted in D.20-08-026?
1.4	Additional guidance regarding consultation and collaboration with local governments during risk and vulnerability assessment processes? During adaptation proposal identification processes?
1.5	Refinement of Tribal consultation processes specific to climate adaptation matters?
1.6	Additional guidance regarding methods and scope for the determination of community adaptive capacity in CAVA analyses?
2.	**What are the impacts on environmental and social justice communities of actions taken in this proceeding, including the extent to which requirements impact achievement of any of the nine goals of the Commission's Environmental and Social Justice Action Plan?**

Refinement: Integration of Equity Metrics in the CAVA Process

- The existing process for incorporating equity into the CAVA process is qualitative
  - Community Engagement Plans
  - Public comment opportunities on CAVAs
- Equity metrics can be incorporated into the analysis to provide a complementary measurable **quantitative** equity lens for climate adaptation in IOU planning
  - Coordinated with engagement approach
  - Based on CPUC guiding criteria

Building Off Previous Workshops

CPUC held three public workshops in Fall 2024 that inform Today's Workshop:

- **Community Engagement Workshops (2):** Addressed challenges of community engagement for CAVA process in Northern and Southern California
  - Explored barriers to engagement including funding, accessibility, duplicative requests / limited capacity, and unclear link between CAVAs and specific projects
  - Identified need for clear solutions, criteria, and improved processes for CAVA engagement
- **Quantitative Equity Tools Workshop (1):** Explored tools and methodologies that can measure adaptive capacity impacts of CAVAs on DVCs
  - Explored several emerging research area including metrics, tools, and methodologies including mapping
  - Identified gaps in clear criteria necessary to inform CAVA equity metrics that are both effective and flexible to assess diverse communities and address evolving policies and technologies

Framework for Quantitative Equity Metrics

Establish clear framework for how a quantitative equity analysis will inform decision-making

- Demonstrate alignment with other CPUC proceedings to inform long-term risk-based decisions
- Establish prioritization process for DVCs aligned with risk
- Establish, justify, and demonstrate the best available metrics, data, and methods
  - IOU-proposed metrics must be measurable, verifiable, and publicly accessible
- Identify measurable outcomes and baselines that can be used to demonstrate progress over time
- Identify what metrics and methodologies should be universal across IOUs and which should be tailored to a given territory and why
- Create transparent metrics justified by publicly accessible analysis and clear methodologies that prioritize and benefit DVCs

Examples: Quantitative Equity Metrics Criteria

- Matrix assessment of community adaptive capacity with infrastructure adaptive capacity to identify "hotspots" of vulnerability to inform prioritization of engagement and adaptation
  - What other community metrics should be analyzed? (access to resources during an outage, cost burden of an outage, etc.?)
- Metrics accounting for variability in impacts of outages on different populations and customer types across geographies and demographics within a given areas
- Metrics accounting for community impacts of high frequency and/or long-duration outages

Framework for Engagement Metrics

Establish clear framework for how a qualitative equity analysis will inform decision-making

- **Prioritization:** How should IOUs engage with DVCs to inform prioritization of adaptation efforts in DVCs?
- **Community Reality Checks on Identified Risks:** Should advisory meetings to IOUs be public and how best to conduct community feedback on accuracy of any mapping of vulnerability or other metrics?
- **Timing of Engagement:** At what points in the CAVA process should IOUs reach out to communities for the most productive feedback?
- **Targeted Education and Capacity building:** What resources and approaches are necessary to build technical capacity in communities?
- **Incorporation into CAVA Process:** How should feedback inform adaptation options listed in CAVAs or be incorporated into the GRCs?
- **Ongoing feedback over time:** How will IOUs engage with communities if an adaptation measure is approved and implemented?
- **Address Barriers to Engagement:** Such as using communities' time efficiently to reduce fatigue.

Example: Qualitative Equity Metrics Criteria

- Actionable outcomes from public participation and public advisory group meetings
- Actionable and measurable Plans and reports
  - Demonstrate substantive and measurable Community Engagement
- Delineate a clear process for prioritizing adaptation options based on equity considerations
- Integrate outcomes of planning and building community technical capacity to understand CAVAs and long-term infrastructure planning, including with local governments
- Demonstrate incorporation of community and tribal feedback to inform key actions and prioritization in CAVAs
- Educate and measure impacts of DVCs in IOU and CPUC processes

Your Role Today – Feedback & Dialogue

- Share your unique perspective and knowledge of existing models or best practices for equity in planning
- Help identify potential pragmatic solutions or key properties of effective framework to improve and incorporate equity into the CAVA process and outcomes
- Recommend and react to proposed criteria and metrics to inform improved structure and requirements for equity considerations

Interactive Activities This Afternoon

- Mentimeter surveys for online participants
  - Utilize QR code or go to menti.com
- Easel and sticker activity for in-person participants
- Both followed by group discussion

Questions?

IOU Presentation & Discussion

IOU Staff

CPUC Climate Adaptation Equity Workshop: IOU Presentation on Refinement to Equity Integration in CAVAs

Nathan Bengtsson, Maegan Cowan
August 27th, 2025

Together, Building a Better California

Agenda

Part I - Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Part II - Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process

Part III - Engagement: Propose how CEP process/content should evolve or be modified to improve flow of equity information into the CAVA, RAMP, and subsequent CAVA GRC chapter. Or explain why the current process works

Part I

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

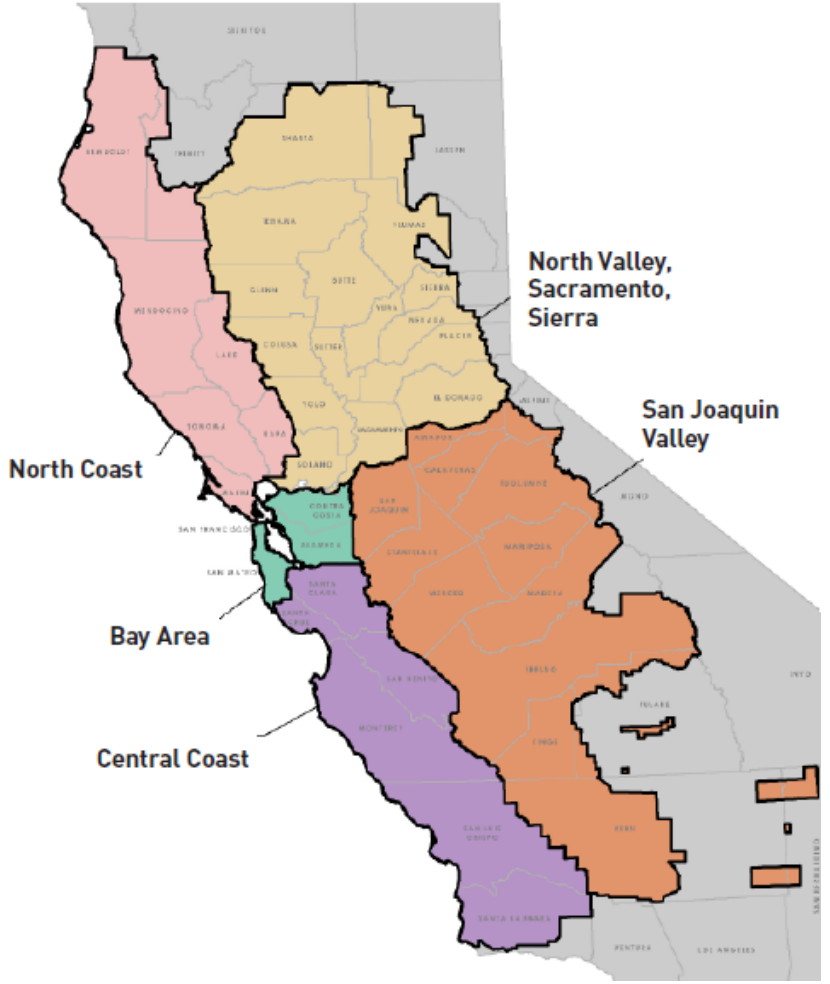
Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Provide a concise overview of the CEP/engagement process and explain how its insights guide equity prioritization in the CAVA (Task 2, 1.2, 1.4, and 1.5).

Each of our five regions are impacted by varying climate risks that require different mitigations. **That's why we created the Resilient Together Initiative.**

> **Through the initiative we developed regional advisory groups** comprised of Community Based Organizations (CBOs) and implemented a community engagement plan.

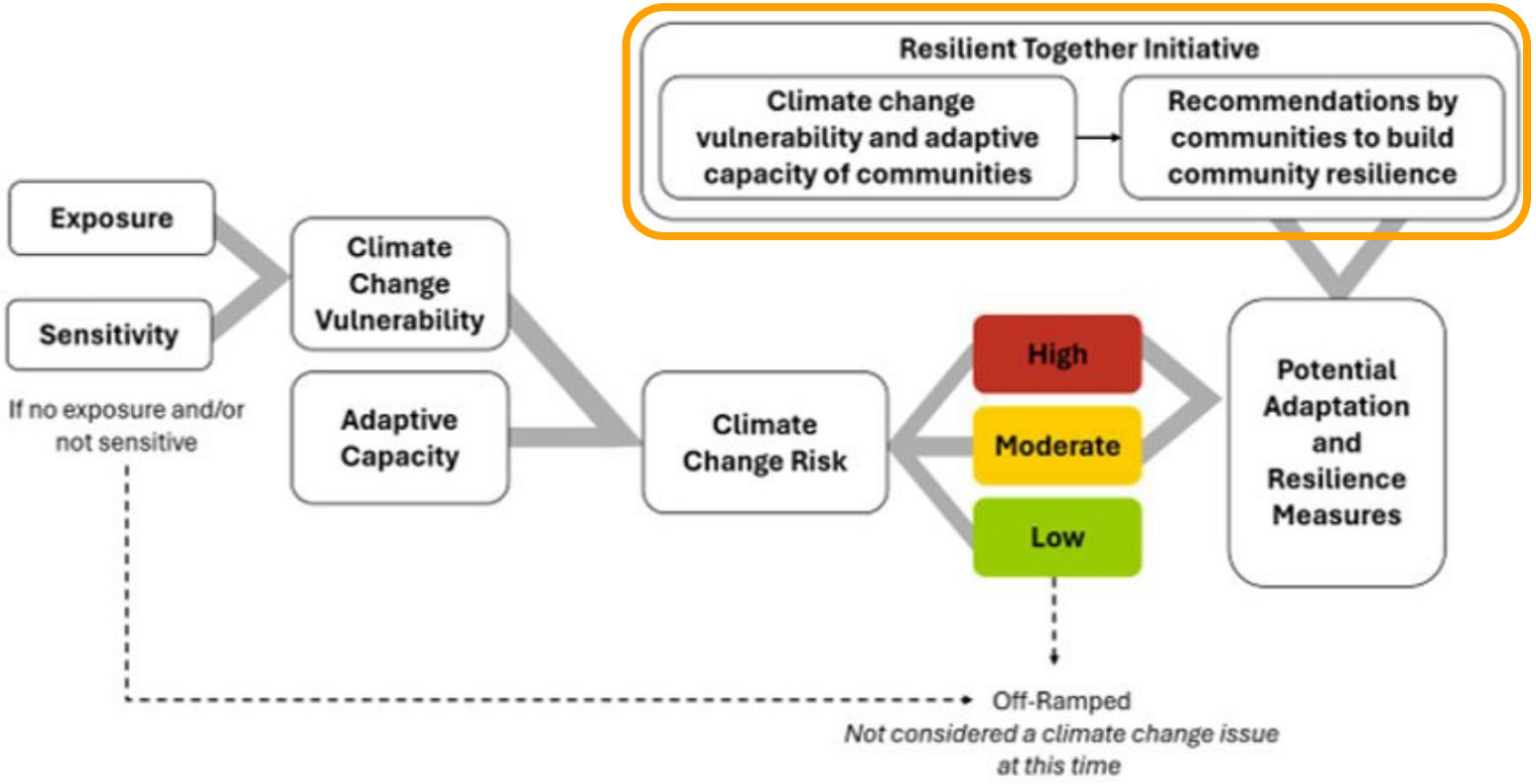
- ✔ **5,754** surveys completed
- ✔ **451** unique zip-codes contacted
- ✔ **200** outreach activities conducted
- ✔ **52** CBOs partnered with
- ✔ **49** unique counties supported



Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Provide a concise overview of the CEP/engagement process and explain how its insights guide equity prioritization in the CAVA (Task 2, 1.2, 1.4, and 1.5).

The goal of the PG&E CEP was to integrate recommendations made by community into adaptation and resilience measures for PG&E infrastructure and assets; however, community feedback focused more on customer programs than infrastructure investments.



Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Summarize the quantitative methods IOUs use to assess community adaptive capacity and equity metrics (like CRM, BRIC) to establish baselines and track progress on CAVA equity goals in Disadvantaged Vulnerable Communities (DVCs). (Task 2, 1.6)

The PG&E CAVA used the Baseline Resilience Indicators for Communities (BRIC) Index to assess the adaptive capacity across regions as a complementary tool to align with Resilient Together Advisory Groups (RTAG) feedback.

