

# EV Coordinating Council

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**March 12, 2025 Meeting**

**Welcome! We will begin shortly.**

**Feel free to change your display name to include your organization and pronouns.**

**This meeting will be recorded.**



# Meeting Agenda

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- Welcome and Overview
- EV Affordability Panel Discussion
- Bay Area Regional CAP - Transportation Sector Presentation
- Roundtable Announcements

# Panel on EV Affordability

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## Topics we will explore:

- What makes up the total cost of EV ownership?
- How can we implement policies and programs to lower that cost?
- How do we ensure equitable access to EVs for all?



# Panel on EV Affordability

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**Scott John Hardman, Ph.D. – UC Davis**

**Josh Chanin – San José Clean Energy**

**Aditya Jalihal – GRID Alternatives**

**Wendy Chou, Acterra (Moderator)**



# Panel on EV Affordability

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A Q&A session will follow.

Please hold questions until the end of the panel presentations. Moderator will call on those with hands raised or select questions from the chat.



# Meet our Panelists

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**Dr. Scott Hardman** is Associate Research Faculty and Assistant Director of the Electric Vehicle Research Center at the University of California – Davis. He is a behavioral researcher focused on electric vehicles and automated vehicles. This includes understanding consumer preferences and purchase motivations, and researching policies on vehicle adoption.

Scott chairs the International EV Policy Council, a global initiative that brings together academics to develop evidence-based policy recommendations for national and regional policymakers.

He holds a PhD from the University of Birmingham, UK.

# Barriers to EV Adoption in Underserved Communities

14/03/2025

**Scott Hardman**<sup>1</sup>, Kelly Hoogland<sup>1</sup>, Maha Shafaeen<sup>1</sup>, Jesus M. Barajas<sup>1</sup>, Ryan S. Jung<sup>1</sup>, JC Garcia Sanchez<sup>1</sup>, and Minal Chandra<sup>1</sup>, Jade Motayo Ogunmayin<sup>1</sup>, Matthew Favetti<sup>1</sup>, Ysak Ordonez<sup>1</sup>, Dahlia Garas<sup>1</sup>, Amy Thomson<sup>3</sup>, Joy Massey, Hana Creger<sup>2</sup>, Sol Flores<sup>4</sup>, and Armando Ortiz<sup>4</sup>

<sup>1</sup>University of California, Davis

<sup>2</sup>The Greenlining Institute

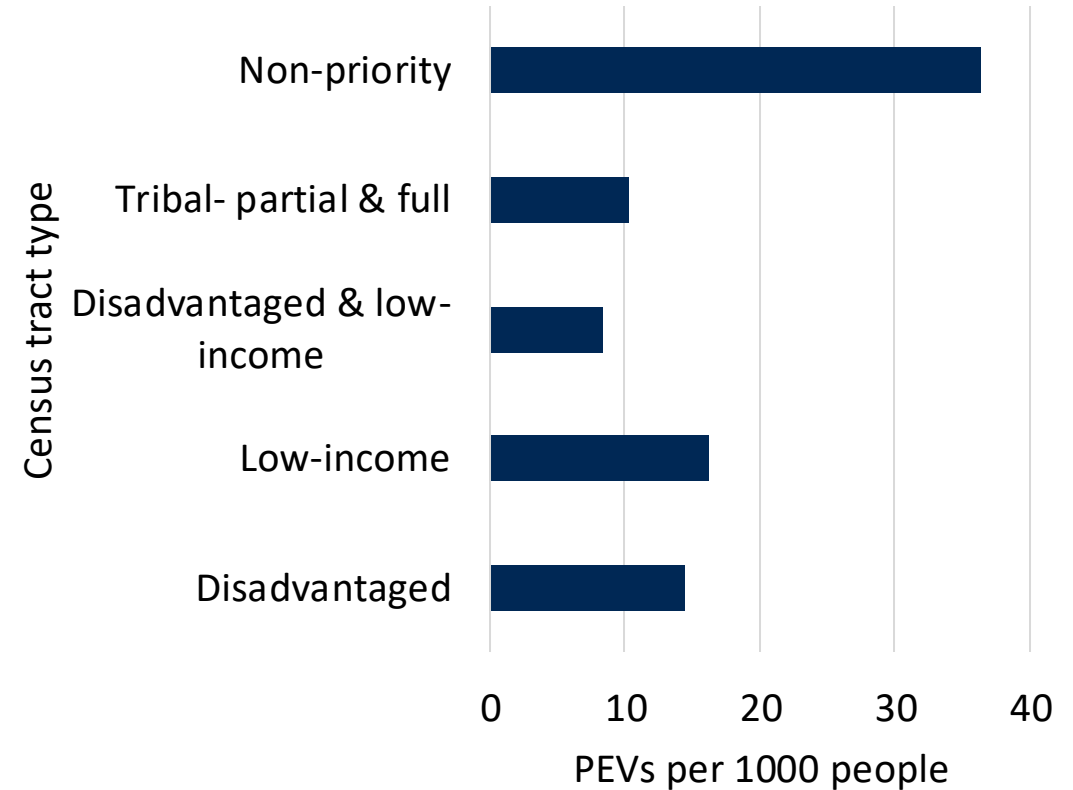
<sup>3</sup>Transform

<sup>4</sup>Self-Help Enterprises



# Introduction

- Zero emission vehicle (ZEVs) adoption is highest in higher income areas and in non-disadvantaged areas<sup>1,2</sup>.
- Higher income households are more likely to have home charging access and have more public chargers in their communities<sup>3,4</sup>.
- Benefits of ZEV adoption go mostly to higher income households<sup>5</sup>



<sup>1</sup>Hardman et al. 2021, <sup>2</sup>Canepa et al. 2019, <sup>3</sup>Lou et al. 2024, <sup>4</sup>Hsu and Fingerman 2024, <sup>5</sup>Sheldon 2022



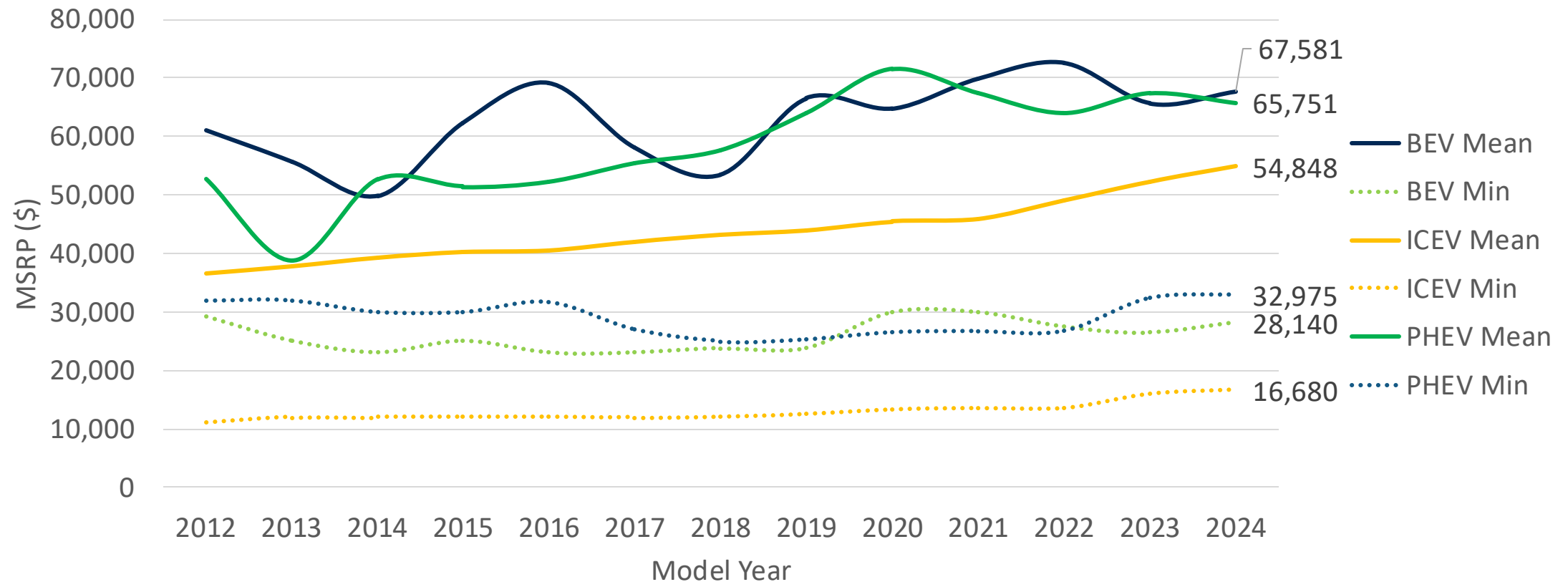
# Total Cost of Ownership

# Ownership costs

Typical vehicle ownership costs over 5 years (new car)

- **Capital costs: 59%**
- **Fuel: 24%**
- Insurance: 10%
- Maintenance and Repair: 4%
- Tax/registration fees: 4%
  
