



Los Angeles 100% Renewable Energy Equity Strategies

Steering Committee Meeting #15

February 15, 2023

Summary¹

Schedule and Location

Wednesday, February 15, 2023, 10:00 a.m. to 12:00 p.m.

Conducted virtually

Virtual Meeting #15 Attendees

Steering Committee Members

Climate Emergency Mobilization Office (CEMO), Rebekah Guerra Day (alternate)

Climate Resolve, Jonathan Parfrey

Community Build Inc., Robert Sausedo

DWP-NC MOU Oversight Committee, Tony Wilkinson

DWP-NC MOU Oversight Committee, Jack Humphreville (alternate)

Enterprise Community Partners, Jimar Wilson

Enterprise Community Partners, Michael Claproth (alternate)

Enterprise Community Partners, Mariah Lima-Kuderer (alternate)

Esperanza Community Housing, Nancy Ibrahim

Move LA, Eli Lipmen (alternate)

Los Angeles Alliance for a New Economy (LAANE), Diana Umana (alternate)

Pacific Asian Consortium in Employment (PACE), Susan Apeles (alternate)

Pacoima Beautiful, Veronica Padilla

Pacoima Beautiful, Annakaren Ramirez (alternate)

RePower LA, Roselyn Tovar

Strategic Concepts in Organizing and Policy Education (SCOPE), Agustín Cabrera

Strategic Concepts in Organizing and Policy Education (SCOPE), Tiffany Wong (alternate)

South Los Angeles Transit Empowerment Zone (SLATE-Z), Stephanie Ramirez

South Los Angeles Transit Empowerment Zone (SLATE-Z), Ruth Morales (alternate)

LADWP Board of Commissioners

Cynthia McClain-Hill, President

¹ This summary is provided as an overview of the meeting and is not meant as an official record or transcript of everything presented or discussed. The summary was prepared to the best of the ability of the notetakers.

LA100 EQUITY STRATEGIES



LADWP Staff

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Andrew Kwok
Armen Saiyan
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Bernardo Perez
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David Rahimian
Dawn Cotterell
Iris Castillo
Joe Koh
Jorge Centeno
Mudia Aimiuwu
Nermina Rucic-O'Neill
Pjoy Chua
Ramon Gamez
Robert Meteau
Sean Lim
Simon Zewdu
Stephanie Spicer
Steve Baule

Project Team

Alana Wilson, National Renewable Energy Laboratory (NREL)
Andrea Wuorenmaa, NREL
Bingrong Sun, NREL
Eda Giray, NREL
Kate Anderson, NREL
Megan Day, NREL
Nicole Rosner, NREL
Patricia Romero-Lankao, NREL
Scott Haase, NREL
Sonja Berdahl, NREL
Cassie Rauser, UCLA
Stephanie Pincetl, UCLA
Christian Mendez, Kearns & West
Joan Isaacson, Kearns & West
Jasmine King, Kearns & West
Robin Gilliam, Kearns & West



Welcome Remarks

Joan Isaacson, facilitator from Kearns & West, welcomed members to the fifteenth Los Angeles 100% Renewable Energy Equity Strategies (LA100 Equity Strategies) Steering Committee meeting. She introduced Simon Zewdu, Director of the Transmission Planning, Regulatory, and Innovation Division, to provide opening remarks.

Simon Zewdu welcomed Steering Committee members and thanked them for attending, noting the milestone of the fifteenth meeting. He stated that the project team’s technical work has progressed and that preliminary results will be shared from NREL and UCLA in the coming month. Simon Zewdu reminded members of the two meetings being held in March to make up for the missed meeting in December 2022. He also stated that LADWP is having discussions about long-term, durable, community-based engagement for LA100 Equity Strategies implementation, adding that more details will be shared in the near future. Simon Zewdu then introduced Joseph Koh, Advisor at LADWP’s Customer Services Division, who is supporting the LADWP Diversity, Equity, and Inclusion (DEI) office by advising on future engagement and implementation of LA100 Equity Strategies and LADWP equity metrics.

Meeting Purpose and Agenda Overview

Joan Isaacson reviewed the meeting agenda (see slide 3 in Appendix). Following the standing initial agenda items of project status, Steering Committee spotlight, and roundtable check-in question with Steering Committee members, she noted that NREL would give the first of two reports on the community listening sessions, followed by a presentation of preliminary results and equity strategies for transportation. She stated the project team has developed a questionnaire for Steering Committee members to provide additional feedback after the meetings, and that more information can be requested via email.

Joan Isaacson reviewed the Steering Committee guidelines, overviewed agenda items for upcoming meetings (see slide 6 in Appendix) and reminded members of the two meetings in March.

LA100 Equity Strategies Process Update

Kate Anderson, Director of LA100 Equity Strategies at NREL, provided an update on the LA100 Equity Strategies process, indicating that NREL is completing analyses and preparing to present results and prepare final reports (see slide 7 in Appendix). She highlighted how the Steering Committee meetings align with these process steps.

Steering Committee Check-In

Joan Isaacson introduced the check-in question for Steering Committee members to respond to, requesting members use seven words or fewer to answer: “What do you see as two top priorities to address with equity strategies?”

- **Pacific Asian Consortium in Employment (PACE):** Communicating targets/sharing progress and understanding/engagement



- **Climate Resolve:** 1. Are there ways to combust hydrogen (H₂) for power combustion while reducing exposure to nitrous oxide (NO_x) to downwind communities? 2. Are there ways to produce green H₂ at LADWP facilities, and not buy it from vendors, thereby adding LADWP jobs as well as maintaining vertical integration that has made LADWP a true leader in the energy sector?
- **South Los Angeles Transit Empowerment Zone (SLATE-Z):** Accessibility to green jobs and electrification transition support for small business owners than will be impacted by electrification (e.g., auto mechanics servicing gas-fueled vehicles)
- **Strategic Concepts in Organizing and Policy Education (SCOPE):** Emphasize efforts to engage frontline communities that have concerns around green hydrogen projects; Affordability and Workforce Development
- **Esperanza Community Housing:** Affordability and equitable access to clean energy environmental justice
- **DWP-NC MOU Oversight Committee:** 1. The price of power and cost-shifting/the role of the City of Los Angeles in financing the [LA100] Equity Strategies, and 2. "New world" perspective on equity approach, especially increasing lower cost chargers in low-income communities that increase their power of choice to adopt electric vehicles (EVs)
- **Community Build Inc.:** 1. Identification and prioritization of LA100 Equity Strategies equity metrics, targets, and timelines. 2. Continuation of UCLA partnership and collaborative community engagement

Steering Committee Spotlight: Enterprise Community Partners

Joan Isaacson introduced Michael Claproth, Program Director for Sustainable Connected Communities from Enterprise Community Partners (Enterprise). Michael Claproth overviewed Enterprise, a non-profit focused on the massive shortage of affordable rental homes (see slides 9-18 in Appendix). Enterprise works to achieve three goals: increase housing supply, advance racial equity, and build resilience and upward mobility. Enterprise's primary role is leading climate resilience in the affordable housing sector to bring the benefits of a green economy to underserved communities and as housing practitioners, he stated, Enterprise can proactively develop solutions.