- BRIC was a publicly available and academically vetted index pulling from federal government data developed for U.S. counties to better understand and measure resilience to natural disasters across counties.
- The BRIC index measures six categories of community disaster resilience: social, economic, community capital, institutional, infrastructural, and environmental.
- Input variables are scaled from 0 (low adaptive capacity) to 1 (high adaptive capacity), with category scores then added up to create a composite BRIC score for each county.
- The CAVA project team gathered each region's counties' BRIC scores to create a composite score for each region. BRIC scores were contextualized by qualitative input from the RTAGs.

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Summarize the quantitative methods IOUs use to assess community adaptive capacity and equity metrics (like CRM, BRIC) to establish baselines and track progress on CAVA equity goals in DVCs. (Task 2, 1.6)

By assessing the adaptive capacity using the BRIC category scores within each region, PG&E can use this tool, in addition to others, to understand community resilience.

TABLE 5. BRIC Category and Composite Scores for PG&E Regions

Region	Bay Area Region	San Joaquin Valley Region	North Valley, Sacramento & Sierra Region	North Coast Region	Central Coast Region
Social	0.683	0.611	0.641	0.618	0.654
Economic	0.515	0.460	0.459	0.427	0.477
Community Capital	0.289	0.315	0.331	0.344	0.302
Institutional	0.379	0.377	0.389	0.371	0.402
Infrastructural	0.325	0.268	0.255	0.238	0.288
Environmental	0.555	0.498	0.535	0.563	0.528
BRIC Composite Score	**0.458**	**0.422**	**0.435**	**0.427**	**0.442**

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Summarize the IOU tribal engagement approach

Tribal Engagement Goals

- PG&E is committed to ongoing partnership and relationship-building with tribal governments and communities, while building a foundation of trust and reciprocity.
- For the 2027 CAVA, PG&E will collaborate with tribes as we serve to:
  - Understand climate vulnerabilities in those regions and the unique challenges that tribes face
  - Learn from the tribes' current and historical management practices
  - Share information about PG&E's resilience efforts and other customer programs that can benefit the tribes
  - Look for collaborative opportunities for PG&E to support tribes' climate and energy goals
  - Foster open dialogue between tribes and PG&E, including discussing additional related topics of importance to tribes

Tribal Engagement Structure

- For the 2027 CAVA, PG&E plans to engage tribes in two main ways:
  - PG&E plans to have tribes serve as advisors as we develop the tribal engagement plan so that engagement is more relevant, culturally appropriate, productive, and ties into PG&E's longer-term relationship and trust building work with tribes.
  - PG&E plans to conduct tribal engagement by inviting tribes served by PG&E to participate in interviews. Tribal engagement will follow best practices to respect each tribe's sovereignty and honor their unique histories and present trajectories.

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Explain how equity information in CAVAs feeds into/coordinates with the RAMP and ESJ Pilots and holistically informs risk mitigation planning for DVCs. (Task 2, 1.1)

There is currently no place in the RAMP-driven risk mitigation framework for the kind of feedback provided by community members as part of the 2024 CAVA.

- PG&E reported the vulnerability findings from the 2024 CAVA in the 2024 RAMP report. CAVA results for each asset family were included with the most directly related Enterprise Risk event as an initial step to better CAVA RAMP integration.
- PG&E treats climate change as a Cross-Cutting Factor in the Company's enterprise risk modeling for relevant risk events and will file a White Paper detailing our next iteration of risk integration efforts in September 2025 (D.24-05-064).

RAMP process tested integration of ESJ considerations in a 2022 pilot that included some 2024 CAVA CEP community feedback by reference, but the pilot did not change the 2024 RAMP filing or associated Commission process.

- In 2022, the Commission directed PG&E (D.22-12-027) to develop an Environmental Social Justice (ESJ) Pilot Study as part of the 2024 RAMP filing, which included seven action items.
- Key Results of this ESJ Pilot Study included:
  - ESJ issues are being determined across various Commission proceedings. Similarly, funding for programs comes from various sources. Having a consolidated framework for ESJ issues and capturing the funding needed for resolution would be beneficial.
  - Survey results from PG&E's Resilient Together Initiative's survey on concerns of climate hazards and their impacts were shared as part Action Plan #4. However, there is currently no mechanism for considering community feedback in the evaluation of risk mitigation planning in DVC or non-DVC areas.

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Describe and compare how CAVAs differently inform short-term needs of RAMP versus long-term needs of climate adaptation direction related to demonstrating impacts and benefits in DVCs. (Task 2, 1.1)

The multi-decade useful life of many utility assets means that climate conditions in 2060 are relevant to investment decisions being made today through PG&E's investment planning process. That process requires that risk analysis focus on both near-term and longer-term risk events be quantified in consistent ways that allow for the representation of all risks in the same investment decision-making process.

The IOU CAVA's have detailed engagement requirements through the CEP to directly solicit input from DVC communities related to climate risk and potential adaptation options.

- There is no mechanism in place to consider these communities' concerns in internal investment planning over the short- or long-term planning horizons.
- There is no process currently in place to quantify or use the concerns raised by the CAVA community engagement process with DVCs. The GRC public process is a key avenue to engage the public on investment proposals.

The Risk-Based Decision-Making Framework (R.20-07-013) presents a quantitative framework to calculate risk impacts in Dollar Values.

- This framework can be used to show values of risk, cost, and benefits of risk mitigations and controls that can impact different geographic areas, including DVCs.
- PG&E's ESJ Action Plan details the impact of risk mitigations to different communities in several risk events as part of Action Plan #1.
- While there is no mechanism in the risk framework to calculate impact explicit to DVCs, the ESJ Action Plan determined that DVCs would see benefit from risk mitigations in their regions.

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Explain the process that IOUs currently utilize to inform prioritization of investment proposals for DVCs, including in the GRC CAVA chapter.
Include any existing efforts to address DVC prioritization including mapping and visualization of how layers of DVC regions and risks are correlated. (Task 2, 1.1)

In the investment planning process at PG&E, social equity is not one of the current optimization criteria

- A project being in a DVC is not a current variable in the investment planning process
- The 5 variables are: wildfire safety, capacity expansion, reliability, asset health, and compliance[1]
- Risk reduction, compliance and affordability are key considerations in the investment planning process

There are many projects that do serve DVCs such as wildfire resilience projects in the Sierra foothills or capacity projects in the Central Valley

- No comprehensive study has been done to see how many DVCs are served by utility investments
- It is important to first determine the current situation regarding equity in investment planning. A baseline study to determine whether equity is factored into investments, is an important first step.

In our 2027 GRC, PG&E did not develop standalone climate adaptation options based on the climate risk findings from the 2024 CAVA.

[1] Categories from PG&E Risk-Based Portfolio Prioritization Framework (RBPPF)

Current Process: Brief, high-level explanation of how each IOU currently integrates equity into their CAVA process and final document

Describe how IOUs convey complex data to DVCs and broad stakeholder groups to explain risks, priorities, measurable progress, impacts, and benefits for DVCs.

In PG&E's first Resilient Together Initiative we worked closely with our Resilient Together Advisory Groups (RTAG) to co-create the engagement process. Based on direction received from the RTAG members, the Project Team identified the following approach to convey complex data to DVCs:

Outreach Materials

- Use **simple language, avoid dense text blocks, and add visuals that resonate**.
- Use **culturally appropriate/translated materials**.
- **Tailor approach** in remote and communities greatly impacted by climate hazards.

Meeting Facilitation

- Enable **live transcription**.
- Design **interactive meetings** and use visualization tools.
- Facilitate in **clear and accessible language** for community members.

It is important to note that the current CAVA CEP process is just an assessment, and community input from the CEP was not used for investment decisions.

Part II

Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process. (Task 2, 1.1)

Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process. (Task 2, 1.1)

Quantitative: Propose a quantitative equity analysis/metrics approach to address gaps in the existing process to demonstrate that equity considerations, including adaptive capacity, are incorporated to prioritize DVCs (Task 2, 1.6)

Propose minimum criteria for equity metrics to prioritize DVCs in the CAVA process and in the GRCs.

- Address whether the DVC definition is useful for the Commission's intended purpose or propose other optimal guidance that would better address the Commission's objective. (Task 2, 1.3)

- DVC designation in this Proceeding is "both too broad and too specific"
  - Includes almost 50% of PG&E's service area
  - Many RTAGs expanded the DVC definition

- Virtually all communities in California are exposed to more than one climate hazard.

- If the desired outcome is to enhance local climate resilience, targeting based on the capacity of local government to build community resilience is one way forward.

The Way Forward:
- Allow communities to define their own strengths and vulnerabilities via local adaptation planning.
- Support equity by scaffolding engagement to the appropriate level based on local government capacity/progress.
- Utilities should be required to consult a representative sample of DVCs, not "all".

Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process. (Task 2, 1.1)

Quantitative: Propose a quantitative equity analysis/metrics approach to address gaps in the existing process to demonstrate that equity considerations, including adaptive capacity, are incorporated to prioritize DVCs (Task 2, 1.6)

Propose minimum criteria for equity metrics to prioritize DVCs in the CAVA process and in the GRCs.

- Outline gaps/challenges for any existing methodologies and tools (either those used or proposed) and address whether additional resources and/or data are necessary to address these gaps/challenges. (Task 2, 1.6)

Utilities need to be able to determine a holistic picture of community climate risk related to utility service disruptions.

- Utilities should look at a suite of metrics such as adaptive capacity and sensitivity.
- Baseline Resilience Indicators for Communities (BRIC) Index is one tool that only looks at adaptive capacity.
- The tool needs to relate to utility service disruptions as this is where we can make an impact.

Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process. (Task 2, 1.1)

Quantitative: Propose a quantitative equity analysis/metrics approach to address gaps in the existing process to demonstrate that equity considerations, including adaptive capacity, are incorporated to prioritize DVCs (Task 2, 1.6)

Propose minimum criteria for equity metrics to prioritize DVCs in the CAVA process and in the GRCs.

- Describe how IOU has looked to lessons learned from other IOUs; equity metrics/criteria used by other states/organizations; coordinated with other long-term planning efforts such as DER, IRP, Resilience, Long-term Gas Planning.

Lessons Learned from other IOUs

- PG&E works closely with the resilience teams from other IOUs and has learned from the EPRI Climate Resilience and Adaptation Initiative. These groups have helped in developing our proposal in later slides.

Lessons Learned from other states/organizations

- It is important that the tool we use specifically looks at energy service as that is the role of IOUs. Many other organizations have tools to look at equity, but not specifically related to energy service.

Lessons Learned: Explain benefits and limitations of current process as described above and recommendations for maintaining process or proposed modifications of the process. (Task 2, 1.1)

Quantitative: Propose a quantitative equity analysis/metrics approach to address gaps in the existing process to demonstrate that equity considerations, including adaptive capacity, are incorporated to prioritize DVCs (Task 2, 1.6)

Propose minimum criteria for equity metrics to prioritize DVCs in the CAVA process and in the GRCs.

- Describe how IOU has looked to lessons learned from other IOUs; equity metrics/criteria used by other states/organizations; coordinated with other long-term planning efforts such as DER, IRP, Resilience, Long-term Gas Planning.

Lessons Learned from other long-term planning efforts

Equity is addressed, on some level, in a number of proceedings, including High DER (R.21-06-017) the Risk-Based Decision-Making Framework (R.20-07-013), and Gas Transition (R.24-09-012). PG&E proposes that the CPUC coordinate with these proceedings so that there is alignment.

- This coordinating will reduce re-work for both the CPUC and utility staff.
- Coordination could be on topics such as definitions, goals and outcomes, metrics, or others as appropriate.
- For example, the Gas Transition proceeding has a set of guiding principles related to equity. These could be leveraged as we develop the equity goals for this proceeding.
- PG&E's RAMP ESJ Pilots found that having a consolidated framework for ESJ issues and capturing the funding needed for resolution would be beneficial.
- In the High DER proceeding, they have focused on establishing a baseline first to understand equity in the proceeding before taking action. PG&E proposes a similar approach for this proceeding.

Part III

Engagement: Propose how CEP process/content should evolve or be modified to improve flow of equity information into the CAVA, RAMP, and subsequent CAVA GRC chapter. Or explain why the current process works. (Task 2, 1.1)

Engagement: Propose how CEP process/content should evolve or be modified to improve flow of equity information into the CAVA, RAMP, and subsequent CAVA GRC chapter. Or explain why the current process works. (Task 2, 1.1)

Propose logistically how the equity analysis, qualitative engagement results, and infrastructure analysis might interact to inform the RAMP and the GRC. Consider utilizing a flow chart. (Task 2, 1.1; Task 2, 1.6)

It is important to first define what we mean by equity in the Climate Adaptation OIR.

- Currently the Climate Adaptation OIR focuses on procedural equity, which looks at equity in processes and procedures.
- The original order pushes towards distributional equity, which looks at equity in terms of allocating resources: "The key is to ensure equity – recognition that some communities may need extra financial, educational, supportive service and other assistance due to their characterization as DVCs.[1]"

Defining equity for this Proceeding will help to determine an end goal of this Proceeding and ultimately help in devising a plan to improve the flow of equity information in the CAVA, RAMP, and GRC.