- Home charging equipment

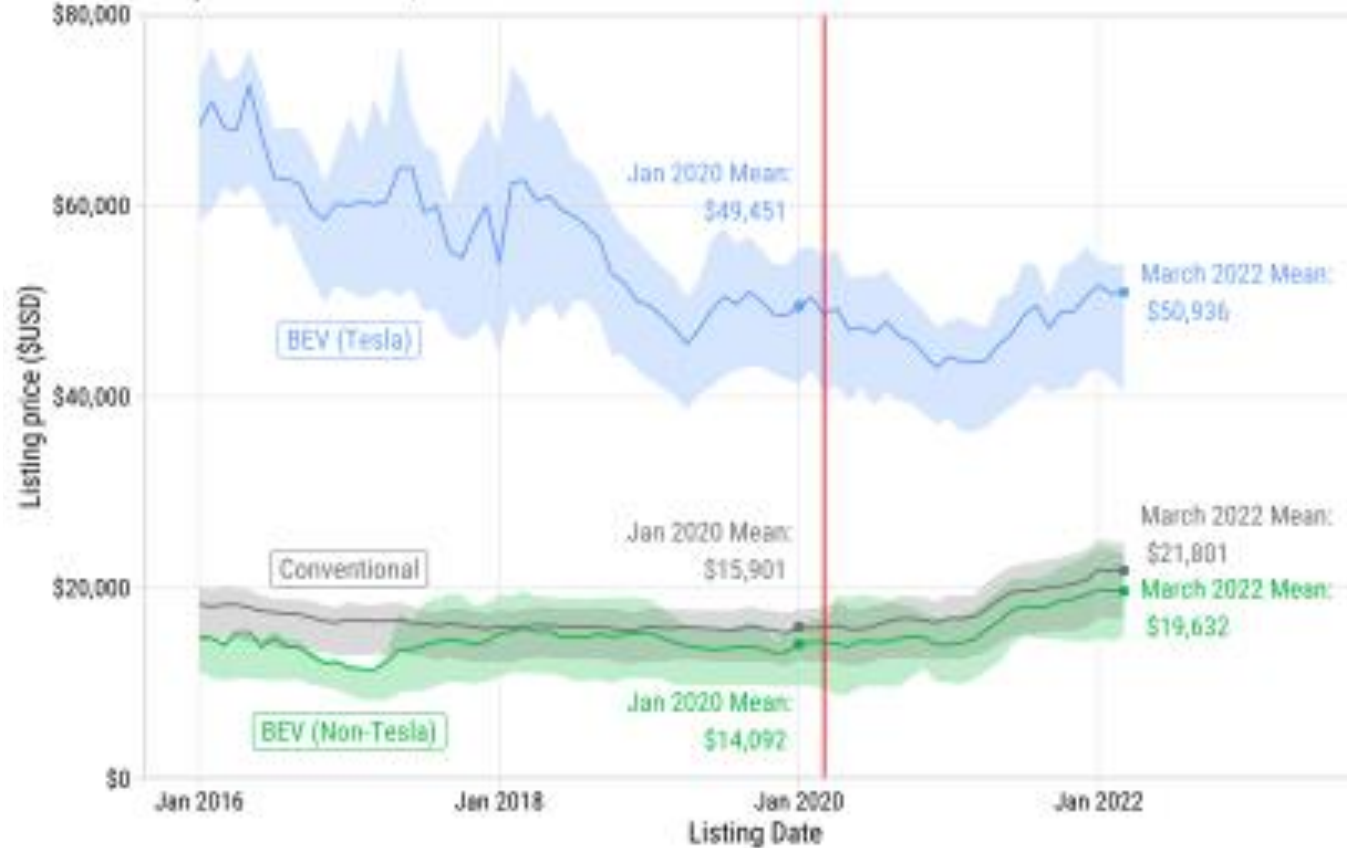
# New BEV, PHEV, and ICEV Prices



# Used BEV ICEV Prices

Used market listing prices are substantially higher post-COVID19

Prices inflation-adjust to constant 2019 \$USD







Roberson et al. 2024

# Fuel Costs

Personalize

Edit Vehicles

<p><b>2024 Toyota RAV4 Hybrid AWD</b> <span>X</span></p> <p>Hybrid Vehicle Gasoline</p>  <p>2.5 L, 4 cyl, Automatic (AV-S6)</p> <p>MSRP: \$31,725 - \$40,030</p>	<p><b>2024 Toyota RAV4 Prime 4WD</b> <span>X</span></p> <p>Plug-in Hybrid Vehicle Gasoline-Electricity</p>  <p>2.5 L, 4 cyl, Automatic (AV-S6)</p> <p>MSRP: \$43,690 - \$47,560</p> <p>Plug-in Hybrid Calculator</p>	<p><b>2024 Toyota bZ4X AWD</b> <span>X</span></p> <p>Electric Vehicle</p>  <p>Automatic (A1)</p> <p>MSRP: \$45,150</p>	<p><b>2024 Tesla Model Y Long Range AWD</b> <span>X</span></p> <p>Electric Vehicle</p>  <p>Automatic (A1)</p> <p>MSRP: \$47,990</p>
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Based on off-peak PG&E rates

<b>You save or spend*</b> <small>Note: The average 2024 vehicle gets 28 MPG</small>	<b>You SAVE \$3,500</b> in fuel costs over 5 years compared to the average new vehicle	<b>You SAVE \$2,750</b> in fuel costs over 5 years compared to the average new vehicle	<b>You SAVE \$3,500</b> in fuel costs over 5 years compared to the average new vehicle	<b>You SAVE \$4,500</b> in fuel costs over 5 years compared to the average new vehicle
<b>Annual Fuel Cost*</b>	\$1,800	Electricity + Gasoline: \$1,950	\$1,800	\$1,600
<b>Cost to Drive 25 Miles</b>	\$3.01	\$3.33 (on a single charge) ⓘ	\$2.96	\$2.65
		\$3.09 (driving on gas only)		

Based on public charging costs

<b>You save or spend*</b> <small>Note: The average 2024 vehicle gets 28 MPG</small>	<b>You SAVE \$3,500</b> in fuel costs over 5 years compared to the average new vehicle	<b>You SPEND \$1,000</b> more in fuel costs over 5 years compared to the average new vehicle	<b>You SPEND \$1,500</b> more in fuel costs over 5 years compared to the average new vehicle	<b>You SAVE \$0</b> in fuel costs over 5 years compared to the average new vehicle
<b>Annual Fuel Cost*</b>	\$1,800	Electricity + Gasoline: \$2,700	\$2,800	\$2,500
<b>Cost to Drive 25 Miles</b>	\$3.01	\$5.22 (on a single charge) ⓘ	\$4.64	\$4.16
		\$3.09 (driving on gas only)		

[fuelconomy.gov](http://fuelconomy.gov)

# Knowledge and Perceptions of EVs

<https://ww2.arb.ca.gov/understanding-travel-demand-and-built-environment-factors-optimize-increased-zev-access-underserved>

# Methods

- 7 listening sessions with 86 participants in Central Valley and Bay Area focusing on:
  - Travel experiences and needs
  - Electric vehicles
    - Including presentation on basics of EVs
  - Community priorities for investments
- Statewide survey of 3,000 households in disadvantaged, tribal, & low-income tracts, and low-income households
  - Administered via email, mail invitations, and mail surveys

# Knowledge of electric vehicles

Facilitator:

*“That segues to my next question, what do you know about electric vehicles?”*

Participants:

*“I have no clue, I have not heard about that.”*

*“I’ve heard of them, but I don’t know of them.”*

*“Like the Tesla right, isn't that all electric?”*



# Barriers to EV purchase

**Public charging access:** *"The main problem for the area is charging stations. I haven't seen any charging stations."*

**Home charging access:** *"If we live in an apartment building, how will we charge?"*

**Vehicle cost:** *"I would do it if it's affordable. I'm on a real tight budget, but when it came time to replace the vehicle that I have and I have some money I would think about doing that [buying a PEV]"*

**Benefits compared to gas:** *"I have a couple coworkers that have electric vehicles and they plug their Teslas into charge and they're paying as much as I would pay in gas."*