Michael Claproth shared that this year Enterprise is focused on three key areas: green buildings, climate resilience academies, and equitable decarbonization. They are also focusing on federal policy and implementation of the Inflation Reduction Act, their community-powered resilience program, and the Los Angeles CDC Neighborhood Exchange, a place-based, capacity-building initiative to ensure low-income residents and communities can thrive in the face of economic and environmental challenges (see slides 15-17 in Appendix).

Michael Claproth briefly described the Regional Climate Resilience Academies program (see slide 18 in Appendix) which addresses how to work with residents to identify needs and develop social cohesion. The program is coming to the West Coast this spring, and applications are due March 14, 2023. More information can be found at: <https://www.enterprisecommunity.org/blog/enterprise-climate-resilience-academies>.



Community Listening Sessions Update

Patricia Romero-Lankao, LA100 Equity Strategies Technical Lead from NREL, provided an update on the community listening sessions, noting that NREL would be sharing the first part of the findings at this meeting and the second part during the March and April Steering Committee meetings. She stated that the presentation would cover the community listening sessions' goals, analytical approach, methods, and key preliminary findings with an opportunity at the end to ask questions.

Goals and Analytical Approach

Patricia Romero-Lankao stated that the primary goals of the community listening sessions included examining community-identified priorities and needs, causal factors of energy inequities (i.e., what has contributed to inequitable outcomes), actions needed to address inequities, and associated equity outcomes. The map, she explained, shows where the listening sessions took place and the community-based organizations (CBOs) that partnered with NREL and LADWP (see slide 22 in Appendix).

Patricia Romero-Lankao described how the community listening sessions fit into the energy justice tenets through recognition and procedural justice. She explained that the experiences and knowledge shared by participants help to identify key problems, actions, and desired outcomes of historically excluded communities. This input, Patricia Romero-Lankao noted, is informing the modeling done by NREL technical teams, explaining that NREL developed a just energy transitions analytical approach to guide the process of using community input to inform the modeling.

Patricia Romero-Lankao next described the just energy transitions analytical approach (see slide 24 in Appendix). The analytical approach considers causal factors and impact areas that inform the “problem space,” which then determines the actions that inform the “solution space.” Each of these components is influenced by a set of values, or what a person or group considers important in life. She explained that community listening session participants identified equity actions and strategies that resolve potential barriers to achieving just energy outcomes. Actions can involve programs, subsidies, and investments, as well as how they are designed and implemented. She highlighted that these identified actions are the means to achieve more equitable energy outcomes, where energy outcomes are the ultimate changes a policy or program will yield. Essentially, the energy outcomes are foundational to operationalizing energy justice.

Patricia Romero-Lankao then introduced questions for the Steering Committee (see slide 33 in Appendix). She explained that operationalizing means moving from abstract ideas towards implementable actions and ideas to see the LA100 Equity Strategies actualized, or making sure conceptual ideas become implementable and actionable equity solutions/policies that benefit all Angelenos in this transition.

Methods

Patricia Romero-Lankao described the methodology for the community listening sessions, which consisted of two rounds of listening sessions conducted across five regions (see slide 27 in Appendix). The first round included five sessions with 36 virtual participants and the second included 10 sessions



with 103 in-person participants. NREL and LADWP partnered with CBOs and recorded the sessions, and then transcribed and analyzed the information.

Across four general phases of the community listening sessions, two feedback loops were incorporated for community input (see slide 28 in Appendix). She reviewed the four phases, the first being the pre-listening session that included preparation and planning for the meetings. The second phase was the listening sessions. Then, in the post-listening sessions phase, input from listening session participants was shared with NREL technical teams. As the NREL team grounds findings in the fourth phase, another feedback loop remains open for participants as the equity strategies are developed. Importantly, she noted, the project team has worked to conduct a transparent and sustained process by ensuring a feedback loop throughout the phases.

Patricia Romero-Lankao stated that today's reporting would focus on affordability and burdens and access/actual use. She noted that the project team considered these topics through literature documenting historical legacies of systemic practices, policies, and factors influencing the current inequities. Patricia Romero-Lankao then shared a chart showing how input in the listening sessions was distributed across outcomes, casual factors, impact areas, and values.

Key Preliminary Findings – Affordability, Burdens, and Access/Actual Use

Patricia Romero-Lankao prefaced the preliminary findings with a recurring ethical principle shared by a participant during a listening session in South Los Angeles (see slide 32 in Appendix). They stated,

The very definition of equity, which we spent a lot of time talking about. And even now those of us who have been disadvantaged are sometimes uncomfortable with. Means it's not about how much. It means that we've all made a commitment that, until we catch up, nobody else gets anything. So more and more of it becomes ours. Because we have been inequitably treated. But what we want to know is, how is it proceeding.

Patricia Romero-Lankao explained that from an equity perspective, NREL is sharing what was heard from participants of the listening sessions. However, she noted, some identified problems and recommendations relate to actions beyond LADWP's purview. Importantly, Patricia-Romero Lankao noted, identified strategies must be aligned across city agencies. She then overviewed the preliminary findings in the area of recognition justice.

In the problem space, Patricia Romero-Lankao explained, listening session participants identified key factors of concern, including historical inequities present in current policies and practices as well as intersectional structural factors that produce current inequities (see slide 34 in Appendix). Key impacts of concern included lack of access to financial capital, poor quality and maintenance of infrastructure and housing, and lack of affordable home ownership. Patricia Romero-Lankao highlighted participant-identified actions in the solution space, such as tailoring strategies for debt relief, co-developing eligibility and expanding the reach of programs, redressing and repairing unsafe and inefficient infrastructure and housing, and improving regulation, enforcement, and monitoring (retrofits).



Ultimately, she shared, listening session participants identified equity outcomes such as program access and benefits, as well as efficiency and safety in housing, transportation, and infrastructure.

Nicole Rosner, Community Engagement and Energy Justice Researcher with NREL, shared several quotes from listening session participants, selected because they represent recurring themes. She noted that one action identified by participants included tailoring strategies for debt relief and preventing the accumulation of debt (see slide 35 in Appendix). The participant shared,

If the bill was split from [the] starting of the pandemic, to where you said it's over. If that bill was split between what you owe presently and then you work out a payment plan for people, I think that it would be a win-win, and then these improvements can happen, the bills still get paid, water and power does get their money, the people are satisfied. But I haven't seen it ... when the pandemic happened 2.5 years ago, take what that number was to present when you said utility moratorium is over, stop it right there. Look at what that is, then make that be another bill that you'll have to pay into to get it down but keep the present bill as it is, that's going on right now.