- If we are striving towards distributional equity, it may mean that we want to bring equity beyond just the CAVA process into the larger investment planning process.
- At PG&E there is not a separate climate resilience investment planning process. Bringing equity as a variable into the process through CAVA means bringing equity into the entire investment planning process.
- If this is the goal, it would be a significantly larger scope than the current CAVA.
  - Other stakeholders from different utility departments and different proceedings should be brought into this process before a decision is made.
  - The CAVA may not be the right home for this initiative as it is focused on just climate resilience, not all investments.

If this is the intent, it is important to first determine the current situation regarding equity in investment planning. A baseline study to determine how equity is factored into investments at IOUs is an important first step.

[1]Decision on Energy Utility Climate Change Vulnerability Assessment and Climate Adaptation in Disadvantaged Communities (Phase 1, Topics 4 and 5) Decision 20-08-046 (pg.15)

Engagement: Propose how CEP process/content should evolve or be modified to improve flow of equity information into the CAVA, RAMP, and subsequent CAVA GRC chapter. Or explain why the current process works. (Task 2, 1.1)

Propose logistically how the equity analysis, qualitative engagement results, and infrastructure analysis might interact to inform the RAMP and the GRC. Consider utilizing a flow chart. (Task 2, 1.1; Task 2, 1.6)

If the goal is to improve how equity feeds into just the CAVA, PG&E has the following proposal.

PG&E proposes that the CEP be removed and replaced with a set of criteria for utilities to follow and CPUC staff to easily review. These criteria could include the following:

- Utilities should conduct a quantitative policy-level desktop assessment that looks at adaptive capacity and sensitivity of DVCs related to utility service disruptions from climate risks.
- Utilities should conduct community and local/ tribal government engagement on the desktop assessment rather than the CAVA process.
  - Engagement (from advisory bodies) should be used to ground truth the assessment findings with the communities that are most at risk.
  - Engagement (from communities) should be used to understand the impacts of climate hazards and energy disruptions on customers.
- Utilities should present the assessment in the CAVA.
  - The quantitative desktop equity assessment and physical vulnerability assessments would be presented together in the CAVA.

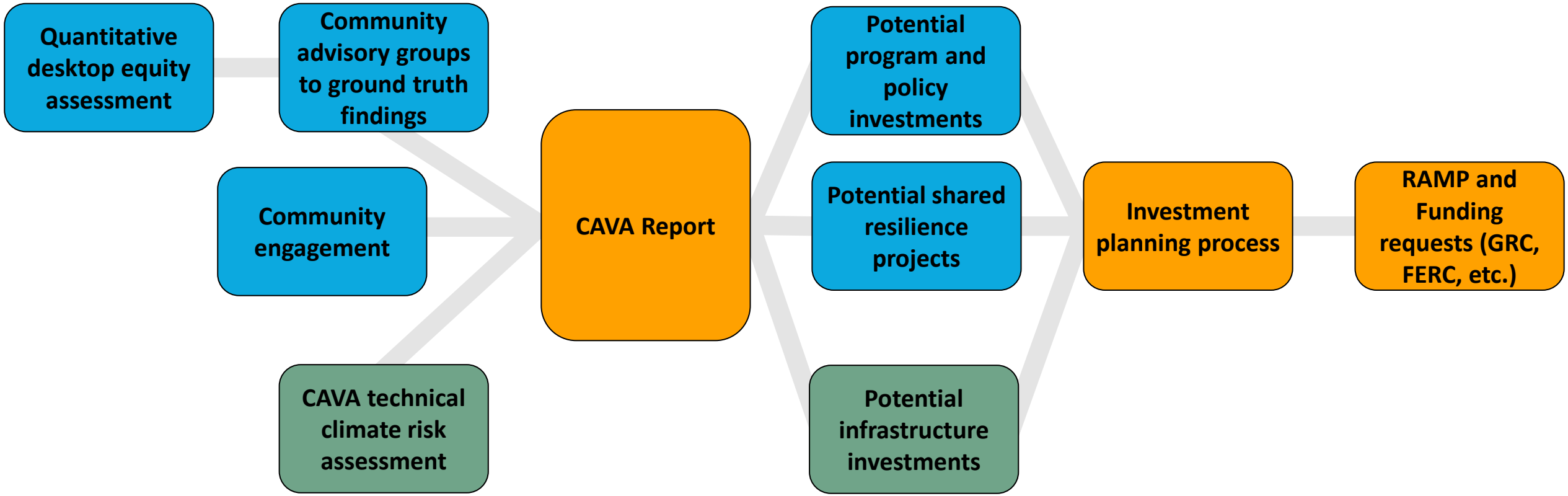
This assessment could be used to develop a list of potential projects or locations for investments that both address climate resilience and serve DVCs.

- These potential projects could be shared with local governments to determine shared vulnerability and perhaps spark collaboration.
- These potential projects may also be related to utility programs or policies and not infrastructure.
- Any potential investments that result from this process could be funded by the appropriate PG&E funding avenue based on topic.
  - It is important to note that there are other priorities in the larger utility investment planning process outside of the CAVA and utilities cannot guarantee projects being funded.

Engagement: Propose how CEP process/content should evolve or be modified to improve flow of equity information into the CAVA, RAMP, and subsequent CAVA GRC chapter. Or explain why the current process works. (Task 2, 1.1)

Propose logistically how the equity analysis, qualitative engagement results, and infrastructure analysis might interact to inform the RAMP and the GRC. Consider utilizing a flow chart. (Task 2, 1.1; Task 2, 1.6)

PG&E's Proposal to Improve how Equity Feeds Into IOU CAVAs



Summary of Insights

Part I - Current Process

- The PG&E CAVA used the BRIC Index to assess the adaptive capacity across regions as a complementary tool to align with RTAG feedback.
- PG&E's tribal engagement for the 2027 CAVA will focus on learning from tribes, sharing information, and looking for collaborative opportunities.
- There is currently no place in the RAMP-driven risk mitigation framework for the kind of feedback provided by community members as part of the 2024 CAVA.
- Although there are many projects that do serve DVCs, social equity is not one of the current optimization criteria in the investment planning process at PG&E.
- PG&E worked closely with our RTAGs in our first CEP to develop strategies to convey complex data to DVCs.

Part II - Lessons Learned

- "All DVCs" is both too broad, and also too narrow. We should allow communities to define their own strengths and vulnerabilities via local adaptation planning.
- Utilities need to be able to determine a holistic picture of community climate risk related to utility service disruptions.
- Equity is addressed in a number of proceedings. PG&E proposes that the CPUC coordinate with these proceedings so that there is alignment.

Part III - Engagement

- Defining equity for this proceeding will help to determine an end goal of this proceeding and ultimately help in devising a plan to improve the flow of equity information in the CAVA, RAMP, and GRC.
- If the intent is distributional equity, it is important to first determine the current situation regarding equity in investment planning. A baseline study to determine how equity is factored into investments at IOUs is an important first step.
- If the goal is to improve how equity feeds into just the CAVA, PG&E proposes that the CEP be removed and replaced with a set of criteria for utilities to follow and CPUC staff to easily review.
- This assessment could be used to develop a list of potential projects or locations for investments that both address climate resilience and serve DVCs.

List of Acronyms

BRIC: Baseline Resilience Indicators for Communities

CAVA: Climate Adaptation Vulnerability Assessment

CBO : Community Based Organization

CEP: Community Engagement Plan

CPUC: California Public Utility Commission

DVC: Disadvantaged Vulnerable Community

ESJ : Environmental Social Justice

GRC: General Rate Case

High DER: Order Instituting Rulemaking to Modernize the Electric Grid for A High Distributed Energy Resources

IOUs: Investor-Owned Utilities

IRP: Integrated Resource Plan

OIR: Order Instituting Rulemaking

RAMP: Risk Assessment Mitigation Phase

RTAG: Resilient Together Advisory Group

Equity Metrics Criteria Panel

Community Climate and Energy Metrics

Schatz Energy Research Center

Cal Poly Humboldt

Awbrey Yost
Peter Alstone

August 27, 2025
CPUC CAVA Workshop

(Photo credit: Andy Dingley)

Photo credit: Scott Spitzer

Schatz Energy Research Center: Advancing Climate Solutions

- Based at **Cal Poly Humboldt**
- **Applied research** and technology deployment for clean energy solutions
- Two relevant projects to CAVA:
  - **Offshore wind** - applied regional research on community benefits, policy, and technical aspects
  - **Microgrids** - partnerships with communities to plan, build, and assess

We are supporting CPUC Energy Division Staff in synthesizing CAVA workshop outcomes

Insights from offshore wind research

Schatz Energy Research Center

We collaborate and partner with community-based organizations, Tribes, and agencies in our offshore wind research

Insights for this workshop:

- **Diverse communities:** "Disadvantaged and vulnerable communities (DVC)" are *widely variable* both between and within communities
- **Place based:** Different approaches are needed for *rural vs. urban* places (e.g. access to critical services, infrastructure reliability, connections to support networks)
- **Clear and actionable policymaking:** Community members asked to provide input want understandable frameworks and clarity about next steps and outcomes

Insights from community microgrids deployment

Schatz Energy Research Center

Community microgrids enabling continuity of service through grid stress and disasters provide wide-ranging value, many not captured by obvious metrics:

- maintain **clean air spaces** during wildfire season
- support **first responder activities** year-round
- provide **shelter, ice, fuel, food**
- support **transportation energy** needs
- power **critical infrastructure** (water, IT, etc.)
- enable **clean energy** deployment / adoption

How could CAVA metrics reflect the range of values resilience investments can support?

Insights from community microgrids deployment

Schatz Energy Research Center

Planning microgrids is a highly technical endeavor requiring partnership (engineering, legal, accounting, construction, project management, etc.).

Obtaining high quality data on grid outage rates and interconnection capacity for initial planning steps are a challenge.

Could CAVA metrics provide additional data sources that help communities plan (or advocate for) adaptation solutions like microgrids?

Insights from community energy planning discussions

Schatz Energy Research Center

What better resilience could mean to remote and rural communities with inadequate service (examples of values beyond conventional metrics suggest):

Removing barriers to electrification: The grid being reliable is a prerequisite for EV, heat pumps, etc.

Food security: Grocery stores are 2 hours away and many people rely on locally harvested, culturally significant food. Storage in multiple refrigerators and freezers is common and losses from blackout can be significant.

Trust in utility: Decades of sub-standard reliability erodes trust, which may be repaired in part with improved service.

Thank you

Contact

Peter.Alstone@humboldt.edu

Awbrey.Yost@humboldt.edu

Schatz Energy Research Center
At Cal Poly Humboldt
schatzenergy@humboldt.edu
www.schatzcenter.org

Work on Equity Metrics for Resiliency

Rosanne Ratkiewich, Senior Analyst
Julian Enis, Utilities Engineer
Grid Resiliency and Microgrids

California Public
Utilities Commission

Work to Date on Equity Metrics: Resiliency and Microgrids Working Group

- In 2022 and 2023, we held a series of public workshops as a part of the Resiliency and Microgrids Working Group examining the question of how to integrate equity focused metrics into broader grid planning processes.
- While no specific conclusions were reached, it did illuminate the fact that integration of these metrics into processes here at the CPUC requires a very nuanced and sensitive look at how demographic information is used to inform grid planning processes, as there are many metrics that intersect to form a picture of the needs we are trying to meet.