**Battery concerns:** *"I've heard various things about how fast the battery wears down."*

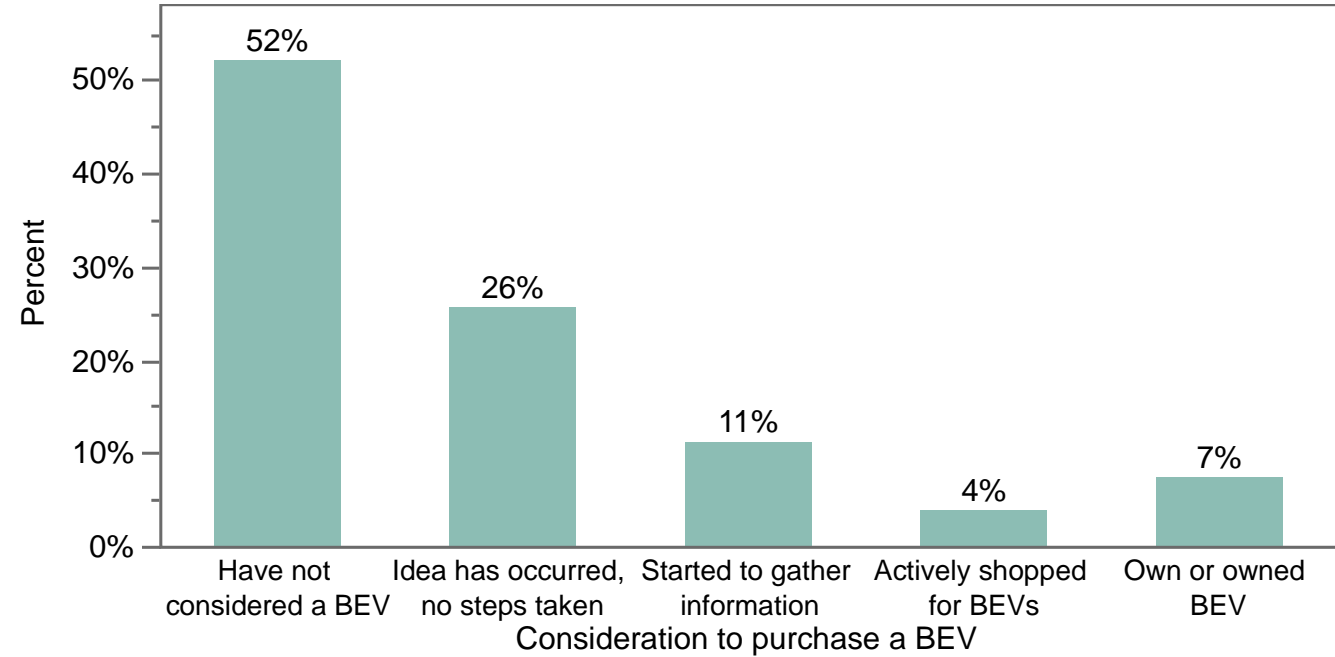
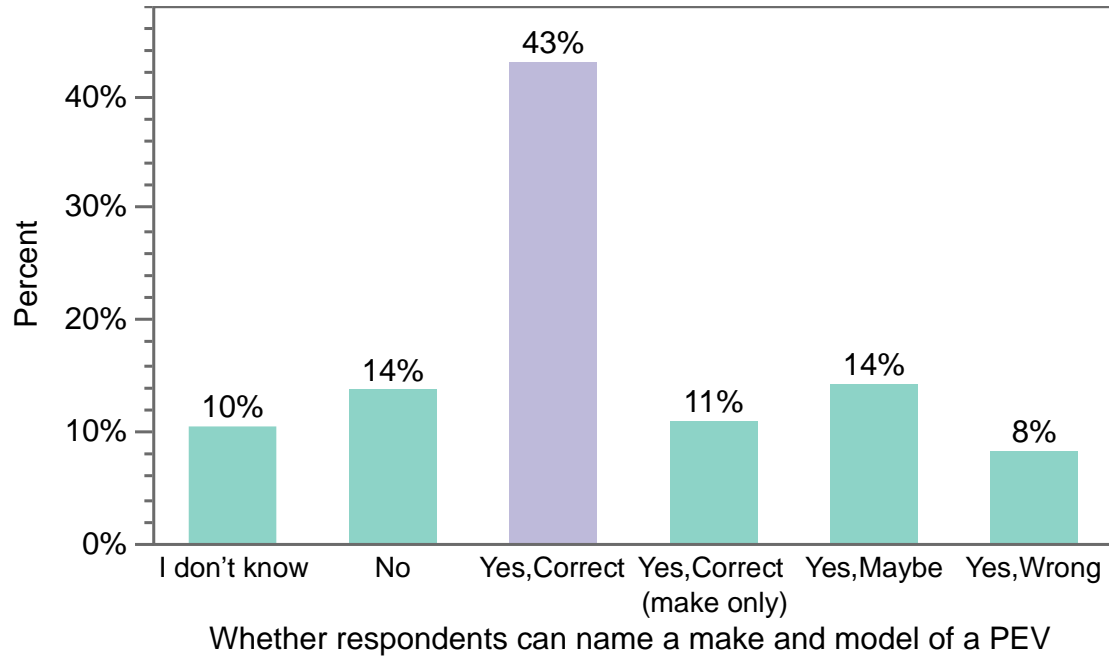
**Negative environmental impacts:** *"With changing the batteries, all those batteries it end up going to a special dump, they take a long time to decompose and are bad for the environment."*

**Charging time:** *"If you're in a hurry to get somewhere or you're on a trip or it's an emergency to get somewhere, it's just not gonna happen yet."*

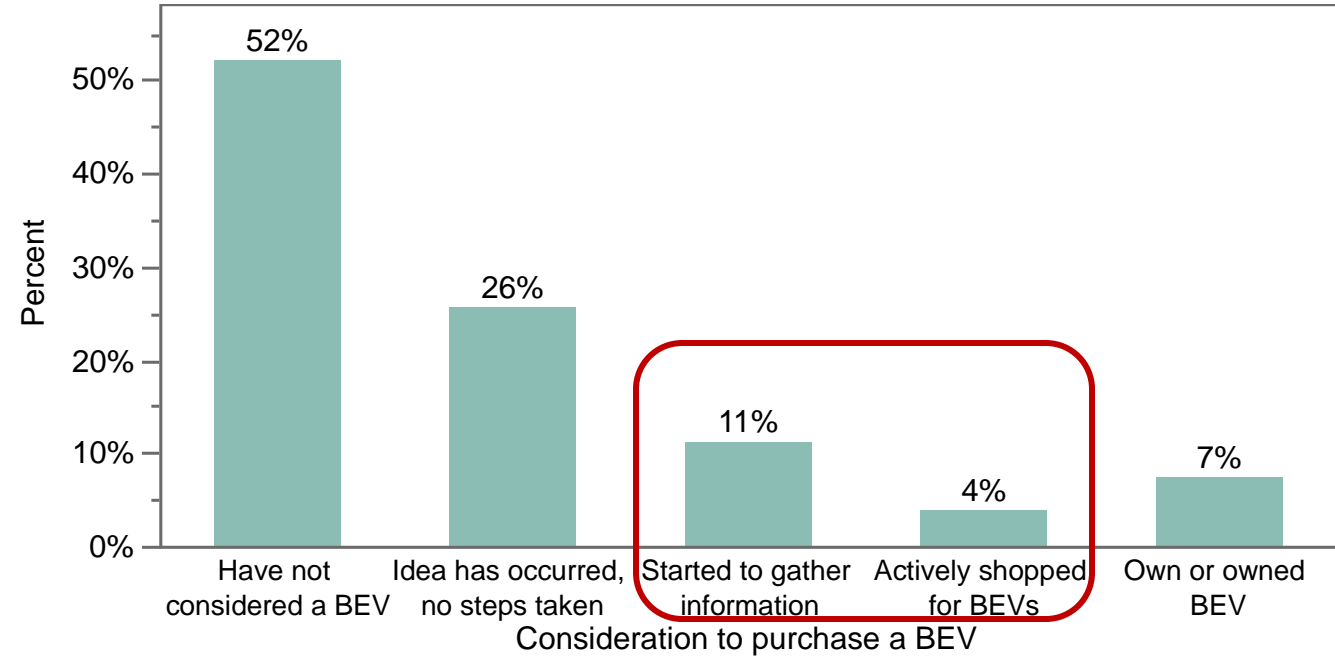
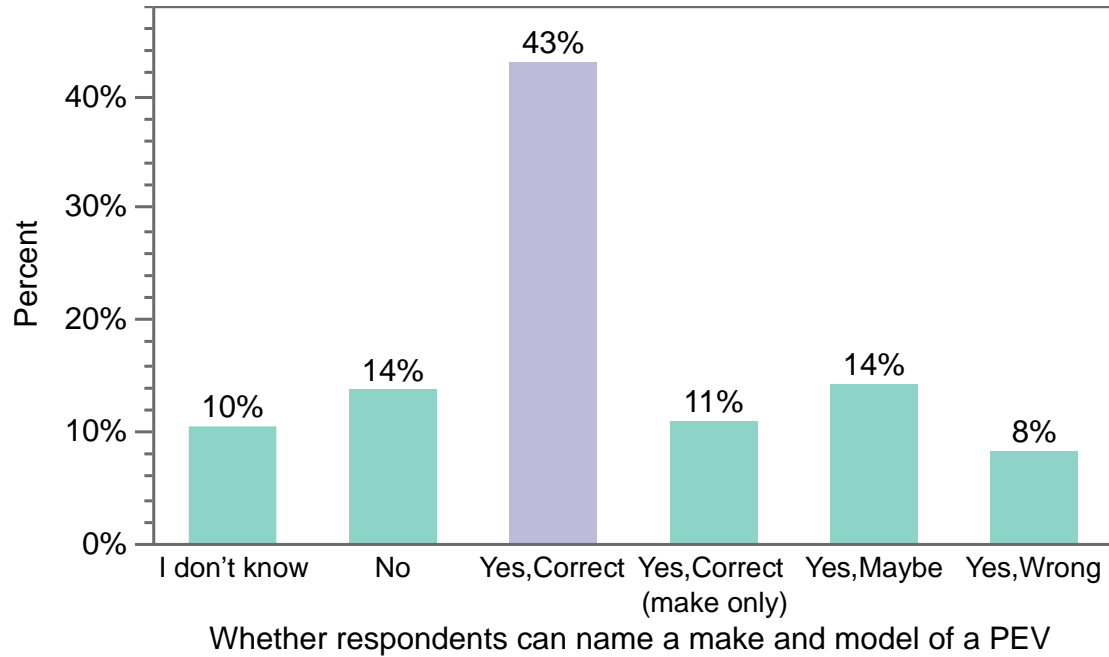
**Safety concerns:** *"All the batteries go up and once the battery's on fire, "If we had the money right now, no I still would not they cant do nothing."*