Nicole Rosner stated that another suggested action was co-designing equity programs to prioritize energy and housing security (see slide 36 in Appendix). The intention around this action is to not only upgrade homes but to include strategies that protect community access, similar to programs like the [Transformative Climate Communities \(TCC\) program](#). As one participant shared,

The owners, if they upgrade the stuff, they're gonna raise the rents ... thank god we live in a rent-controlled area ... if you don't live in a rent controlled area, you gotta think real carefully if this would, if you want that problem, sometimes it's not for you, basically just try to live with the appliances that you have and upgrade the appliances you have and tell your owner to change the plugs, because at the end of the day you don't want no car that you can't afford ... when you live in an old building, and they upgrade the electric and they upgrade the floors and all this stuff it's gonna affect people's rent because they're not in a rent-controlled [area] ... a lot of people won't be able to stay where they're at. So, they're asking to add some more onto that with the car and electric and all that, make sure you can afford it.

A third action highlighted by Nicole Rosner included developing programs to safely upgrade and remediate deficiencies in existing housing and infrastructure (see slide 37 in Appendix). A participant stated,

[W]hile I appreciate raising the concern about addressing current infrastructure, insuring up that infrastructure. I also wonder if there is a plan to remediate some of the infrastructure that currently exists in South LA that is problematic, in terms of known adverse health outcomes ... one thing is capacity. Does our infrastructure have the capacity to deal with these things. But ... just in terms of – from what I understand from the community – there is a sense of neglect. In terms of the outdated infrastructure that needs remediation ... I'm hearing discussions about what are we going to do to fix, improve the infrastructure to make way for new. But how are we going to remediate the old? And I think that's also about building trust in the community ...



Where is the plan to remediate some of the things that currently are causing damage and have been causing damage for quite some time now?

Nicole Rosner then reviewed another action listening session participants identified on recognition justice – to improve city regulations, accountability, and enforcement as key measures to address aging infrastructure in their communities (see slide 38 in Appendix). She explained that these regulations exist beyond LADWP’s purview, but in the meantime, LADWP can provide information and recommendations for service providers that will benefit the community. One participant shared,

There’s a lot of barriers, especially with old houses, and Boyle Heights has a ton of old houses. Or they have houses that are old that were flipped. Like a friend of mine just bought a house on Lorena, and the flipper just basically hid all the old stuff in there and when he found out that basically it was a fire hazard for him to have these old electrical wires ... The regulations just aren’t there and there’s no support for families who can’t afford to fix these things. And it’s not necessarily families’ faults that this is happening, or homeowners’ faults, or renters.

Patricia Romero-Lankao then overviewed preliminary findings in the area of procedural justice (see slide 39 in Appendix). She shared causal factors identified by community members that include top-down decision-making and a lack of transparency, continuity, and accountability. Patricia Romero-Lankao then shared some impacts identified, such as mistrust and grievances, and a lack of accessible and usable information. In the solution space, listening session participants identified key actions, such as entrusting communities with decision-making power, continuous transparent community engagement processes, and active, sustained engagement in program design, implementation, and evaluation. Lastly, she shared the participant-identified equity outcomes including improved accountability, responsibility, and inclusive decision-making.

Nicole Rosner overviewed specific participant responses on the identified actions for procedural justice. One participant suggested co-designing community outreach from design and implementation to evaluation, with local, trusted messengers (see slide 40 in Appendix). As they put it,

I think education needs to be upfront. And it has to be education directed to the lower income people and also moderate-income people. Who, frankly, aren't convinced that electric is the way to go. Second, when it comes to churches. Churches have historically been the way that a lot of education is disseminated. A number of pastors in small churches, medium size churches, aren't on board yet. It's going to be difficult to push this forward without them. I would also like to see ... the churches maybe, if you are talking electric vehicles, I would also like to see a partnership with the churches. And maybe these electrical stations, maybe they receive that. Education happens in front of the churches as a catalyst to bring people onboard.

Another action identified by participants was the need for guaranteed continuity, transparency, and accountability in community engagement, Nicole Rosner stated (see slide 41 in Appendix). One participant shared,



For continuity's sake ... when they come back again, they should at least keep somebody on board. And bring the others back. Because every time you [LADWP] start over, they are starting from a deaf point of view. If you've already been involved, you've heard the message, you at least have a perspective, a context. And you have a lens by which to hear and see what's going on. They [LADWP] keep starting over the same.

And lastly, Nicole Rosner highlighted a participant-identified action on regulating predatory solar providers (see slide 42 in Appendix). As one listening session participant stated,

We were going to hire a company for that ... they said they did not charge anything. But ... the moment we wanted to install it, they were charging us. So, we canceled that, because they said one thing and then they said another. And I already told the neighbor, and he told me, 'don't believe that.' He says, 'They just come and install it, and when the time comes ... they tell you to sign, and your bill will arrive.' And that is why we have not installed it, for the same reason.

Patricia Romero-Lankao thanked the CBOs for partnering with NREL and LADWP. She thanked the participants of the listening sessions and also gave a special thanks to Dawn Cotterell at LADWP for coordinating all of the scheduling and participating in all of the sessions. She then invited the Steering Committee to address the following questions:

- How can we operationalize the justice and equity principles laid out by Angelenos in this process?
- Are we forgetting any "causal factors" of current energy inequities?

Major Themes from Steering Committee Questions and Discussion

- Thank you, Patricia and Nicole, for the presentation. (4 comments)
- Thanks to NREL for the work being done on the outreach programs (listening sessions) because this needs to be an ongoing process.
- To treat low-income customers equally, the State needs to change policies and regulations so funds can be redistributed to low-income communities.
- There is a need for consistent feedback and ensuring LADWP is not just having one-off meetings to get feedback. Provide a formal process for consistent feedback opportunities for ratepayers to understand complex issues. Work towards co-governance with frontline communities to be decision-makers.
- Will there be a presentation and more insight on the upcoming community meetings?
 - Simon Zewdu: LADWP will have continuity and consistency beyond the LA100 Equity Strategies study. The plan is to develop a community engagement platform to ensure there is a continuous feedback process.
- Residents have the solutions to their problems. Residents should be able to design and co-develop solutions. Center residents and customers in the process. Move beyond engagement and ensure communities are designing the solutions. Think about human-centered design. Co-create solutions with the customer base. Pilot programs with human-centered design.



- Ongoing feedback and listening with the community are important. Specifically, that it should include education on the broad issues of greening the city's total power system and how it relates to the greening of transportation and buildings.
- Overall, there is still distrust between LADWP and communities. Engage communities in a way that manages distrust.

Transportation Preliminary Results and Draft Strategies

Megan Day, LA100 Equity Strategies Project Manager and NREL Senior Energy Planner, presented an overview of some preliminary results and draft strategies for transportation. She stated modeling and analysis is being done across different teams to develop 10 prioritized pathways with the focus of this presentation being on equitable electric vehicles (EV) and charging access and multimodal strategies for reduced transportation energy burdens. First, Megan Day reported on the status of LADWP's current EV charging investments (see slide 47 in Appendix). She shared that 75% of incentives went to households in non-disadvantaged communities (DACs), and \$71 million in incentives disproportionately benefitted predominantly White, non-Hispanic, home-owning, and wealthier neighborhoods.