Energy Division Workshop Series on Resiliency

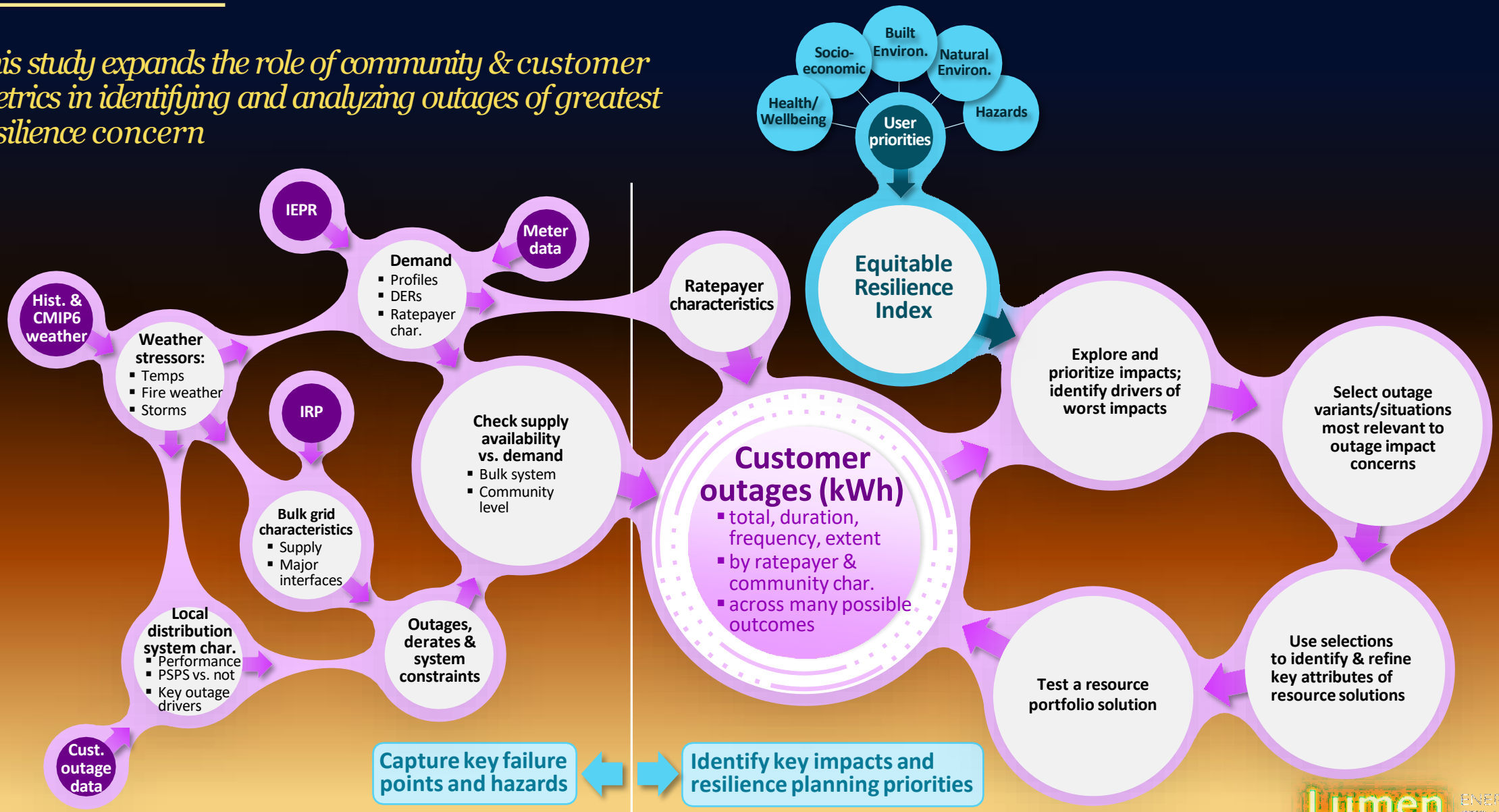
Dates	Workshop	Presenters	Description
05/10/2022	Interruption Cost Estimate (ICE) Calculator / Power Outage Economic Tool (POET)	Lawrence Berkeley National Labs	Top-down econometric reflection of the value of lost load
07/22/2022, 07/26/2023, 11/28/2023	Resiliency Node Cluster Analysis Tool (ReNCAT) and the Social Burden Index (SBI); Pilot Partnership Project	Sandia National Labs and Southern California Edison (SCE)	Bottom-up reflection of social burden and impacts of large-scale electrical system disruption
08/22/2023	The Value of Sharing and Consolidating Critical Community, Electricity, and Natural Hazard Information	Lawrence Berkeley National Labs	Translating hazard mitigation plans into geospatial layers to enable greater coordination of resilience planning between local authorities and utilities
10/19/2023	Use Case Demonstrations of the 4-Pillar Methodology of Resiliency Planning and Evaluation	San Diego Gas & Electric (SDG&E) and Sonoma County Junior College District	4 Pillar Methodology applied to small scale and medium scale applications of resilience planning
05/10/2023, 09/05/2023 11/08/2023	Resiliency Standards: Definitions, Metrics and Methodologies	Lumen Energy Strategy	Discussion of resiliency definitions and metrics as standards for applications using grid planning scale use case

Work to Date on Equity Metrics: Lumen Energy Strategies and Spatial Informatics Group (SIG)

- Lumen Energy Strategies and SIG, in conjunction with CPUC staff, has presented an approach to understanding what equity metrics can help inform grid planning processes here at the CPUC, as well as how these metrics might be valuable to a myriad of processes.
- Slides from Lumen and SIG's presentations are shown below illustrating where metrics can be integrated as well as a selection of data sources that can be used and how geospatially coordinated information can be used to assess vulnerability.
- **This methodology has not been formally adopted into any existing proceeding or process within the CPUC but is illustrative of one approach to integrating equity metrics into CPUC processes and is being presented here for information and discussion ONLY.**

Opportunity for data-driven representation of resilience

This study expands the role of community & customer metrics in identifying and analyzing outages of greatest resilience concern



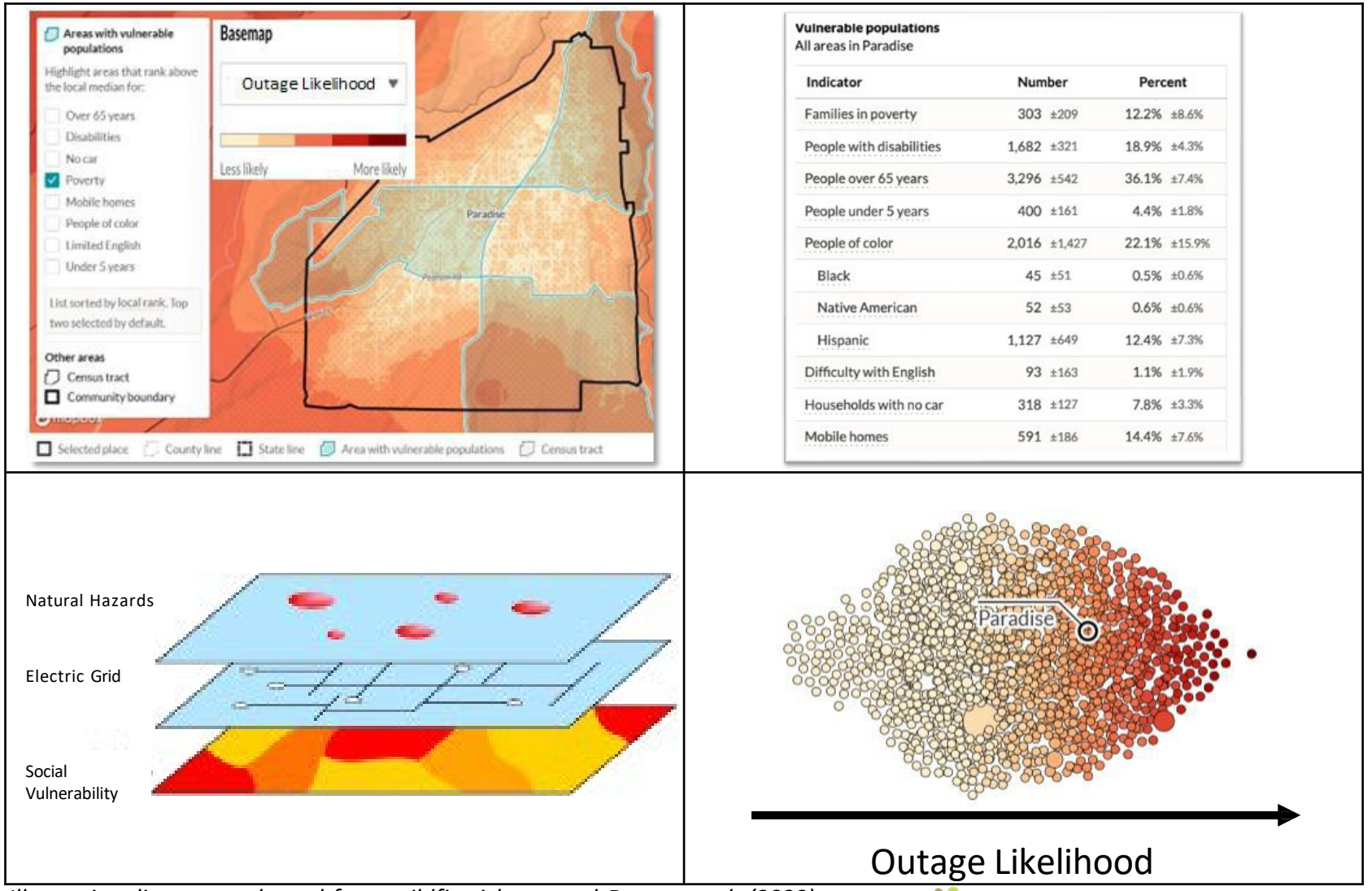
Data sources *(examples)*

	To learn more	*Key resilience-related index/output*	*Key use of resilience metrics*
Sandia Resilience Node Cluster Analysis Tool (ReNCAT)	https://energy.sandia.gov/news/download-sandias-resilient-node-cluster-analysis-tool-rencat/ And as piloted with SCE: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/resiliency-and-microgrids/resiliency-and-microgrids-events-and-materials	Social Burden Index (SBI)	Guide outage mitigation resource planning across and within communities
Utility Climate Adaptation Vulnerability Assessments (CAVA)	SCE: AL 4793-E (May 13, 2022) PG&E: AL 7271-E (May 15, 2024) Federal.BRIC:.https://www.sc.edu/study/colleges_schools/artsandsciences/centers_and_institutes/hvri/data_and_resources/bric	SCE: Community Resiliency Metric (CRM) Community Impact Metric (CIM) PG&E: Federal BRIC index	Prioritize grid investments
FEMA Resilience Analysis and Planning Tool (RAPT)	https://rapt-fema.hub.arcgis.com	Community Resilience Challenges Index (CRCI) National Risk Index (NRI)	Emergency planning and preparedness
CPUC Affordability Ratio Calculator	https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability	Affordability Ratio (AR)	Develop strategies to mitigate future energy rate increases
LBNL Interruption Cost Estimator (ICE 2.0)	https://icecalculator.com	Value of Lost Load (VoLL)	High-level benefits to reliability improvements; wholesale market design
CalEPA/OEHHA CalEnviroScreen 4.0	https://oehha.ca.gov/calenviroscreen	Composite burden score (CES Score)	Direct climate investments
The Public Health Alliance of SoCal Healthy Places Index (HPI)	https://www.healthyplacesindex.org	Healthy Places Index (HPI)	Direct health funding and efforts
Federal Climate and Economic Justice (CEJ) Screening Tool	https://screeningtool.geoplatform.gov	Disadvantaged Community designation	Guide programs targeting disadvantaged communities
EPA Environmental Justice Screening and Mapping Tool (EJScreen)	https://www.epa.gov/ejscreen	EJ Indices (multiple)	Guide environmental protection policies and programs
CDC/ATSDR Social Vulnerability Index	https://www.atsdr.cdc.gov/placeandhealth/svi	Social Vulnerability Index (SVI)	Prepare for and recover from public health emergencies

Tool Functions & Features: Concepts

- Maps & Overlays
- Graphics
- Tabular Summaries
- Reports
- Selectable Resilience Metrics
- Swipe Tool/Time Slider
- Interactivity

(all diagrams are illustrative, for discussion purposes only)



Illustrative diagrams adapted from wildfirerisk.org and Dugan et al. (2023)

Spatial Informatics Group

Informing CAVAs Moving Forward

The goals of this work were to:

- Identify equitable resiliency targets in response to all-hazard analysis and identification of critical services.
- Develop a geospatial tool to examine vulnerabilities of customers based on metrics including all hazard analysis, affordability, adaptive capacity, and customer demographics and vulnerabilities.
- Utilize the tool to optimize and evaluate grid infrastructure investments based on equity and ratepayer affordability considerations.
- Create an Equitable Resilience Index, which would provide a mechanism for prioritizing the severity of customer outages, so the drivers of the most concerning outages can be inspected more carefully, and so required resource attributes of resilience solutions can be identified and compared.
  - Incorporates CMIP6 climate forecasting data used in IPCC reporting
  - Incorporates customer demographic information layers
  - Incorporates output of other tools with consideration of data layers factoring into those tools.
  - Incorporates all-hazard vulnerability layers
  - Incorporates Affordability metrics
  - Incorporates local govt/Tribal hazard mitigation reporting

Informing CAVAs moving forward

- Some issues that arose from this work that are yet to be addressed:
  - Inconsistent granularity and availability of geospatial data for a number of equity metrics or tools.
  - Incomplete understanding of data sources and how they can be brought together to form a more cohesive picture of equity issues.
  - Tenuous connection between metric data and actual community needs.
    - This includes an incomplete understanding and lack of data on actual community adaptive capacity.
    - Use of data proxies (e.g., prevalence of back-up generation in a given community as a measure of resilience).
- More work is needed to assess how existing metrics can be layered at consistent granularity to understand how equity and resilience can be more embedded in the CAVA and other grid planning processes moving forward.

Questions?