# Survey Results

# Knowledge & consideration

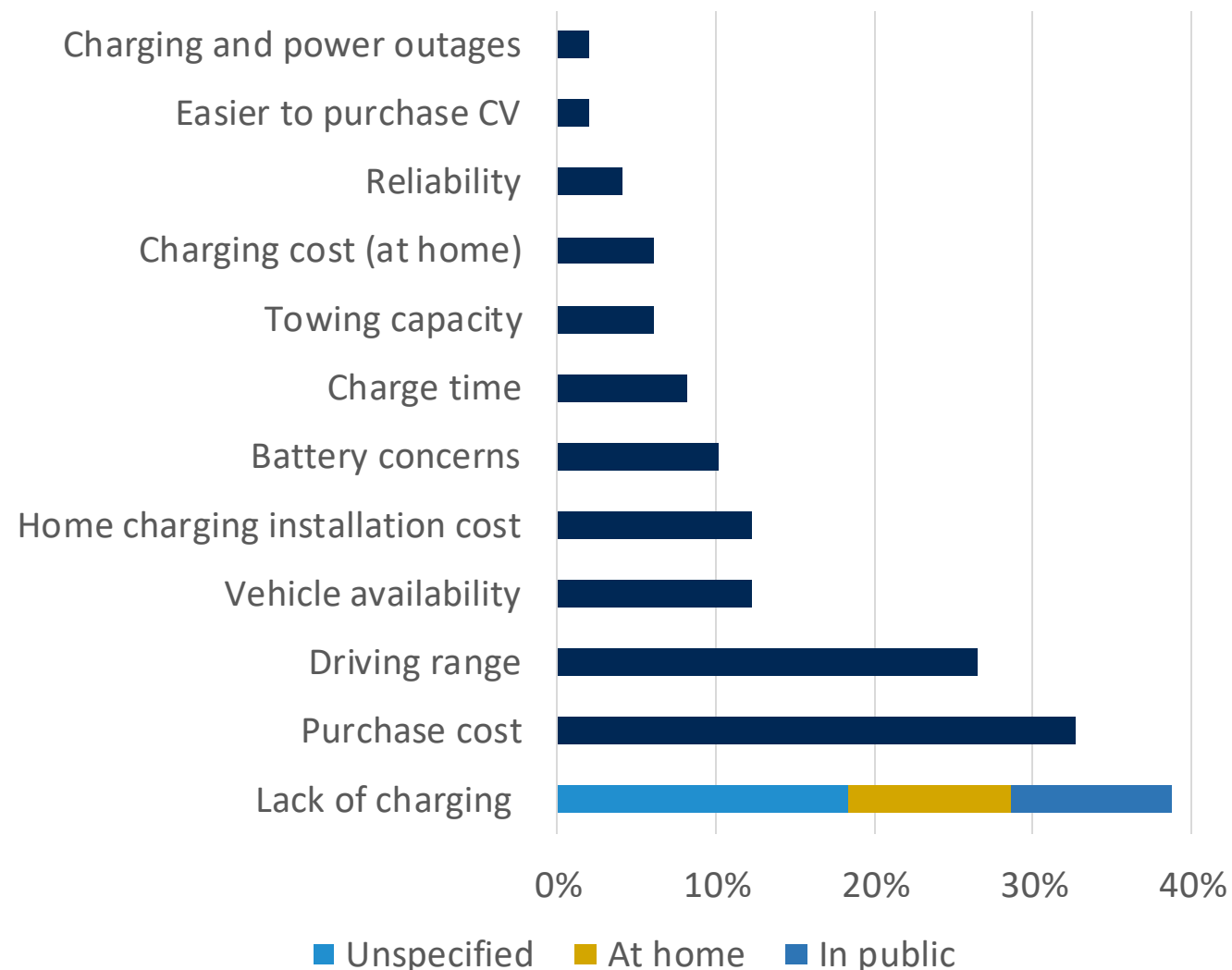


# Knowledge & consideration



# Reasons people didn't buy a BEV

- 20% of respondents who considered a BEV decided not to purchase one



# Summary

- Most people are not thinking about buying a ZEV, nor can they name one
- Barriers to adoption include:
  - Low knowledge
  - A lack of home or public infrastructure
  - High vehicle costs
  - Concerns about battery reliability
  - Range
  - Perceived lack of substantial benefits of PEV adoption (charging costs)
- Few respondents are outright opposed to ZEVs and ZEV policy
- Incentives and home or work infrastructure can increase consideration
- Household attributes are significantly related to perceptions, knowledge, consideration, and response to incentives
- Real barriers exist, including related to costs, whether these are addressed depends on support given to communities, program design, awareness of programs, etc.

Final report: <https://ww2.arb.ca.gov/understanding-travel-demand-and-built-environment-factors-optimize-increased-zev-access-underserved>

Thanks to the California Air Resources Board for funding this research.



Jesus M. Barajas<sup>1</sup>, Maha Shafaeen<sup>1</sup>, Ryan S. Jung<sup>1</sup>, JC Garcia Sanchez<sup>1</sup>, and Minal Chandra<sup>1</sup>, Jade Motayo Ogunmayin<sup>1</sup>, Matthew Favetti<sup>1</sup>, Ysak Ordonez<sup>1</sup>, Dahlia Garas<sup>1</sup>, Amy Thomson<sup>3</sup>, Joy Massey, Hana Creger<sup>2</sup>, Sol Flores<sup>4</sup>, and Armando Ortiz<sup>4</sup>

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<sup>3</sup>Transform

<sup>4</sup>Self-Help Enterprises

14/03/2025

Scott Hardman, shardman@ucdavis.edu

Maha Shafaeen, mshafaeen@ucdavis.edu

Kelly Hoogland, kmhoogland@ucdavis.edu

# Meet our Panelists

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**Josh Chanin** is Senior Decarbonization Program Specialist at San José Clean Energy, the clean energy provider for the City of San José. As a leader of transportation electrification programs, he draws on 10+ years of experience in energy efficiency and transportation electrification incentive program management. He has spent the past several years focusing on increasing EV adoption for state governments and Community Choice Aggregators (CCAs), particularly in low-income and disadvantaged communities. Josh has played a key role in directing how over \$50 million in funding should be spent to accelerate EV adoption, directly influencing the adoption of more than 8,000 EVs.



# CENTERING EQUITY IN EV INCENTIVE PROGRAM DESIGN

March 12, 2025

Josh Chanin,  
Senior Decarbonization Programs Specialist

**SAN JOSE**   
**CLEAN ENERGY**  
A Program of the City of San José

# WHO WE ARE

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Community Choice Aggregator (CCA)  
for San José since 2019