Next, Megan Day showed the distribution of the incentives (see slide 48 in Appendix). She explained that NREL analyzed whether the census tract where incentives were received reflected the following characteristics: Non-DAC/DAC, Mostly White/Mostly Non-White, Mostly Non-Hispanic/Mostly Hispanic, Mostly Owners/Mostly Renters, Above/Below Median Income. On the map (see slide 49 in Appendix), areas in orange reflect where the percentage of households is greater than the percentage of incentives received, while green areas reflect where the percentage of incentives received is greater than the percentage of households.

Megan Day shared that NREL also looked at the distribution of public EV charging stations (see slide 50 in Appendix). There was no statistically significant difference between Non-DAC/DAC, Mostly White/Mostly Non-White, Mostly Owners/Mostly Renters, and Above/Below Median Income communities, but there was a statistically significant difference between Mostly Non-Hispanic and Mostly Hispanic communities, where the non-Hispanic communities have more charging stations than Hispanic communities.

Major Themes from Steering Committee Questions and Discussion

- Where have subsidies gone in the past?
- Moving forward, when all power is green, whether you get a subsidy for putting solar on your roof, it doesn't necessarily give a power advantage. The study also needs to reflect current injustices, not just past injustices.
- Modeling was done on the distribution of EV charging. Was this correlated with actual ownership/access and use of the charging stations?
 - Megan Day: EV adoption and multimodal use is part of the analysis moving forward. As for why there is a statistical difference between communities, EV charging siting is focused around business centers.
- Regarding charging stations, if Los Angeles is going to transition to EVs, start somewhere by installing charging stations at gas stations. Because exposure can help with a faster transition,



and most diversity of the community goes to gas stations. This can also be used as a basis for comparison.

- LADWP should do its own installation of public EV charging stations to answer the equity problem that commercial charging station companies choose the affluent areas to get high immediate use and charge high market rates that are above what a low-income community could afford.

Equitable Light-Duty Electric Vehicle Access and Charging

Megan Day reviewed preliminary results on the distribution of used EVs and what that may look like over time (see slide 54 in Appendix). NREL modeled EV adoption in a business-as-usual scenario where by 2035 around 30% of used EV consumers are estimated to include households that make less than the median income. Additionally, she shared that approximately 40% of predicted Los Angeles EV consumers living in multifamily buildings will not have access to power outlets near where their vehicles park. This illustrates the need to consider charging for multifamily households and renters, she emphasized.

Preliminary findings on used EV prices where NREL modeled household expenditures (see slides 55-56 in Appendix) were then presented. Megan Day stated that with federal and city rebates, purchasing a standard used EV can maintain or lower household transportation expenditures for moderate-income households. Home charging access can make the difference between used EV adoption increasing or decreasing expenditures for low- to moderate-income households with household charging access reducing household expenditures, she explained. Lastly, combining rebates can mean additional EV models can lower costs for low- to moderate-income households.

Electric Vehicle Charging

Alana Wilson, Technical Lead on Transportation at NREL, introduced the EV charging topic. She overviewed NREL's analysis on the time spent charging for EVs that received an LADWP rebate for charging time-of-use rate sub-meters (see slide 57 in Appendix). Findings show that across 35 locations, 20% of charging occurs during peak electricity hours. Alana Wilson highlighted one key finding that charging profiles vary by customer type so looking at different customer types is essential.

Preliminary results on the 2035 EV charging business-as-usual scenario were then reviewed. In this scenario, explained Alana Wilson, charging occurs predominantly in West Los Angeles, indicating that EV adoption and charging access and benefits will continue to be heavily inequitable without a deliberate program and incentive equity focus.

Multimodal Transportation

Alana Wilson showed a map that illustrates transportation disadvantages (see slide 60 in Appendix). She explained that red areas indicate where households are disproportionately eligible for the e-bike benefit, as 50% of households don't have nearby access to bike infrastructure. The yellow areas on the map indicate existing bike infrastructure.



Bingrong Sun, Transportation Researcher at NREL, presented initial priority areas for multimodal transportation strategies (see slides 611 in Appendix). She overviewed three criteria for the analysis, including percentage of homes with no cars, access to transit services, and if the area is identified as a DAC in [Senate Bill 235](#) (SB235). Bingrong Sun noted that NREL identified 19 traffic analysis zones, which are the initial study focus for the multimodal strategy analysis. In the analysis, she explained, NREL explored three strategies, including shared e-bike access, shared EV access, and improved transit. Bingrong Sun described how the table (see slide 62 in Appendix) shows an evaluation of how much money and time can be saved with each strategy. She stated that the best strategy differs by neighborhood. Ultimately, NREL found that EV car sharing could substantially reduce the transportation time and increase access to opportunities in neighborhoods with very low car ownership rates.

Alana Wilson overviewed the equity strategies for transportation (see slides 65-67 in Appendix). She stated that in terms of EV access and benefits, based on the analysis, one equity strategy includes establishing a purchase price cap and/or household income threshold for LADWP used EV incentives. Alana Wilson noted that modeling is currently underway to identify incentive thresholds for affordable EV access. Additionally, NREL has proposed a strategy for LADWP to partner with CBOs to target incentive outreach to DACs, renters, and multifamily home residents. Other strategies regarding EV charging access included providing at- or near-home charging access for renters and multifamily residents to enable more equitable purchase and EV charging options, as well as providing support (e.g., vouchers) for those relying on public charging and developing public charging in DACs.

Regarding multimodal transportation, Alana Wilson shared that NREL focused on zero-vehicle households. She stated that the proposed equity strategies included providing a portfolio of options, including EV car-share, e-scooter, programs in low-income census tracts with low vehicle ownership and pairing e-bike incentives with bike infrastructure expansion and charging.

Major Themes from Steering Committee Questions and Discussion

- Does e-bike include e-scooters and other electric powered modes of rolling?
 - Alana Wilson: The statewide incentive will be limited to "approved models." See here: <https://www.calbike.org/e-bike-purchase-incentives-faqs/>
- A good example of the e-bike (rental scooter) issue is in the neighborhood of Panorama City (ZIP 91402), which has a high-density, low-income population (as dense as Pico-Union downtown) but almost no availability of e-bikes.
 - Bingrong Sun: Thanks for the comment. Some cities (Baltimore and Seattle) require the service providers to distribute a certain percentage of their e-bike fleet to equity-focused areas in order to guarantee access to e-bikes. We would be interested in knowing if Panorama City has similar requirements.
- Something missing is an overlay of all LADWP properties within respective communities. The LADWP office at Crenshaw and MLK has a great charging station capability there (at no charge). Duplicate this in other areas/communities. Add charging stations to LADWP properties and city properties to ensure there are no-charge options first, then build out fee stations.