California Public Utilities Commission

Rosanne.Ratkiewich@cpuc.ca.gov
Julian.Enis@cpuc.ca.gov

RAND

Community Health and Environmental Policy Program

Energy Equity

Recent Research on Equity Metrics

How to Include Within Climate Adaptation Vulnerability Assessments (CAVAs)

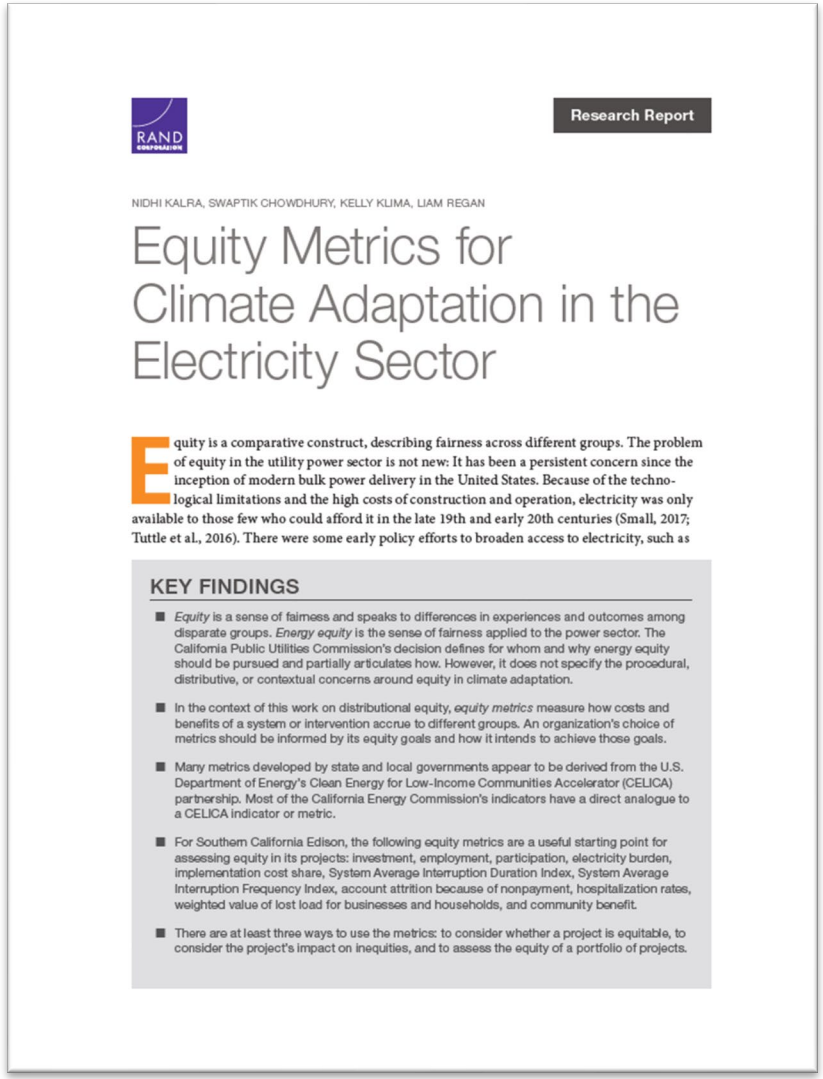
Kelly Klima, RAND

Climate Adaptation Equity Workshop

August 27, 2025

During the Fall 2024 panels, we shared our research identifying 35 electricity equity metrics

Publications



RAND

Research Report

NIDHI KALRA, SWAPTIK CHOWDHURY, KELLY KLIMA, LIAM REGAN

Equity Metrics for Climate Adaptation in the Electricity Sector

Equity is a comparative construct, describing fairness across different groups. The problem of equity in the utility power sector is not new: It has been a persistent concern since the inception of modern bulk power delivery in the United States. Because of the technological limitations and the high costs of construction and operation, electricity was only available to those few who could afford it in the late 19th and early 20th centuries (Small, 2017; Tuttle et al., 2016). There were some early policy efforts to broaden access to electricity, such as

KEY FINDINGS

- *Equity* is a sense of fairness and speaks to differences in experiences and outcomes among disparate groups. *Energy equity* is the sense of fairness applied to the power sector. The California Public Utilities Commission's decision defines for whom and why energy equity should be pursued and partially articulates how. However, it does not specify the procedural, distributive, or contextual concerns around equity in climate adaptation.
- In the context of this work on distributional equity, *equity metrics* measure how costs and benefits of a system or intervention accrue to different groups. An organization's choice of metrics should be informed by its equity goals and how it intends to achieve those goals.
- Many metrics developed by state and local governments appear to be derived from the U.S. Department of Energy's Clean Energy for Low-Income Communities Accelerator (CELICA) partnership. Most of the California Energy Commission's indicators have a direct analogue to a CELICA indicator or metric.
- For Southern California Edison, the following equity metrics are a useful starting point for assessing equity in its projects: investment, employment, participation, electricity burden, implementation cost share, System Average Interruption Duration Index, System Average Interruption Frequency Index, account attrition because of nonpayment, hospitalization rates, weighted value of lost load for businesses and households, and community benefit.
- There are at least three ways to use the metrics: to consider whether a project is equitable, to consider the project's impact on inequities, and to assess the equity of a portfolio of projects.

Questions to ask

- Context: What counts?
- Target: Who counts?
- Goal: Why?

3 Types of Equity

- Contextual: Who needs more equity?
- Procedural: Is the process equitable?
- Distributional: Will outcomes be equitable?

4 major themes

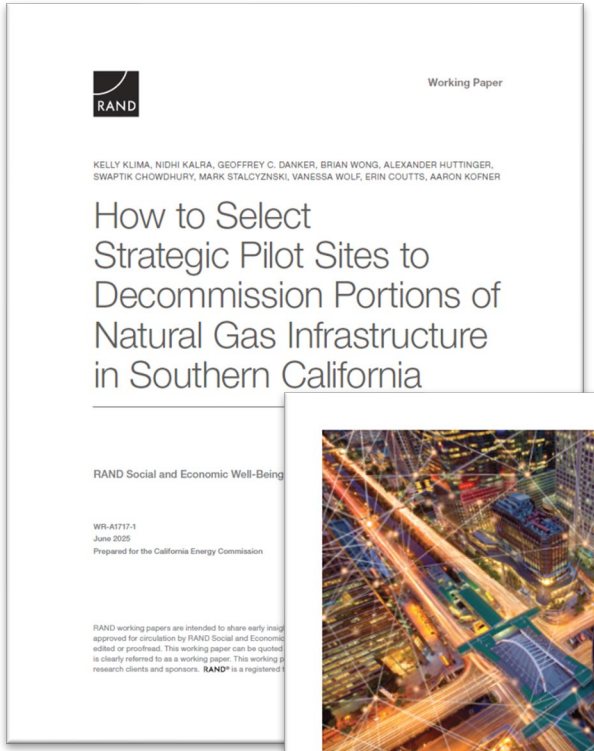
- Robust community engagement is critical to equitable decommissioning
- Support to transitioning communities should be multi-dimensional
- Policies should focus on historical inequities
- Policies should leverage existing programs

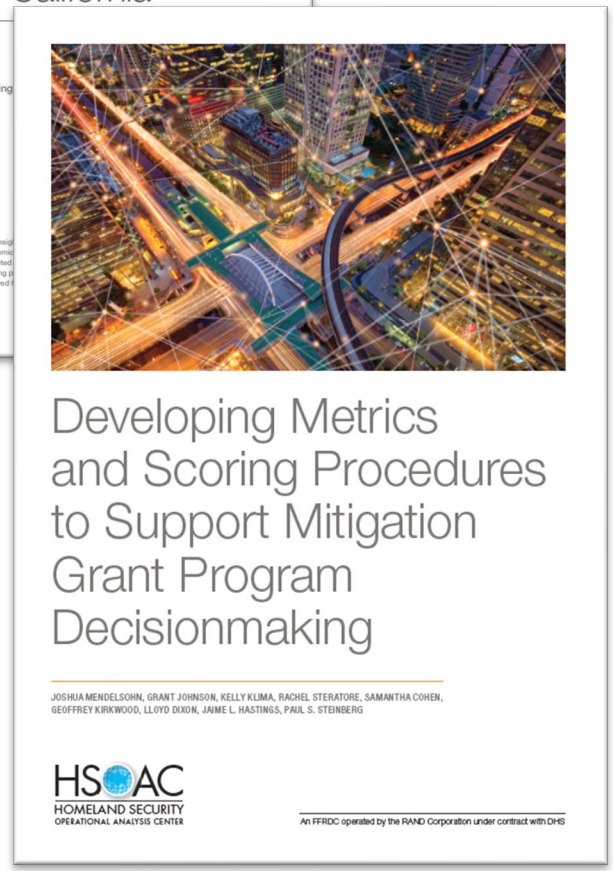
Beyond electricity, we can use this approach to identify other equity considerations

Publications

- Directly for partnering communities
  - Different communities are at different institutional capacities to work with IOUs
  - Different sites have different infrastructure ownership
  - Projects may increase or decrease monthly utility bill
- Indirectly for neighboring communities
  - Temporary power shutoffs, needs for system betterment, and other engineering requirements that affect others outside project area
  - Choices made by IOUs affect those in non-IOUs
  - Choices made in California affect Tribal lands

In addition, natural gas and electricity systems are different, and likely require different tailored metrics





Our research suggests potential criteria for quantification of equity in the CAVA process

Potential Criteria

Previously identified (Fall 2024)

- investment
- employment
- participation
- energy burden
- implementation cost share
- reliability metrics
- account attrition because of nonpayment
- hospitalization rates
- weighted value of lost load for businesses and households
- community benefit

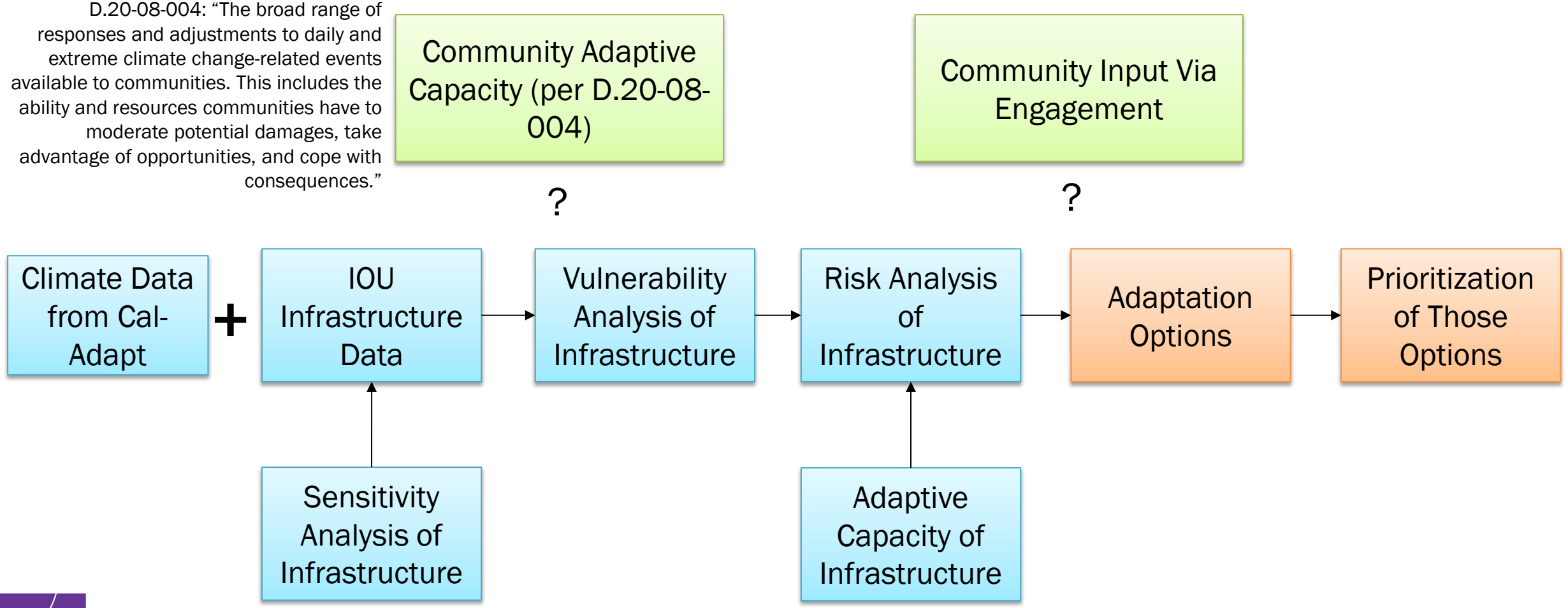
Potential equity considerations

- Utility focused (defer to utilities on specifics)
  - Non-electricity equivalents of previously identified metrics
  - Beyond the project's direct customers Number of additional IOU customers, non-IOU customers, and others outside the project area that are affected
- Customer focused
  - Applicant institutional capacity
  - Percentage of customer's income toward utility bill
  - Change in infrastructure ownership

Now let's consider where these might fit into the CAVAs. Here's the existing process:

Where to Plug In

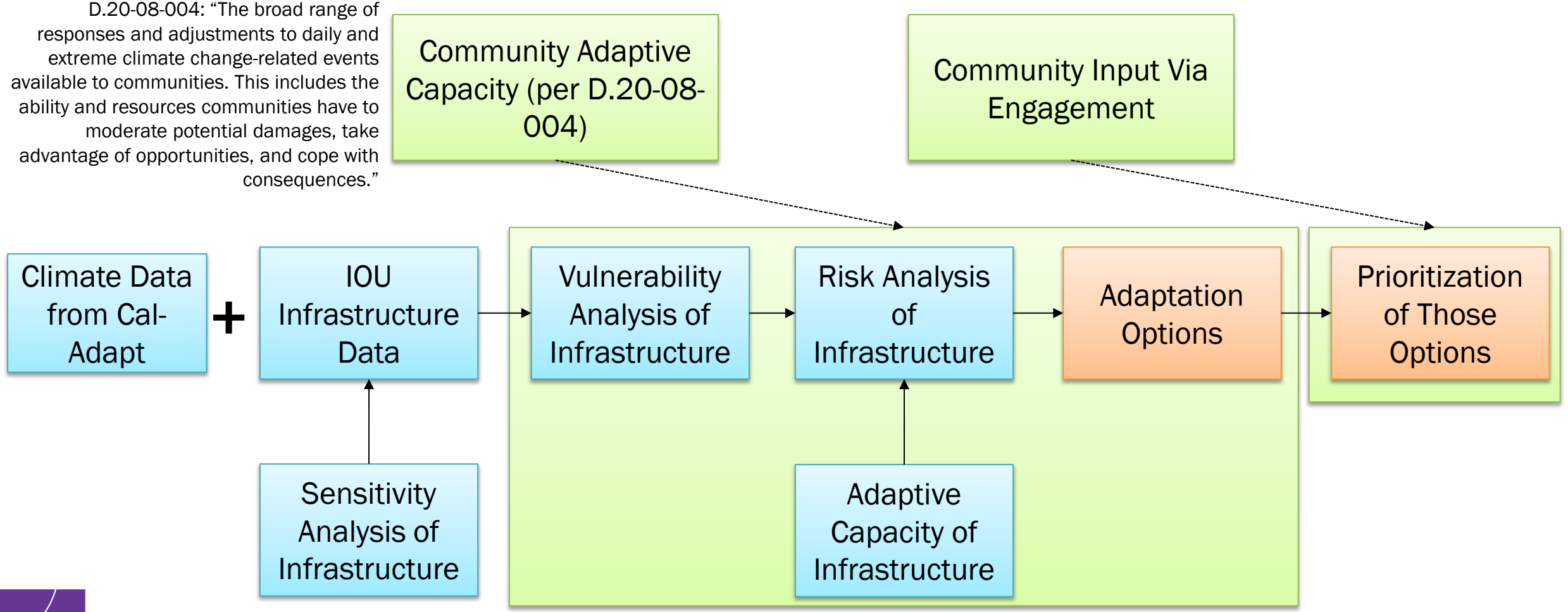
D.20-08-004: "The broad range of responses and adjustments to daily and extreme climate change-related events available to communities. This includes the ability and resources communities have to moderate potential damages, take advantage of opportunities, and cope with consequences."



Depending on which equity metrics are included, the could affect multiple parts of the CAVAs.

Where to Plug In

D.20-08-004: "The broad range of responses and adjustments to daily and extreme climate change-related events available to communities. This includes the ability and resources communities have to moderate potential damages, take advantage of opportunities, and cope with consequences."



RAND

Community Health and Environmental Policy Program

This slide is speaker's opinion, has not been formally reviewed via peer reviewed research.

Blue: Existing CAVA Process
Orange: Existing Analysis Results
Green: Equity Analysis

Perhaps more important than where these enter, is how they are measured

Potential Criteria

- Approach 1: Checklist of metrics that apply to a project (e.g., a customer program should use equity metrics A, B, and D.)

- Approach 2: Checklist as performance scoring system, to see if a project is equitable.
  1. Quantitatively measure each equity metric for a project for the different groups of interest (e.g., SB535 Disadvantaged Communities' community cost burden).
  2. Define some criteria by which an equity metric would be met, or "checked" on the list. In other words, "What constitutes an acceptable equity outcome, such that this project checks the box?" The threshold or criteria could be quantitative or qualitative.
  3. See whether each evaluated projects checks the box on each of the relevant equity metrics. This could be a stop-light "red-yellow-green" rating system for each project and each equity metric.

Funders & Contact Information

California Energy Commission

Community Health and Environmental Policy Program

Kelly Klima

kklima@rand.org

JUST SOLUTIONS

Incorporating Equity Metrics Into CAVA

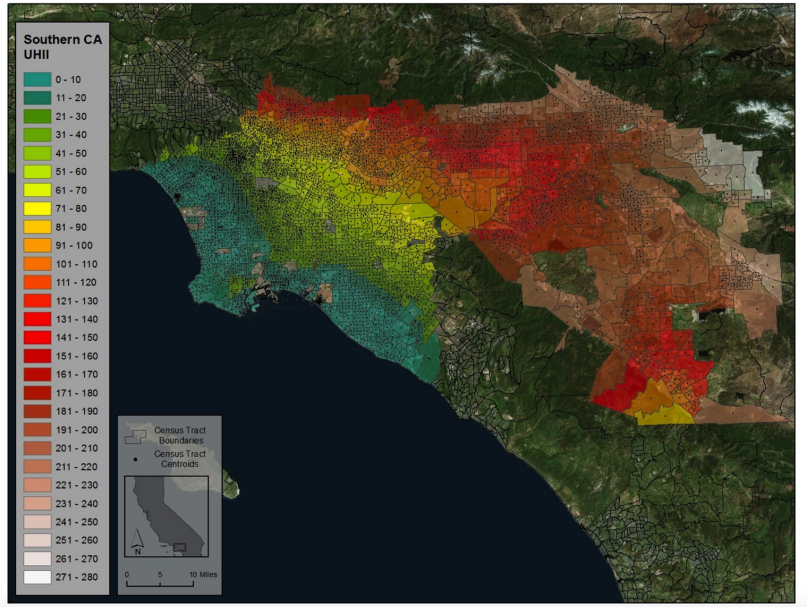
Elena Krieger, PhD

CPUC Climate Adaptation Equity Workshop

August 27, 2025

Community Adaptive Capacity

- **Incorporate Community Input**
  - What **additional** factors should be considered?
    - ***Examples:*** heat islands, outdoor workers, medical baseline customers, unhoused populations
  - What are community **priorities** for evaluating adaptive capacity that should be heavily weighted?
  - **Expand engagement** to communities with low adaptive capacity and/or high climate risk, beyond DVCs



Source: CalEPA Urban Heat Island Index

- **Expand Upon National Datasets/Frameworks by Incorporating State and Local Data**
  - California has adaptive capacity data not available at the national scale
    - ***Examples:*** air conditioning access (CEC RASS Survey); heat (CalEPA Urban Heat Island Index, UCLA Healthy Places Index Extreme Heat Edition)
  - Federal datasets may be less reliable/less frequently updated in coming years

Alignment of Community + Infrastructure Analysis

- **Characterize the infrastructure risks to populations**
  - **Who** might be impacted?
  - **How** might they be impacted?
  - **How long** might they be impacted?
  - What is the **likelihood** they will be impacted?
  - **Community input** to help prioritize risk mitigation (e.g. who, length of impact, magnitude of impact)
- **How do the *risks to specific infrastructure* align with *risks to community* and *community vulnerability/adaptive capacity***
  - ***Examples:*** Extreme heat may lead to outages for a population that is simultaneously exposed to the heat and without weatherized homes; sea level rise impacts on a substation may only simultaneously impact a small subset of households; wildfire risk to infrastructure may be coupled with smoke exposure elsewhere
    - **Note:** Even if infrastructure risk impact has less spatial granularity, the community vulnerability overlay should use as much granularity (e.g. census tracts) as possible
- **When possible identify solutions that advance infrastructure *and* community adaptive capacity**
  - ***Example:*** Energy efficiency measures can reduce capacity requirements for transmission lines facing extreme heat and also improve adaptive capacity to extreme heat for vulnerable households

Reporting and Transparency

- **How did equity analysis and community engagement influence decision-making?** Report how both qualitative community input and quantitative equity analysis directly affected or influenced decision-making, including development of metrics and prioritization of regions or strategies for improving adaptive capacity for both communities and infrastructure.
- **Set community adaptive capacity goals aligned with infrastructure adaptive capacity goals**
  - Report regularly on progress (e.g. number of houses weatherized in target zone)
  - Calculate co-benefits (e.g. energy burden reduction)
- **Transparently and clearly report data**
  - Include improvement over time

Alignment With Other Efforts

Consider where infrastructure adaptive capacity solutions could advance other goals

- ***Example:*** Gas pipelines with vulnerability to landslides or located in wildland-urban interface could be prioritized for electrification, pipeline pruning
- ***Example*****:** Quantification of the grid-level adaptive capacity value of DERS can be incorporated into both compensation structures for DERs, outreach to support adoption in target areas/populations, and the value stack of DERs in long-term planning efforts. (Ideally, the human adaptive capacity component should be valued too, but this may fall outside of this current process.)
- ***Example:*** Energy efficiency programs to reduce peak load can simultaneously advance energy burden reduction
- ***Example:*** Identify workforce development opportunities with adaptation efforts
- ***Example:*** Work with local governments to ensure information is shared, including with summary metrics (e.g. county, city) that align with their planning efforts

To identify: What specific metrics (e.g. spatial granularity, risk over time) are needed as inputs for other proceedings?

Thanks!

Just Solutions Collective

Suite 480 1000 Broadway,
Oakland, CA 94607, USA

Elena Krieger, PhD
elena@justsolutionscollective.org
justsolutionscollective.org

Please be sure to follow us

/justsolutions_org

/JustSolutionsOrg

/Just_Solutions_

just-solutions-collective/

Considerations for Equity Metrics in CAVA Process

R.18-04-019 CLIMATE ADAPTATION EQUITY WORKSHOP

AUGUST 27, 2025

CENTER FOR ACCESSIBLE TECHNOLOGY

C4AT
Tech For All

Background

- CforAT represents customers with medical needs and disabilities, who are particularly vulnerable to the impacts of climate change and depend on reliable electricity for health and safety.
  - Many individuals require reliable electricity for medical needs, such as powering respirators, CPAP machines, charging mobility devices, maintaining body temperature, refrigerating medication.
  - People with disabilities are disproportionately low-income and face challenges to mitigating heat impacts, i.e. affording air conditioning or absorbing upfront costs to install heat pumps.
  - This population is at greater risk of injury or fatality during extreme weather and emergencies and may require additional time and specialized assistance and transportation to safely evacuate and access critical resources.

Our Constituency

- People with disabilities are not geographically clustered and not identified in the current DVC definition.
  - "Access and functional needs population" (AFN) consists of individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking, older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant. Gov. Code 8593.
  - While people with disabilities are not specifically named in the ESJ community definition, the ESJ Action Plan 2.0 encourages consideration of additional priority communities, including those with AFN, medical vulnerabilities, disproportionately challenged with affording utility service, unhoused, and indigenous populations living off tribal lands. Pp. 21-22.
- Equity metrics should:
  - consider all community and customer vulnerabilities
  - be presented, informed, and used in an accessible and transparent way, promoting engagement and resilience

Criteria for Quantification of Equity

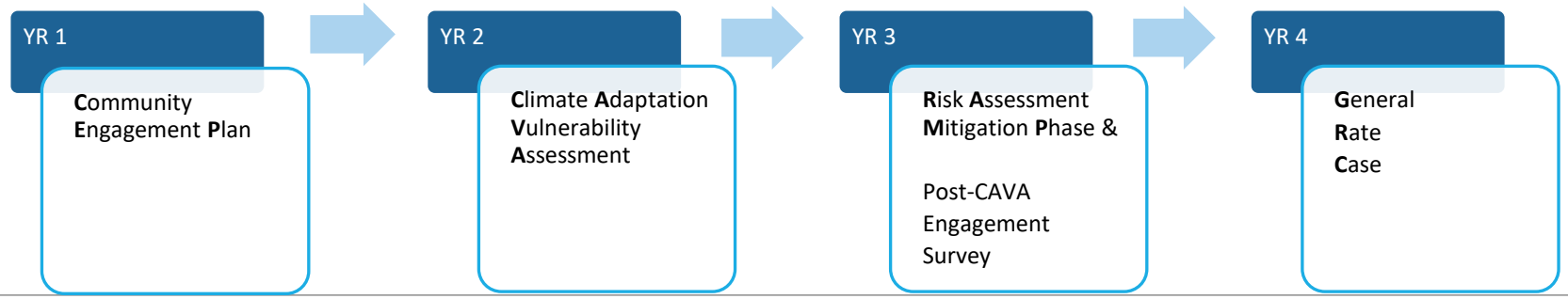
- Allow for understanding of relative climate vulnerability and adaptive capacity of communities to inform equitable prioritization
- Consider community characteristics, such as built environment, resources of local government and ability to provide services, emergency preparedness, exposure to climate hazards
- Consider demographics and variability in impacts of outages on different populations
  - Leverage AFN and MBL data from De-Energization proceeding
  - Consider frequency and duration of outages and differing abilities to respond/access critical services
- Should be granular enough for visibility of at-risk populations and understanding of community-level inequities
  - Presenters at technical workshop shared that some vulnerable populations including AFN are not typically visible in census tract scale analysis.