- \$350-500M annual revenues
- Annual load: 4 TWh
- Peak demand: 1 GW

350,000 customer accounts

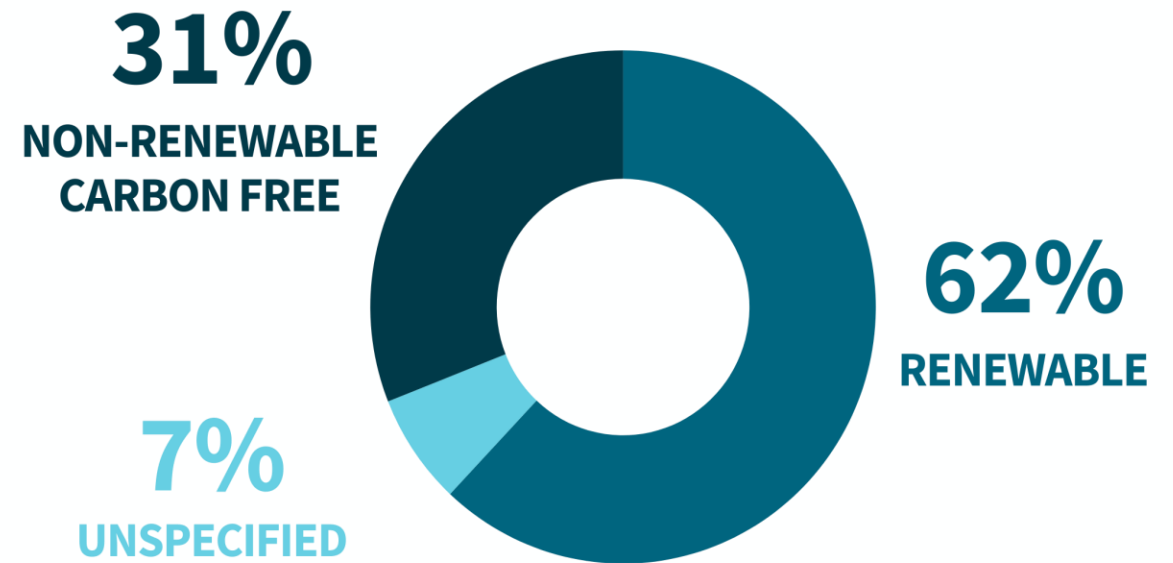
97% participation rate

23% are low-income

34,000+ rooftop solar customers

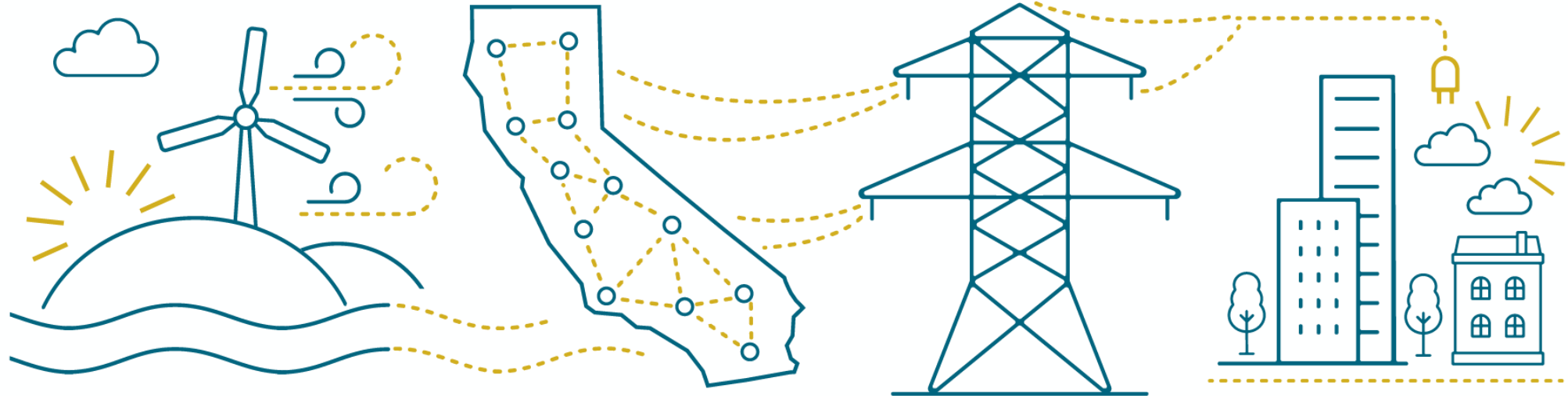
## GreenSource Power Mix (standard service)

Applies to Residents and Businesses





# HOW COMMUNITY CHOICE WORKS



## SOURCE

### SJCE

Sourcing and building cleaner energy

## GRID

### CALIFORNIA

Flowing clean energy into our state's power supply

## DELIVERY

### PG&E

Delivering energy, maintaining lines, serving customers

## CUSTOMER

### YOU

Using cleaner energy, preserving the environment

# GOALS FOR TODAY

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Share strategies that ensure equity is incorporated into your program across:

- Development
- Design
- Implementation



# PROGRAM DEVELOPMENT

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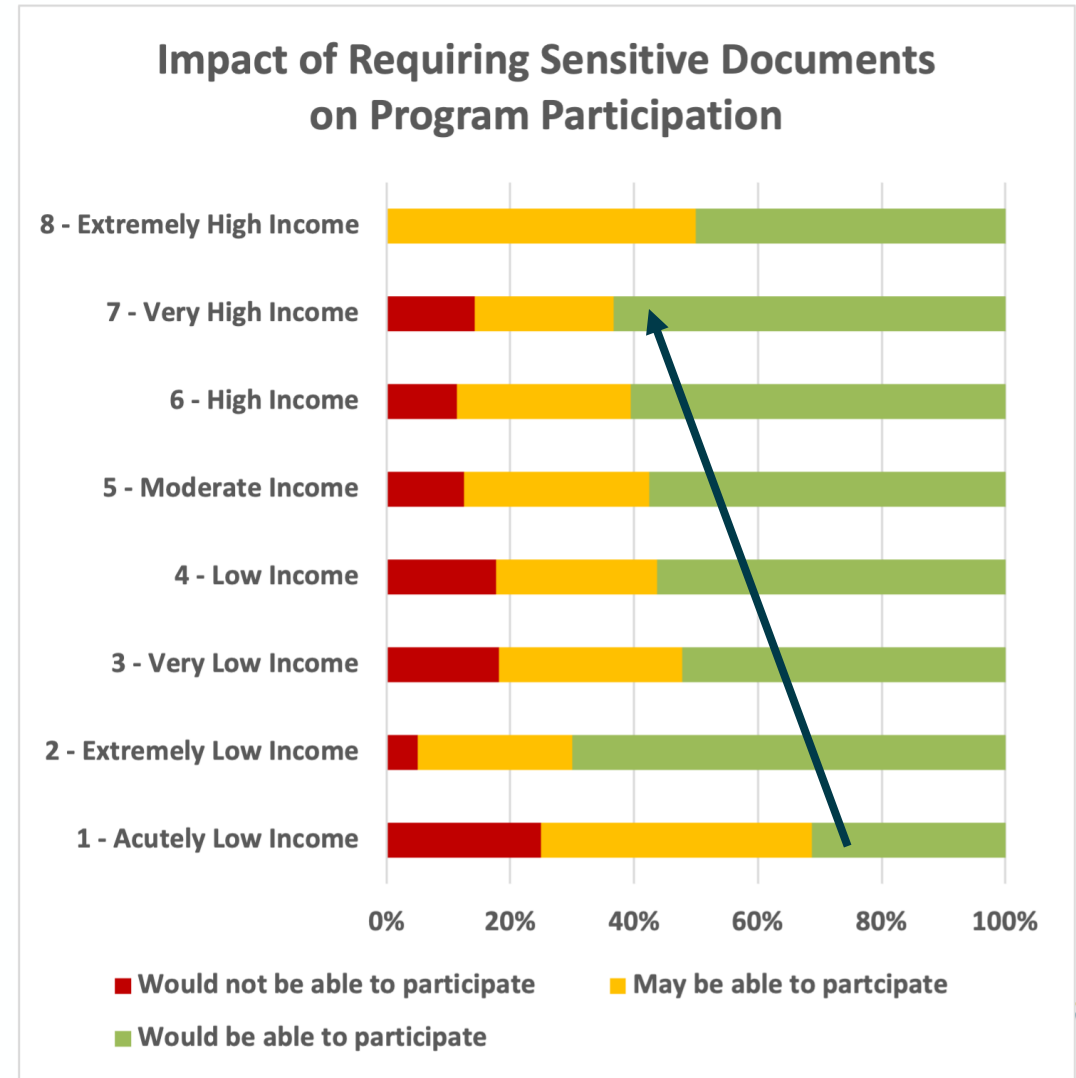
## Ensure community engagement is part of the process.

- Set aside funding to find out the answer
- Engage with customers through personal touchpoints
  - Listening sessions
  - Events and community dinners
  - Accessible surveys
- Ensure market actors are included in engagement

**What do my  
customers  
need in order  
to adopt an  
EV?**

# FINDINGS FROM SJCE EV NEEDS ASSESSMENT

- **Listening Sessions:** Customers thought that higher-worth assets could impact health insurance or food stamps eligibility
- **Surveys:** Initial high cost of EVs was the most significant barrier to adoption
- **Surveys:** 42% of respondents said that providing sensitive documentation would or maybe would prohibit participation
- **Market Actor Outreach:** Dealer sales incentives are needed to move the needle
- **Market Actor Outreach:** Used car dealers have a higher fraud risk



# EV INCENTIVE PROGRAM DESIGN

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## Make decisions that meet goals and customer/market actor needs.

- **Customer eligibility:** income, geographic, or market rate eligibility
- **Qualifying vehicles:** EVs only or inclusion of PHEVs for FCEVs
- **Incentive design:** pre-apply, point-of-sale, post-purchase, incentive amounts
- **Market actor eligibility:** new car dealers, used car dealers, private sales



# PROGRAM IMPLEMENTATION

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## Equitable program design doesn't stop at program launch.

- Create a feedback loop to continue receiving feedback from target customers
- Stay nimble in implementation to make changes as needed
- Incorporate EV marketing and education to target customers
- Hold program accountable by tracking equity focused KPIs







# THANK YOU

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**Josh Chanin**

Senior Decarbonization Programs Specialist

(408) 758-8147

[josh.chanin@sanjoseca.gov](mailto:josh.chanin@sanjoseca.gov)

# Meet our Panelists

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**Aditya Jaliha** is Assistant Programs Manager at GRID Alternatives, working with the Bay Area office. Currently he is involved in early partnership development for the affordable charging program as well as EV-related community engagement, dealership outreach, market analysis, and rebate program evaluation through a justice lens. His prior experience spans diverse fields including documentary production, youth mentoring, and human rights policy. His academic background is in environmental and economic policy, which he has applied to understand and iterate just and effective programming. He is proud to call the East Bay community his own and loves connecting with the people and wetlands here.