- The policy of LADWP to rely on commercial/private companies to install public stations is inequitable. If LADWP were to be the installer in low-income communities, this would be at reasonable cost and the most equitable EV charging solution.
- In terms of access to e-bikes and bike infrastructure, there are concerns with whether residents will feel safe enough on the streets to walk/bike with the new TCC project and rail infrastructure. Traffic fatalities are a major concern, especially in South LA. Emphasize improving safe streets. Consider street safety when considering where to implement bike infrastructure.
 - Alana Wilson: These issues require collaboration across the city. There are different combinations to incentivize different modes. Safety issues aren't solved by lowering the price point or diversifying options. How does improving streets align with impacts of gentrification? Do this from a holistic approach. Consider issues of land use, housing, and economic activity.
- Selling more electricity/EVs will lower costs for low-income people. Restricting the rich from buying EVs may not be in the best interest of low-income communities.
 - Alana Wilson: Yes, we appreciate the nuance. As the market (and regulations) move towards greater adoption of EVs, an approach that shifts incentives towards the otherwise-last adopters makes more and more sense.
- We uplift the focus group feedback. It is important to not just expand education but also build a network of educators in communities that can promote incentives and programs.
- Check in with the Los Angeles Department of Transportation (LADOT) on their Universal Basic Mobility (UBM) Pilot <https://ladot.lacity.org/ubm>
 - Alana Wilson: Thanks. NREL has spoken with them about the status of UBM and will check in again soon for further updates.
- Focus on centers for not just folks commuting to work. Patterns of transportation in low-income communities are more staggered. Those without personal vehicles need to make longer trips. Overlay other maps/existing studies that show prime locations of where people stop/travel to.
- Create incentives for landlords of multi-unit homes to do retrofits and prioritize affordable housing and open opportunities for rebates for EV charging installation.
- An income cap is desirable for used EV incentives.
- Most EV ownership in the past year was Teslas. The distribution and sales of EVs is inequitable. This also goes against goal of reducing vehicle miles traveled. Also need to think about opportunities for alternative multimodal EVs like e-bikes and e-scooters. These are also more accessible for folks.
- More public transit and active transit!
- LADWP is a project partner. Perhaps learnings can be shared with this LA100 Initiative.
- SCOPE and other partners are beginning the South LA CARB STEP E-bike Lending Pilot program in June.
- Please expand the thinking on multimodal transportation. Much of the transit need is for parents escorting and retrieving children from school, and in many cases multiple children for each trip. There needs to be affordable public transit solutions that make it possible for families to function.



Wrap Up and Next Steps

Joan Isaacson wrapped up by reminding that the next Steering Committee meetings will take place on March 15 and 29, 2023, and will focus on part two of the community listening sessions summary and preliminary results on housing and resilience. She invited Steering Committee members to provide additional feedback in the post-meeting questionnaire to be sent out after the meeting.

Simon Zewdu concluded the meeting by thanking Steering Committee members for their participation and shared expertise. He especially thanked CBOs that partnered with LADWP/NREL for the community listening sessions. Simon Zewdu said that input and perspectives are being captured in the study and findings and underscored the call for long-lasting CBO engagement, noting this will be extremely important in the co-development of strategies. He concluded by saying that implementation will occur through long-term engagement.

LA100 EQUITY STRATEGIES



Appendix

Steering Committee Meeting #15

February 15, 2023

Presentation Slides



**LA100 Equity Strategies
Steering Committee Meeting #15
February 15, 2023**



Los Angeles Department of Water & Power (LADWP)

Project Leads



Simon Zewdu
Director
Transmission Planning,
Regulatory, and Innovation Division



Pjoy T. Chua, P.E.
Assistant Director
Transmission Planning, Regulatory,
and Innovation Division



Steve Baule
Utility Administrator
LA100 Equity Strategies Oversight
& UCLA Contract Administrator



Stephanie Spicer
Community Affairs Manager



Agenda

Start Time	Item
10:00 a.m.	Welcome
10:05 a.m.	Meeting Purpose and Agenda Overview
10:10 a.m.	Steering Committee Check In & Community Spotlight
10:25 a.m.	Community Listening Sessions (Part 1)
11:10 a.m.	Preliminary Results & Strategies Discussion <ul style="list-style-type: none">• Equitable access to EVs and charging• Multimodal strategies for reduced transportation energy burdens
11:55 a.m.	Wrap Up and Next Steps



Our Guide for Productive Meetings



Raise your hand
to join the
conversation
(less chat
entries, more
talking)



Help to make
sure that
everyone has
equal time to
contribute



Keep input
concise and
focused so that
others have
time to
participate



Actively listen to
others to
understand their
perspectives



Offer ideas to
address others'
questions and
concerns



Steering Committee Roster

Organization	Representative
Alliance of River Communities (ARC)	Vincent Montalvo
City of LA Climate Emergency Mobilization Office (CEMO)	Marta Segura, Rebecca Guerra
Climate Resolve	Jonathan Parfrey, Bryn Lindblad
Community Build, Inc.	Robert Sausedo
DWP-NC MOU Oversight Committee	Tony Wilkinson, Jack Humphreville
Enterprise Community Partners	Jimar Wilson, Michael Claproth
Esperanza Community Housing Corporation	Nancy Halpern Ibrahim
Los Angeles Alliance for a New Economy (LAANE)	Kameron Hurt, Estuardo Mazariegos
Move LA	Denny Zane, Eli Lipmen
Pacific Asian Consortium in Employment (PACE)	Celia Andrade, Susan Apeles
Pacoima Beautiful	Veronica Padilla Campos, Melisa Walk
RePower LA	Michele Hasson, Roselyn Tovar
The South Los Angeles Transit Empowerment Zone (SLATE-Z)	Zahirah Mann, April Sandifer
South LA Alliance of Neighborhood Councils	Thryeris Mason
Strategic Concepts in Organizing and Policy Education (SCOPE)	Agustín Cabrera, Tiffany Wong