Criteria for Quantification of Equity

- Align with ESJ Action Plan 2.0 Goals and Objectives, including:
  - 1.1 Build Systematic Approaches for ESJ Priorities
  - 2.2 Research & Analysis to Understand Impacts
  - 2.5 Continue Ongoing Investment
  - 4.1 Emphasize Adaptive Capacity
  - 9.1 Establish Consistent Quantitative Metrics
  - 9.2 Promote Meaningful Feedback Loops
- Should be capable of showing progress over time and showing the impacts of CAVA-informed investments
- Consider potential metrics for tracking community engagement activities and ensuring procedural equity
  - Number of groups/individuals participating, by topic and stakeholder type
  - Number of projects proposed based on community participation and feedback
  - Amount of funding provided to participants
  - Number of educational offerings and trainings
  - Availability of accessible and culturally and linguistically-responsive public meetings and outreach materials

Need for Transparency, Accessibility, and Ongoing Engagement

- IOUs should clearly explain their choice of metrics, methodologies, and assumptions
  - Include explanations and definitions for a layperson audience
  - Present quantitative equity analysis to community stakeholders
- Filings and community engagement efforts should include transparent and clear explanations of how quantitative equity analysis will inform decision-making
- IOUs should validate/ground truth quantitative equity metrics with community input
- IOUs should share findings of equity analyses with communities
  - Identify areas of vulnerability that reduce ability to withstand, mitigate, and recover from outages
  - Consider qualitative input from community engagement in prioritization
- IOUs should pursue short-term mitigation strategies and partnerships for resilience projects based on analysis
  - Ensure that use of readiness metrics does not deepen existing inequities



- Community Engagement Plan (CEP)
  - Include plans for validating/informing quantitative metrics, explaining metrics to communities, and sharing analysis with communities while avoiding consultation fatigue and ensuring that communities realize tangible benefits from participation in engagement process
- Climate Adaptation Vulnerability Assessment (CAVA)
  - Include quantitative equity analysis in filing
  - Explain analysis in D.24-08-005-required workshop presenting near-final CAVA findings and methods, including a short educational session for non-experts.
- CAVA Investment Proposals
  - D.24-08-005 at p. 66: “the IOUs shall ensure that any CAVA Investment Proposal includes, amongst other information provided, a “lay” narrative explanation sufficiently clear so as to be understandable to parties and Commission staff without specific technical expertise in climate modeling or related fields.”
  - Lay narrative should include explanation of how quantitative equity analysis informs prioritization.

Engagement Criteria Panel

Refinement of Community Engagement Requirement for CAVA Process

For Climate Adaptation Proceeding (R.18-04-019)
Hybrid Climate Adaptation Equity Workshop
August 27, 2025

Ysabelle Yrad, Sustainability Specialist

BLUE LAKE RANCHERIA
A Federally Recognized Tribal Government

About Me

- Experienced researcher, engager, and facilitator on climate & coastal issues
- Topics include offshore renewables, coastal adaptation, cultural resource preservation, & workforce development
- Graduate from the University of Michigan & a 2023 West Coast Ocean Alliance Fellow

Blue Lake Rancheria & Tribal microgrid

Tribal Engagement Requires Acknowledgement of Tribal Sovereignty

- As it relates to the definition of Disadvantaged and Vulnerable Communities (DVCs):
  - Consider how definition of "Tribes" was interpreted by IOUs – Tribal governments, Tribal communities, and Tribal organizations reflect different entities
  - Emphasize and lead with recognition of Tribal Nation Sovereignty
- When to engage will depend on Tribal entity & activity:
  - Consider are there already identified adaptation priorities in a Hazard Mitigation Plan/Climate Action Plan?
  - Emphasize early and often communication, with meaningful engagement when it is most relevant to Tribal priorities
    - Many Tribal communities already understand resilience risks and options– meet where they are at

Tribal Lands

- Tribal lands on a map sometimes do not signify “areas of importance”
  - Consider ancestral territory, culturally affiliated areas, etc.
  - Consider deeper inquiry for Tribal communities
    - Mapping of just Tribal lands may not suffice

The Blue Lake Rancheria is a federally recognized Tribe in northwestern California, near the cities of Eureka and Arcata, along California Highway 299. The Tribe’s Federal tribal trust lands span the Baduwa’t (Mad River). The ancestral territory ranges from Little River to the north, ridges between Redwood Creek and the South Fork Trinity River to the east, Humboldt Bay and the Eel River to the south and west into the Pacific Ocean.

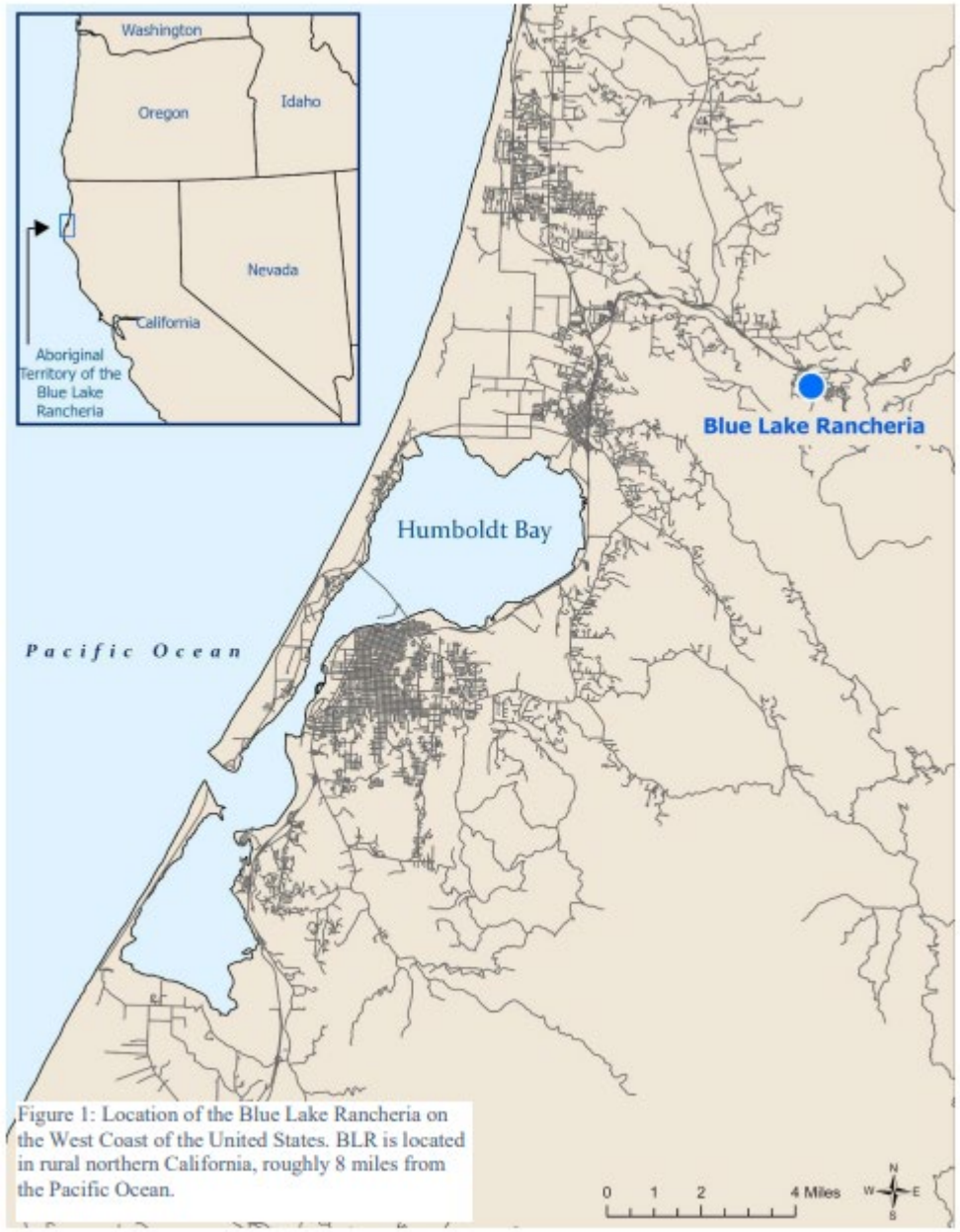


Figure 1: Location of the Blue Lake Rancheria on the West Coast of the United States. BLR is located in rural northern California, roughly 8 miles from the Pacific Ocean.

Prioritize Tribal Engagement

- Emphasize detailed planning and transparency
  - Materials, methods, and timing can look similar to other entities engagement (i.e. local government)
  - Outreach and planning may be different
    - Prioritize in-person events within the region
    - Continuous outreach with how IOU will communicate (email, phone call, letter, newsletter, etc.)
  - Consider transparency in IOUs sharing what groups were engaged and how feedback was incorporated

The Baduwa't (Mad River)

Ensure Ongoing Feedback Over Time

- Consider how prior CAVAs can inform next process and future CAVAs
  - Community interviews were conducted by some – have risks changed considerably since? Can future CAVAs build from prior engagement? (i.e. prioritize engagement with certain DVCs?)

- Once an adaptation measure is approved through the General Rate Case, IOUs should be required to provide public updates on adaptation implementation

Thank you!

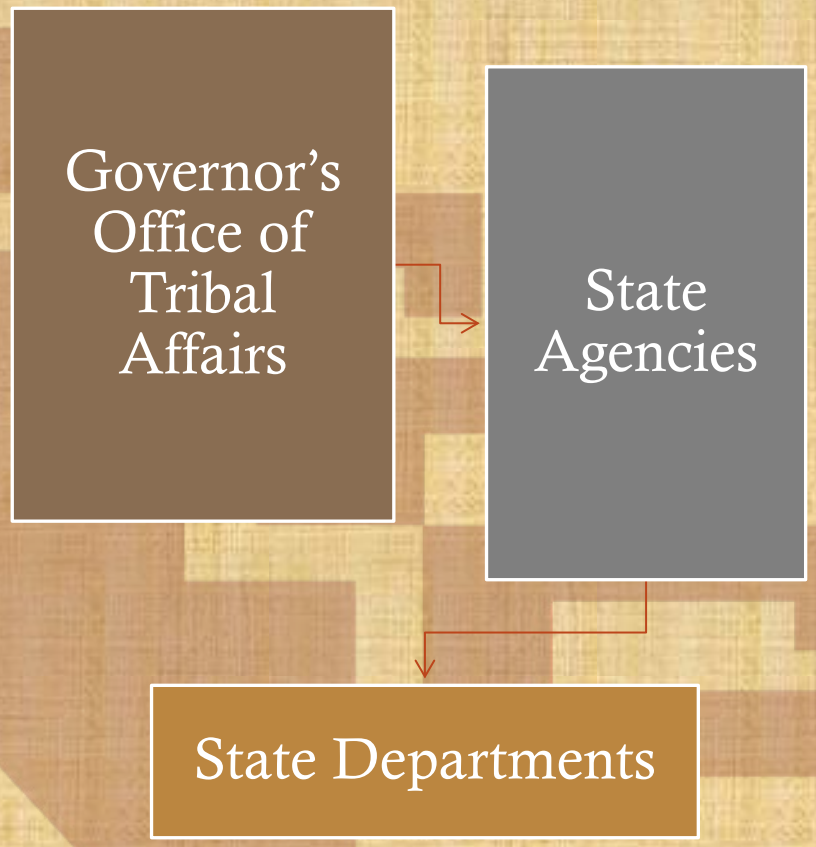
Ysabelle Yrad, Sustainability Specialist

yyrad@bluelakerancheria-nsn.gov

BLUE LAKE RANCHERIA

A Federally Recognized Tribal Government

TRIBAL CONSULTATION



State entitles under the executive control of the Governor's Office are to have a:

- Tribal Liaison that serves the first point of contact for California Tribes/Native Americans, works with Executive Management; and
- A Tribal Consultation Policy

Local Jurisdictions government to government partnerships with California Tribes and Native American Communities are also important.

EFFECTIVE TRIBAL CONSULTATION

Art by Erica Pinola, Redwood Valley Rancheria

- Relationship centered focus.
- Built into policy and program timelines from the start.
- Includes communications to the right individuals in Tribal Governments & Communities.
- Communications plainly communicate possible impacts to Tribal Communities.
- Provides time for meaningful consideration, collaboration, and consultation.
- Offers different methods of consultation, for the convenience of Tribal Governments and Tribal Communities.
- Is advanced with cultural humility and respect.
- Results in matters of mutual concern being addressed in mutually beneficial ways.

Art by Hop Norris, Yurok

TRIBAL ENGAGEMENT& ETIQUETTE

- Check your bias
- Address individuals in the Tribal Community with respect and cultural humility.
- Be mindful of verbal and nonverbal communications.
- Do not present the state or local government as the expert nor authority.
- Listen and learn.
- Outreach beyond emails.
- Focus on relationship over urgency of tasks.
- Be consistent.
- Demonstrate transparency and accountability.
- Tailor communications for Tribal Leaders and Tribal Communities.