# EV Charging: Affordability Pilot Programs

Aditya Jalihal | he/him



**Bay Area Clean Mobility**

# GRID's approach to Clean Mobility



Prioritize capacity building and wealth building opportunities: community-powered solutions



Maximize savings from transitioning off of fossil fuels: using clean, cheap solar energy to charge

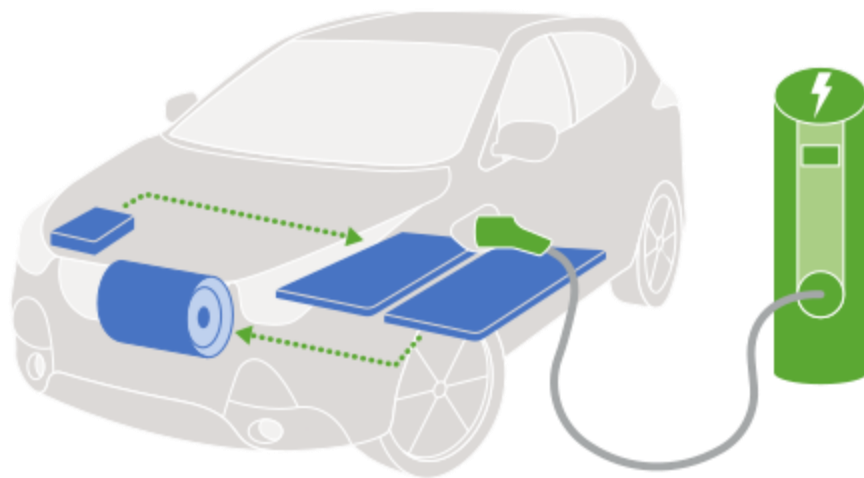


Move people, not cars: mobility justice means clean public transit, e-bikes, and more

# Identified Problem

**Charging for Low Income Residents is inaccessible in multiple ways:**

- Finding working chargers is an issue on its own *and*
- Travel by battery must be more financially enticing than travel by gallon.



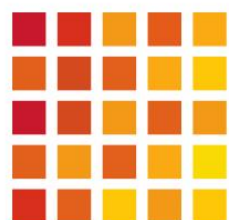
# Proposed Solutions via JOET Grant

## Communities of Practice

- Convening and sharing experience

## Pilot Program

- Experimenting with localized solutions from regional partners and scaling.



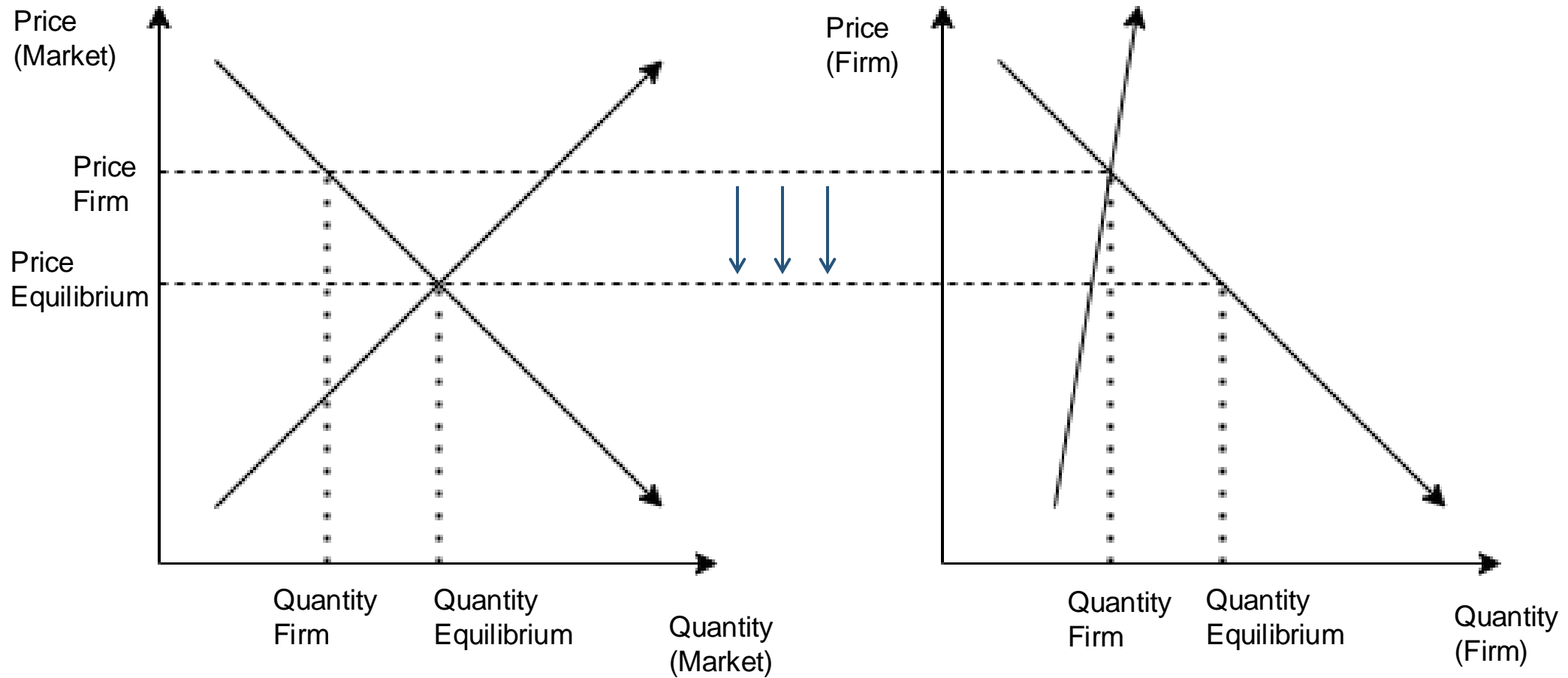
**Smart Electric  
Power Alliance**



**Joint Office of Energy  
and Transportation**

Possible Outcomes

# Seeking Market Efficiency in Clean Mobility





# Scaling Equity



**Local Solutions are great, building on them together is better**

- Share what works across regions and understand each others' issues/concerns with implementation
- Deepen connections across organizations and building solidarity for similarly aligned results

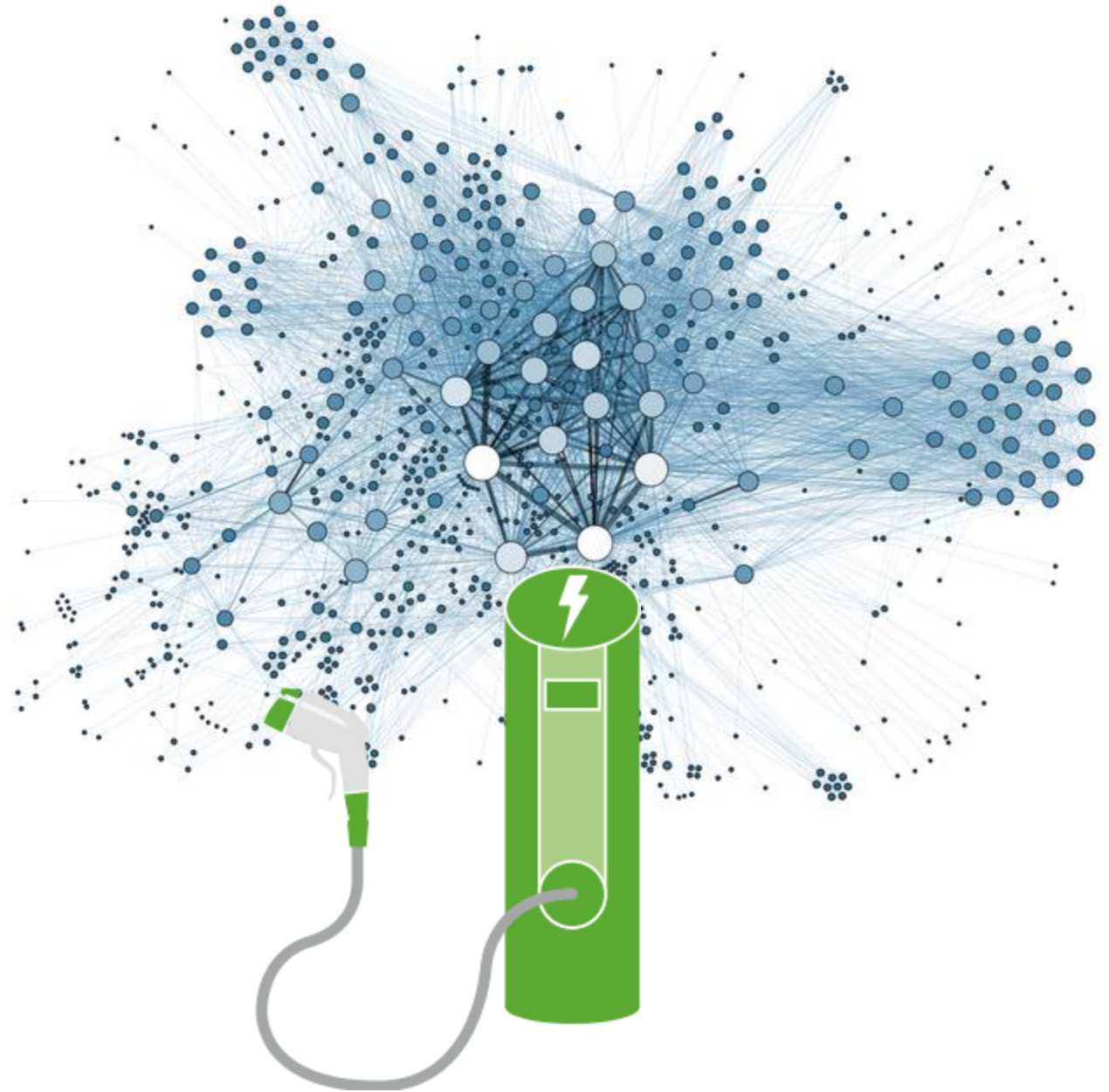
Potential Pilots

# A Potential National Solution: Portable Discounts!



# Virtual Net Metering

Net Metering and its virtual application are already in practice for solar credits – can it be used for charging?