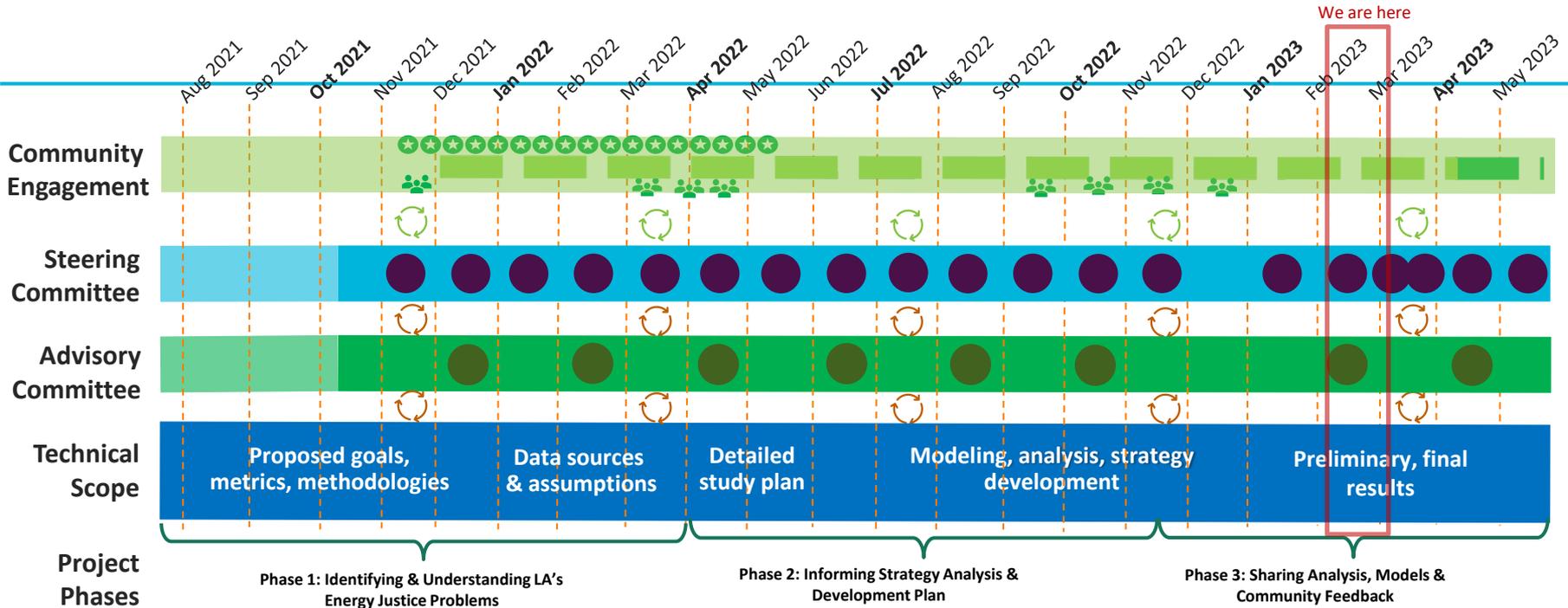
Steering Committee Agendas

Tentative Schedule



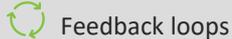
2/15/23 #15	<ul style="list-style-type: none">• Community Listening Sessions (Part 1)• Preliminary results and strategies discussion:<ul style="list-style-type: none">• Transportation electrification
3/15/23 #16	<ul style="list-style-type: none">• Community Listening Sessions (Part 2)• Preliminary results and strategies discussion:<ul style="list-style-type: none">• Housing—Weatherization and Resilience• Affordability (UCLA)
3/29/23 #17	<ul style="list-style-type: none">• Preliminary results and strategies discussion:<ul style="list-style-type: none">• Air Quality and Health (NREL)• Air Quality and Health (UCLA)• Local Solar and Storage• Grid Reliability and Resilience• Energy Atlas (UCLA)
4/19/23 #18	<ul style="list-style-type: none">• Preliminary results and strategies discussion:<ul style="list-style-type: none">• Rates & Affordability (NREL)• Universal access to safe and comfortable homes• Jobs (UCLA)

LA100 EQUITY STRATEGIES: TIMELINE & FRAMEWORK



Legend

Key connections



Engagement

- Community Engagement
- Steering Committee
- Advisory Committee

Digital Engagement Phases

- LA100 ES Digital Engagement
- Post-LA100 ES Engagement

Meetings

- Steering Committee
- Advisory Committee

Interviews

- One on One
- Listening Sessions

Steering Committee Check In

What do you see as two top priorities to address with equity strategies?

(type in Chat)



Steering Committee Spotlight

Enterprise Community Partners

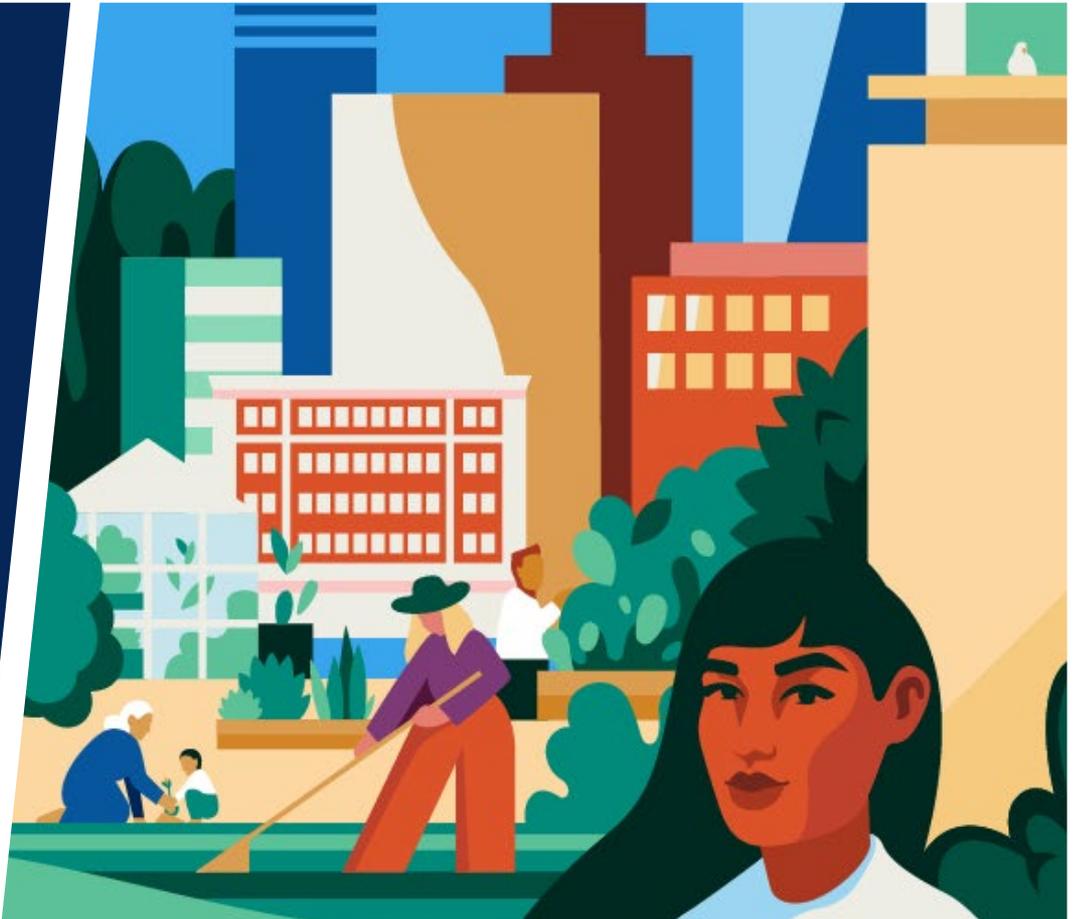




LA 100 ES Steering Committee Spotlight

MICHAEL CLAPROTH

Program Director, Sustainable Connected Communities



Our Goals



Increase Housing Supply

Preserve and produce good homes that people can afford



Advance Racial Equity

After decades of systematic racism in housing



Build Resilience & Upward Mobility

Support residents and strengthen communities to be resilient to the unpredictable