Engagement Panel

CPUC CAVA | August 26, 2025

Angie Hacker

CEO & Principal Consultant

Prosper Sustainably

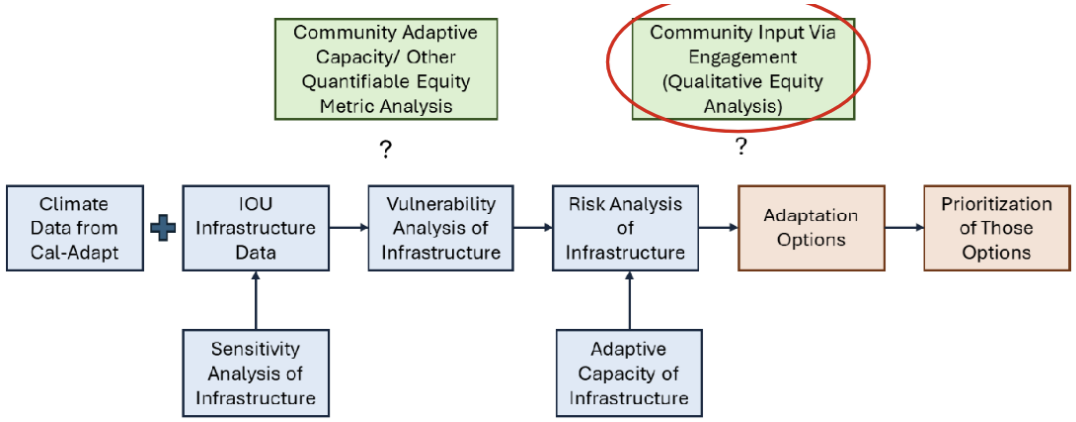
(805) 234-5131

ahacker@prospersustainably.com

www.prospersustainably.com

PROSPER
Building Thriving Communities
SUSTAINABLY

Engagement to Inform Adaptation Decisions



Goals: Identify most effective adaptation strategies to protect communities from key climate vulnerabilities/risks to IOU infrastructure. Respect limited capacity: be very clear about what types of investments they can inform and very focused/efficient with questions.

Engagement Points:

- Gather local and tribal community knowledge/analyses and perspectives on how and where impacts to IOU infrastructure affect communities (territory wide; webinar, survey/RFI & lit review)
- After initial vulnerability analysis (braiding IOU and community data), present findings for feedback, including map of most vulnerable communities ("hotspots") that need to be addressed (territory wide; workshops)
- In "hotspots," conduct engagement to deepen understanding of experienced vulnerabilities and adaptive capacity, and present draft adaptation options for feedback (stakeholders connected to "hot spots" within territory)
- Present draft CAVA recommendations/report for comment (territory wide; workshop & comment period)

Happy to Help

California Climate and Energy Collaborative

- wEEkly Updates
- Monthly Local Energy Resources Network web meetings
- State - Local Energy & Climate Coordination (SLECC) statewide and regional meetings

Tribal Climate Health Project

- Trainings
- Tribal Advisors
- Tribal Climate Health Wire

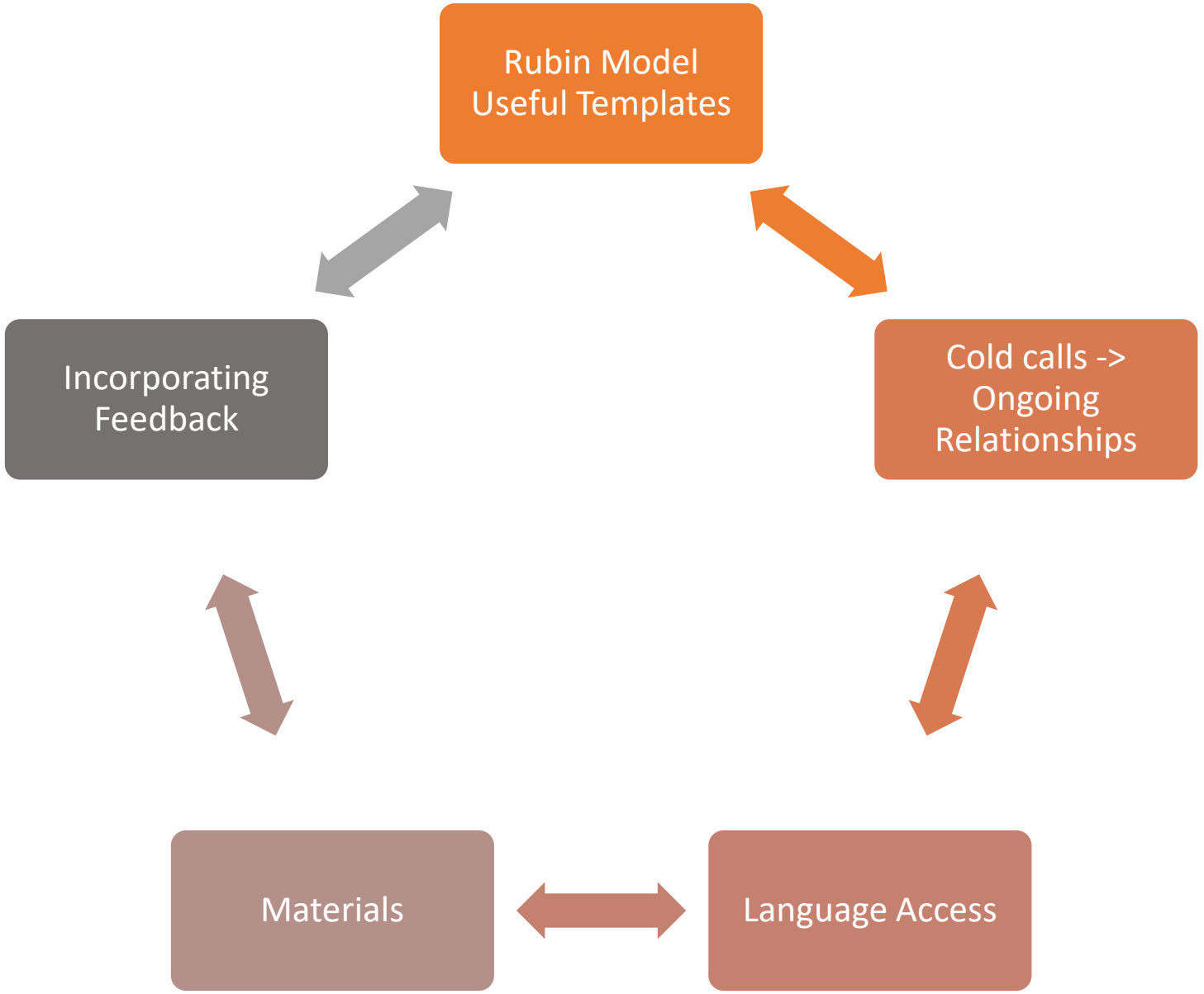
Tribal Energy & Climate Collaborative

- TECC-X meetings
- PUC Regulatory Education/Engagement

California
Department of
Conservation

CPUC Climate Adaptation Equity Workshop
Community Engagement and Equity Metrics

Sarah Rubin, Outreach and Engagement Advisor
CA Department of Conservation
916.214.5731 | sarah.rubin@conservation.ca.gov


Rubin Model
Useful Templates
Cold calls ->
Ongoing
Relationships
Language Access
Materials
Incorporating
Feedback

Today:
5 Tips

California Department of Conservation

RUBIN Race and Equity-Focused Public Engagement Model

The Purpose of This Model

This engagement model is a living guidance framework meant to help anyone working within a California state agency gain the knowledge and tools needed to develop and implement a robust community engagement plan. The model has 5 phases and 25 steps.

Phase 2 Steps

1

Step 1: Who will benefit / who will be burdened analysis

2

Step 2: Language access

3

Step 3: Political and legal considerations

4

Step 4: Importance of a local site visit

5

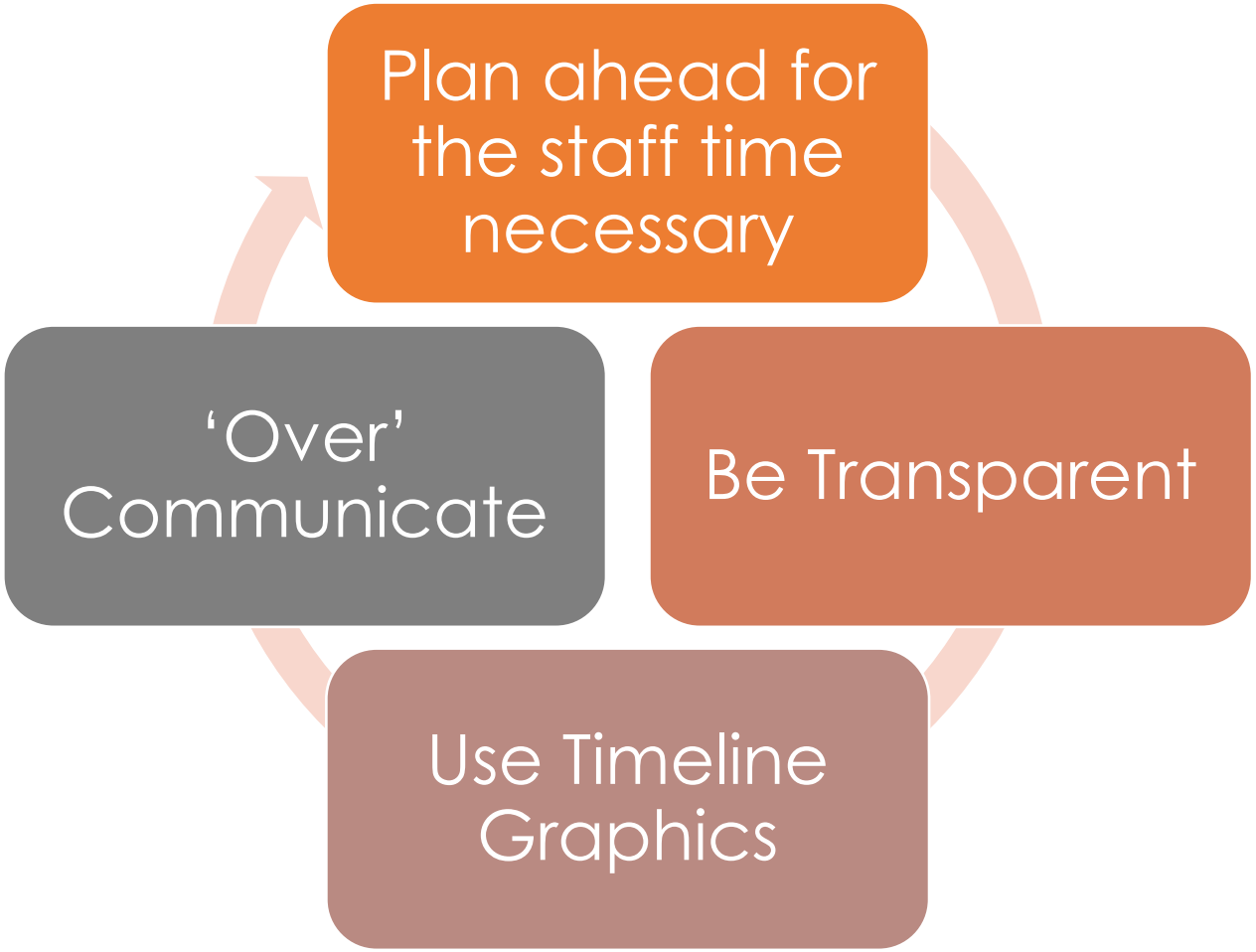
Step 5: Understanding history

Ongoing Relationships

Usually with start a ‘Cold Call’

Use data to help prioritize

Incorporating Feedback



Tip 4 of 5
Materials

Phase 3 Steps

Step 1: Who are the participation targets? Create a community landscape listing

Step 2: What engagement activities and tactics?

Step 3: Where will events take place? Explore logistical needs

Step 4: How will an evaluation framework be created

Step 5: When to conduct an informal process design check

Why Language Access Matters

Approximately **44%** of Californians speak a non-English language at home

Around **17.2%** (roughly **6.4 million**) of Californians have limited English proficiency

- For Effective Engagement
  - Understand language assets and needs
  - Translation of written documents; What to translate?
  - Have pre-meetings with interpreters
  - **Community review should be prioritized**

Next Steps

Next Steps

- **September 17th:** Workshop comments due
  - Submit via email: Meghan.cook@cpuc.ca.gov
  - Note: These are informal comments to staff, not part of proceeding docket
- **September 25th:** Southern California workshop
  - Location: LA Cleantech Incubator (LACI) in Los Angeles
- **Q4 2025:** Staff Proposal - anticipated to be issued for Comment
- **Q2 2026:** Proposed Decision - anticipated

How to Participate in the Proceeding

- Staff will use the mailing list you received this Notice for upcoming follow-up;
  - If we don't have your email, sign-up at the check-in table

- The full docket card for each proceeding can be accessed through the CPUC docket card search tool.
  - Enter the proceeding number (R1804019) without any periods or dashes to search.
  - Final decisions can also be located on the CPUC website using this decision search tool.

- The CPUC's Public Advisor's Office provides procedural information and advice to individuals and groups who want to formally participate in proceedings.

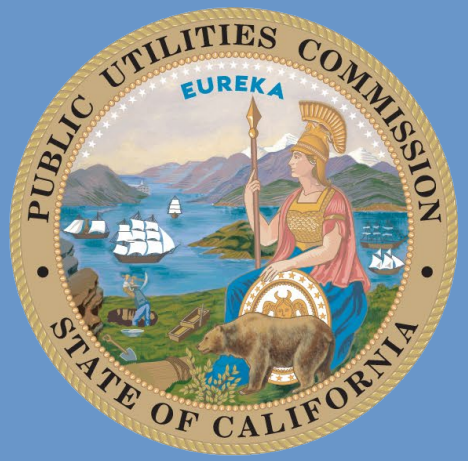
Closing Remarks

Commissioner Houck

For more information:

- **Visit:** www.cpuc.ca.gov/industries-and-topics/electrical-energy/climate-change

- **Email:** Meghan Cook at meghan.cook@cpuc.ca.gov



California Public Utilities Commission