# Community of Practice



# Community of Practice



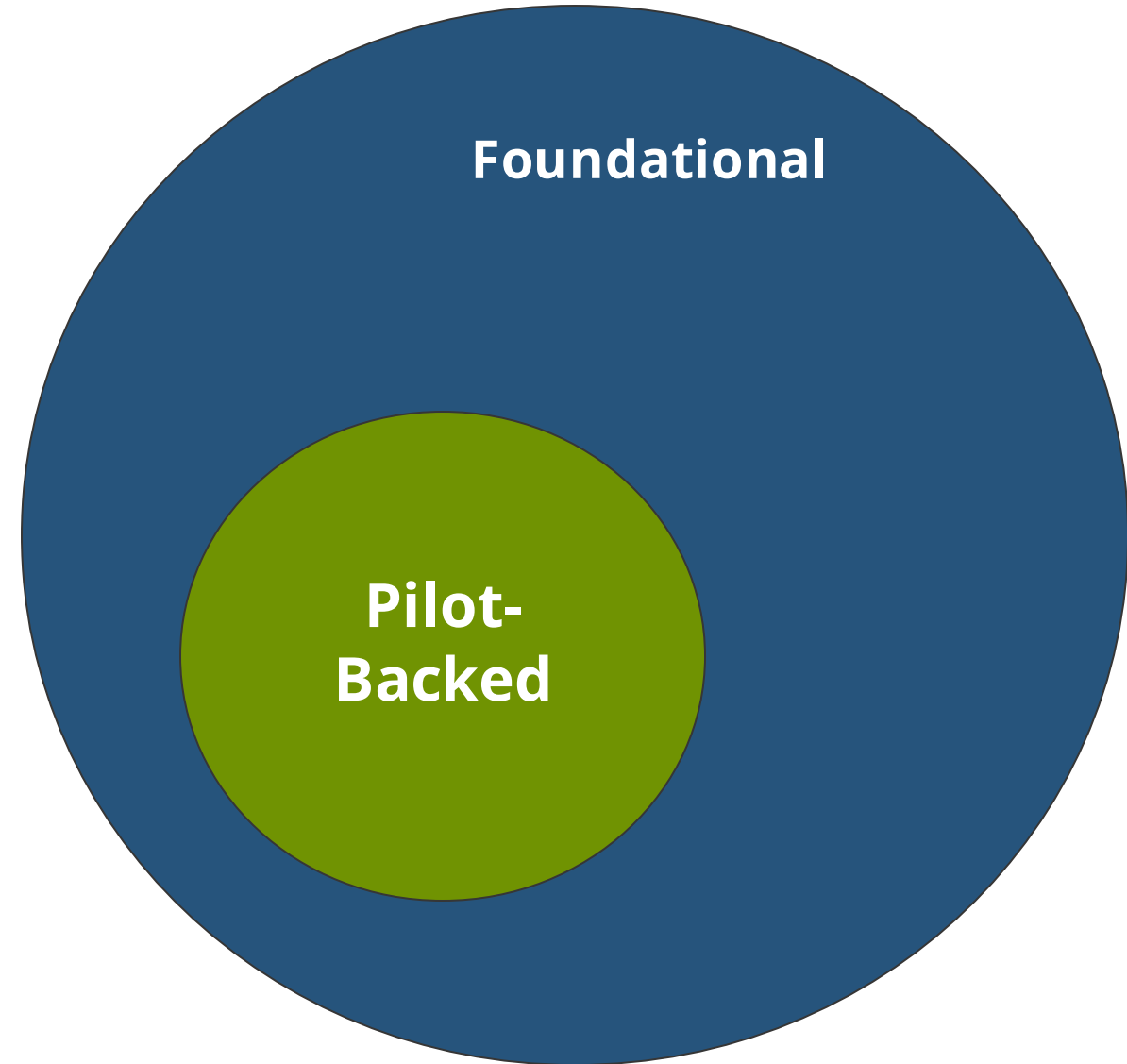
## Who should participate?

- ❖ Publicly-owned Utilities
- ❖ Investor-Owned Utilities
- ❖ Rural Electric Cooperatives
- ❖ Community Choice Aggregators
- ❖ LSE Adjacent Ecosystem Partners

# Community of Practice

## What will participation look like?

- ❖ Discussions will bring participants together to share lessons learned in the EV charging space.
- ❖ Utilities will have the opportunity to engage on two different levels: *Foundational* and *Pilot-Backed*.



# Community of Practice Members: Foundational

- AEP Texas
- Austin Energy
- City of Renton
- City Utilities of Springfield
- Duquesne Light Company
- El Paso Electric
- Holy Cross
- Indiana Michigan Power
- LG&E and KU Energy LLC
- Northern California Power Agency
- Orange and Rockland
- PacifiCorps
- PNM
- Seattle City Light
- Silicon Valley Power
- Southern California Edison
- Tacoma Power
- Unitil

Total: **18 Foundational Partners**



# Community of Practice Members: Pilot Backed

- Ava Community Energy
- City of Banning Utilities
- City of Healdsburg
- City of Palo Alto
- Portland General Electric
- Puget Sound Energy
- Redwood Coast Energy Authority
- San Jose Clean Energy
- Silicon Valley Clean Energy
- SMUD

Total: **10 Pilot Backed Partners**



# Plugging into the Opportunity



**How can you get connected with this opportunity?**

Reach out to your local utility, rural electric coop, or community choice aggregator and be an advocate for equitable access!

By building connections and forging a strong network together, we can bring lessons learned and knowledge from across the country to your local community – ***at no cost.***





Do you have questions about the Community of Practice? Email us!

For the Community of Practice:  
Ashley Lynn Qua ([aqua@sepapower.org](mailto:aqua@sepapower.org))

For Pilot Project Inquiries and Support:  
Rachael Aptowitz  
([raptowitz@gridalternatives.org](mailto:raptowitz@gridalternatives.org))

For more information, visit:  
(<https://gridalternatives.org/affordable-public-charging>)

If you're a nonprofit or affordable housing provider and interested in solar or EV charging please contact the GRID Colorado office.

For solar inquiries:  
BA Outreach Team  
([baoutreach@gridalternatives.org](mailto:baoutreach@gridalternatives.org))

For EV inquiries:  
Aditya Jalihal  
([ajalihal@gridalternatives.org](mailto:ajalihal@gridalternatives.org))

**Thank You!**

Thank you to all our panelists!



# Q&A

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- Questions will be taken in the order of raised hands
- Please contribute questions or comments in the chat
- Audience: We'd love to hear your experience with programs, pilots, data sets, cost calculators, partnerships, etc., targeting EV affordability.

# Bay Area Regional Climate Action Plan (BARCAP)

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**Monte DiPalma** is a Senior Air Quality Engineer in the Planning and Climate Protection Division of the Bay Area Air District. His work focuses on climate solutions in the transportation sector.





# Bay Area Regional Climate Action Plan

**Bay Area EV Coordinating Council**

*March 12, 2025*



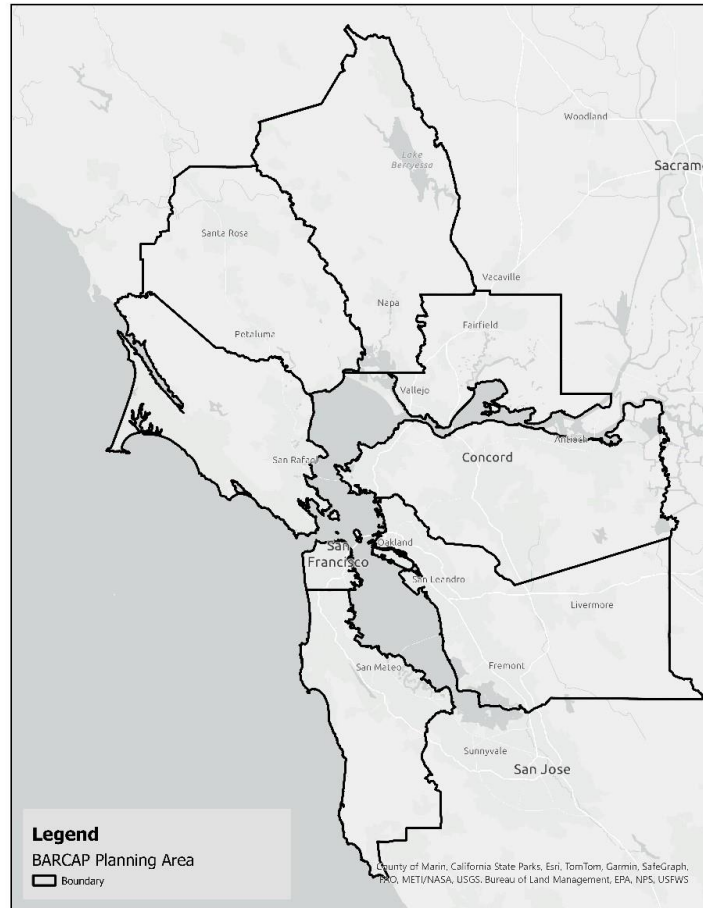
# Presentation Outline

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- BARCAP Initiative Overview
- Regional Greenhouse Gas (GHG) Inventory
- Initial Concepts for GHG Reduction Measures
- Next Steps