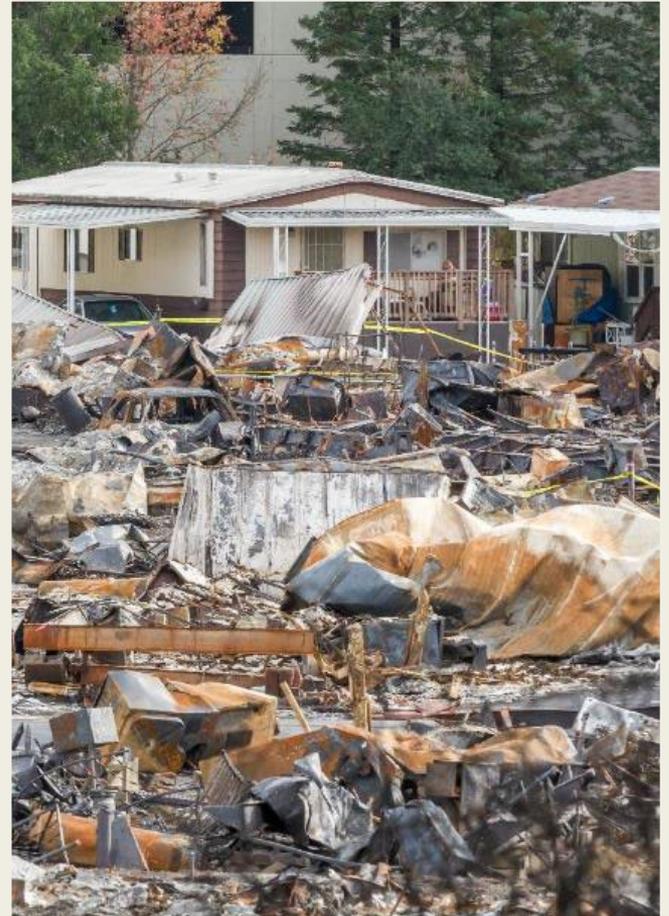
Why Enterprise?

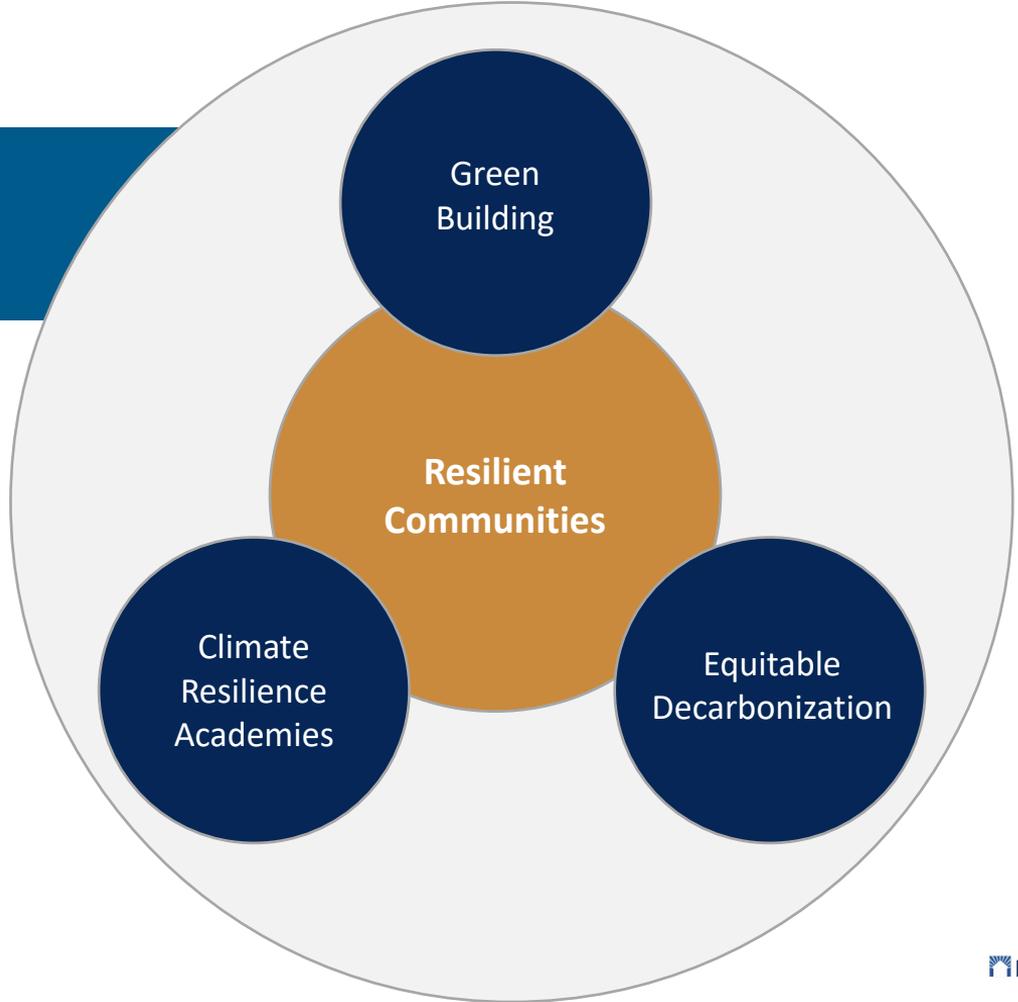
We are leading on climate resilience in the affordable housing sector.

- 15+ year record of helping developers assess risk and adapt buildings to withstand climate threats.
- A full platform of capital, policy expertise and technical knowledge to support communities vulnerable to climate risk.
- Disaster-response strategy informed by residents, housing providers, public officials, and other experts.

The Challenge

- Due to its age, physical conditions and maintenance needs, most of the country's affordable housing stock cannot withstand our changing climate.
- Every building on the planet must be net-zero-carbon by 2050 to avoid irreversible loss of ecosystems and crisis for vulnerable people.
- The pace, and expense, of disasters has increased dramatically.
- Post-disaster government assistance is well-intentioned, but slow and inequitable; resources lack coordination.
- As temperatures and sea levels rise, so do the number of low-income households that are at risk.





National Priorities

- **GREEN COMMUNITIES** National building certification program with long track record and hundreds of partners across the country. Ultimate goal of providing opportunities to green all affordable housing in the United States, through Green Communities Criteria or comparable pathways.
- **RESILIENCE ACADEMIES** Academies prepare affordable housing owners and operators for a changing climate and for increasingly frequent extreme weather events. Delivered to regional cohorts.
- **EQUITABLE DECARB** Accelerate decarbonization of affordable housing in a manner that centers community needs; co-creating an information hub and peer exchange. Aligned with market-based activities in Los Angeles, Chicago, New York City.
- EPA's Greenhouse Gas Reduction Fund (anticipate March 2023)
- HUD's Green and Resilient Retrofit Program (anticipate summer 2023)
- DOE's home efficiency rebates and incentives (anticipate January 2024)

Community Powered Resilience



 Enterprise **Community Powered Resilience**

MENU 

ENSURING ALL CALIFORNIANS ARE SAFE FROM DISASTERS

TAKE ACTION! →

Los Angeles CDC Neighborhood Exchange



- ❖ **Assessing portfolio and building risk**
- ❖ **Implementing strategies into building and retrofitting new and existing housing**
- ❖ **Understanding funding/financing assistance programs and how to access them**
- ❖ **Incorporating community engagement, continuity planning and equity strategies**