# Bay Area Regional Climate Action Plan (BARCAP) Initiative



Air District received funding from USEPA to lead development of a regional climate action plan for an eight-county area (see map on left)\*

## Key deliverables include:

- BARCAP Phase 1: Priority Climate Action Plan (*submitted Feb 29, 2024*)
- BARCAP Phase 2: Comprehensive Climate Action Plan (*to EPA Q1 2026*)

\* *Santa Clara County is leading its own US EPA-funded planning effort*

# Goals of the BARCAP Initiative

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## **GOAL 1**

Reduce Bay Area's contributions to climate change to help achieve carbon neutrality by 2045

## **GOAL 2**

Create a healthier breathing environment and provide benefits to frontline communities

## **GOAL 3**

Take regional action to align, leverage, or accelerate State and local climate action

## **GOAL 4**

Address important cross-cutting issues that extend across multiple components of the plan

# Advisory Work Group for BARCAP



City of  
Oakland

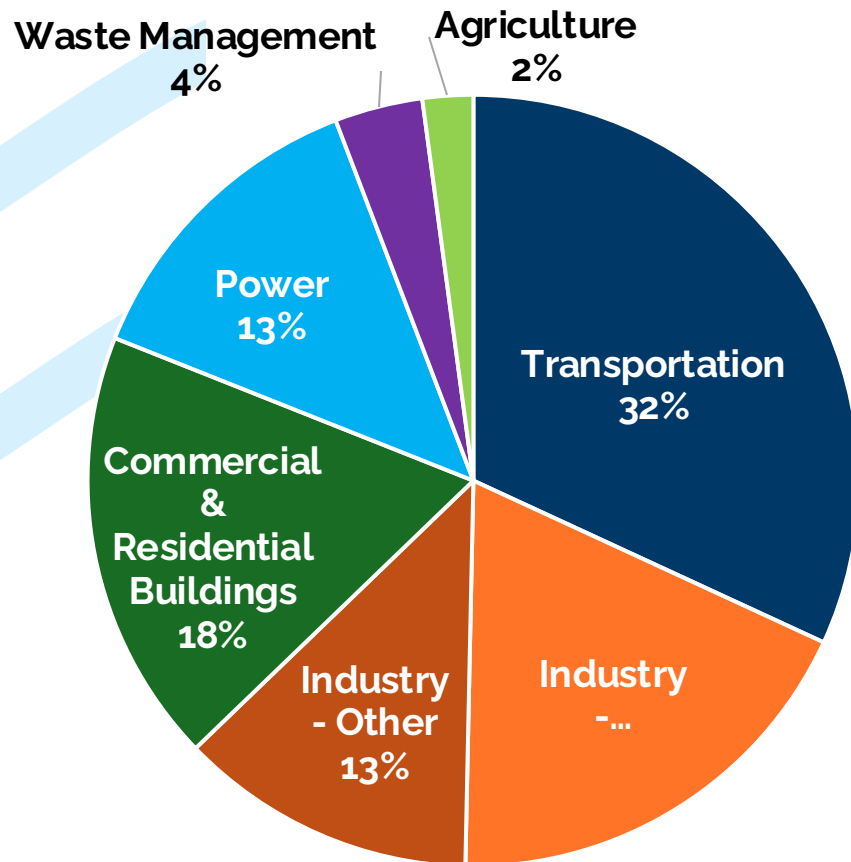


# Plan Development & Engagement

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- Technical Working Groups for each economic sector
  - Regional implementers and subject matter expert stakeholders
- Local Government Input
  - Engaging with local government groups at existing convenings
- Priority Community Workshops
  - Co-developed with community-based organizations
- Public Workshops
  - September 2024, February 2025, July 2025

# Draft GHG Inventory – BARCAP Region



DRAFT 2022 greenhouse gas inventory for the BARCAP region.

Total of 54 MMTCO<sub>2</sub>e.

## How we move (32%):

- Cars and trucks that use **gas and diesel**

## Where we live, work and play (19%):

- **Natural gas** is used in heating, cooling, clothes drying, and cooking

## How we power our economy (13%)

- **Fossil fuels** are used to create electricity, though electricity is increasingly carbon-free (like solar and wind power)

## What we throw away (4%)

- Food and yard waste that emit methane when **landfilled**

# Transportation

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## Two Main Ways to Reduce Emissions:

- Reducing Vehicle Miles Traveled (Mode-Shift) - Plan Bay Area's Focus
  - Includes land-use, transit, biking, and walking
- Transitioning to Zero-Emission Vehicles and Equipment - BARCAP's Focus
  - Includes charging and fueling infrastructure to support

# Preliminary Transportation Measure 1

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## Accelerate Light-Duty EV Adoption

**Support the acceleration of light-duty EV adoptions through expanded incentives for EVs, coordinated planning for EV charging locations and installation of EV chargers to meet expected demand across the region, and expanded support for low-income people, frontline communities, and local governments in adopting EVs.**



# Preliminary Transportation Measure 2

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## Accelerate Medium- and Heavy-Duty Vehicle and Equipment Decarbonization

**Support decarbonization of medium- and heavy-duty vehicles and equipment** through the acceleration of zero emission vehicles (ZEV) adoption through **expanded incentives for ZEVs, coordinated planning** for EV charging and clean-fuel fueling locations **and installation of EV chargers and fueling infrastructure** to meet expected demand across the region, incorporating the needs of frontline communities.

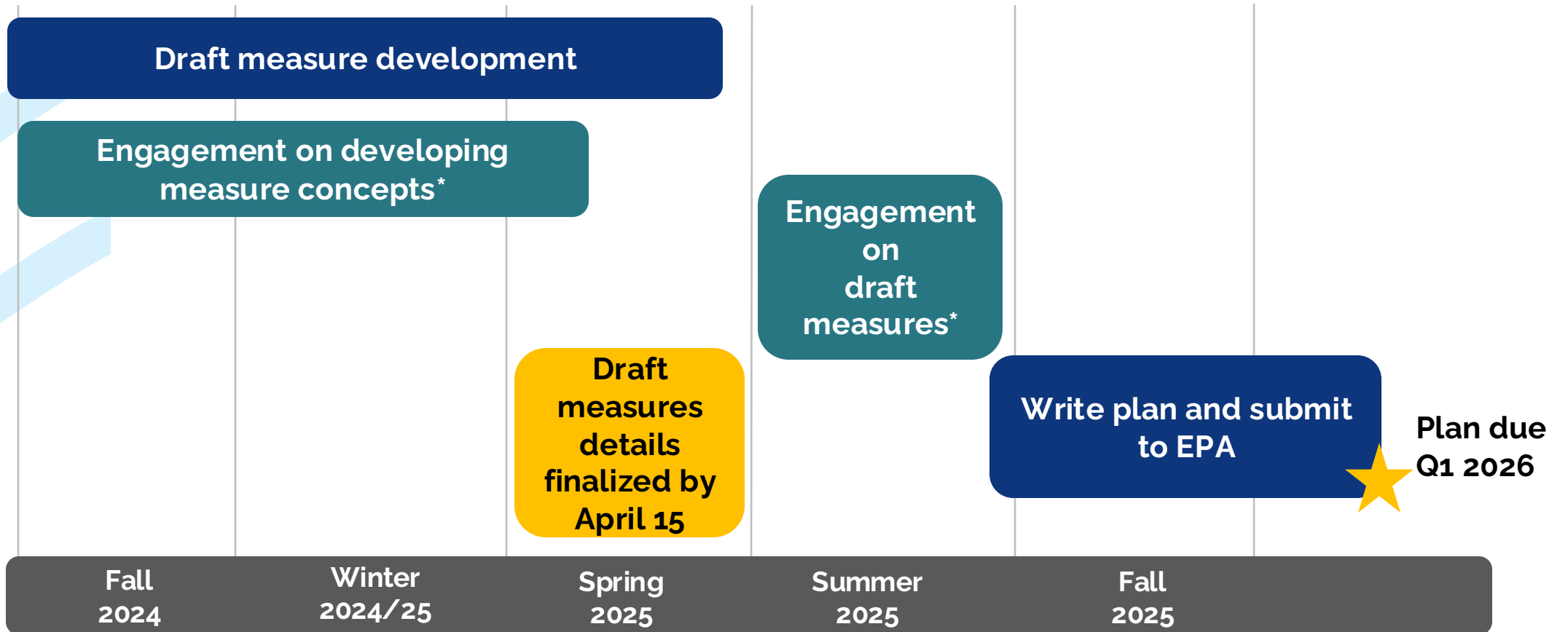
# Preliminary Transportation Measure 3

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## Accelerate Decarbonization of Goods Movement

Pilot and implement policies that **accelerate decarbonization of goods movement and deliveries of goods.**

# BARCAP Next Steps



\* Engagement includes the public, frontline communities, and local governments

# Questions?

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Sign up for BARCAP updates  
as part of our listserv!

<https://tinyurl.com/infoBARCAP>

Monte DiPalma: [mdipalma@baaqmd.gov](mailto:mdipalma@baaqmd.gov)

# Announcements

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- Next EV Council meeting
  - Regional Collaboration
  - Week of June 2nd or 9th
  - In-person in San Francisco
  - Featuring guest speaker and formal and informal opportunities for networking
- Please raise your hand to give your Roundtable Updates

# Announcements

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- A link to today's meeting recording will be provided in the follow-up email.