Academy Highlights	Academy Implementation
<ul style="list-style-type: none"> • 150 participant organizations expected • Funding opportunities database • Regional hazard fact sheets 	<ul style="list-style-type: none"> • 7-9 Academies to be held between 2021 and 2024 • 1:1 Technical Assistance • Turnkey Tool-Centric Curriculum
Academy Locations	
<ul style="list-style-type: none"> ✓ NY/NJ, Gulf Coast, Southeast ➤ 2023: West Coast, Mountain West ➤ 2024: Mid-Atlantic, Midwest 	

Community Listening Sessions

Paty Romero-Lankao, Nicole Rosner, Lis Blanco
and Daniel Zimny-Schmitt



Listening Sessions

- 1 Goals and Analytical Approach
- 2 Methods
- 3 Key Preliminary Findings
- 4 Q&A



1

Goals, Analytic Approach, & Steering Committee Feedback



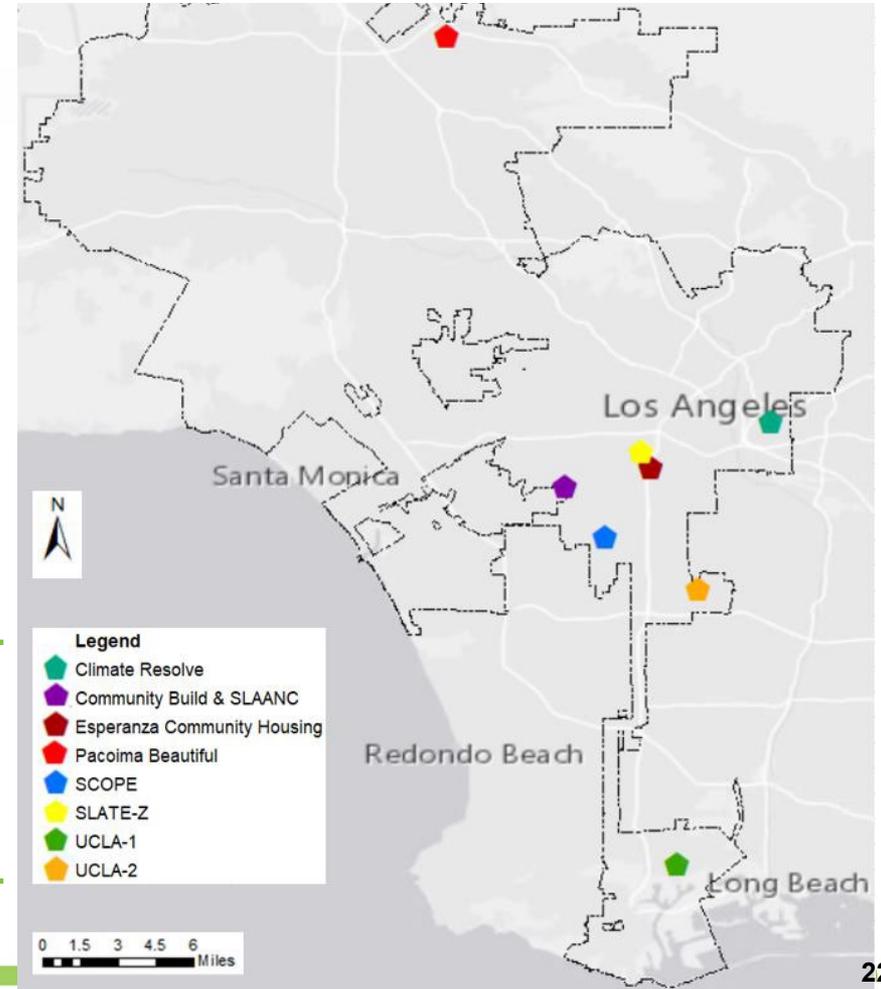
Goals

Examine Community-Identified:

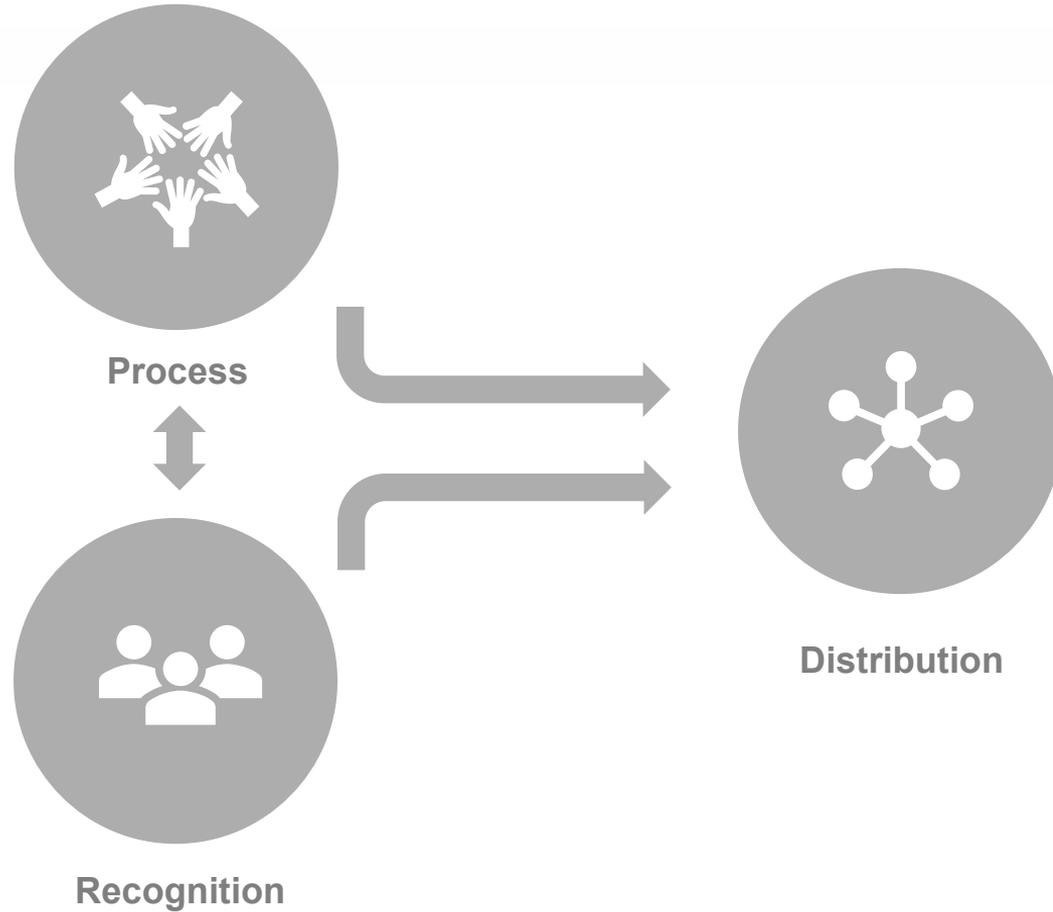
- Priorities and Needs of Disadvantaged Angelinos
- Causal Factors of Energy Inequities
- Actions (Strategies)
- Associated Equity Outcomes

Partners

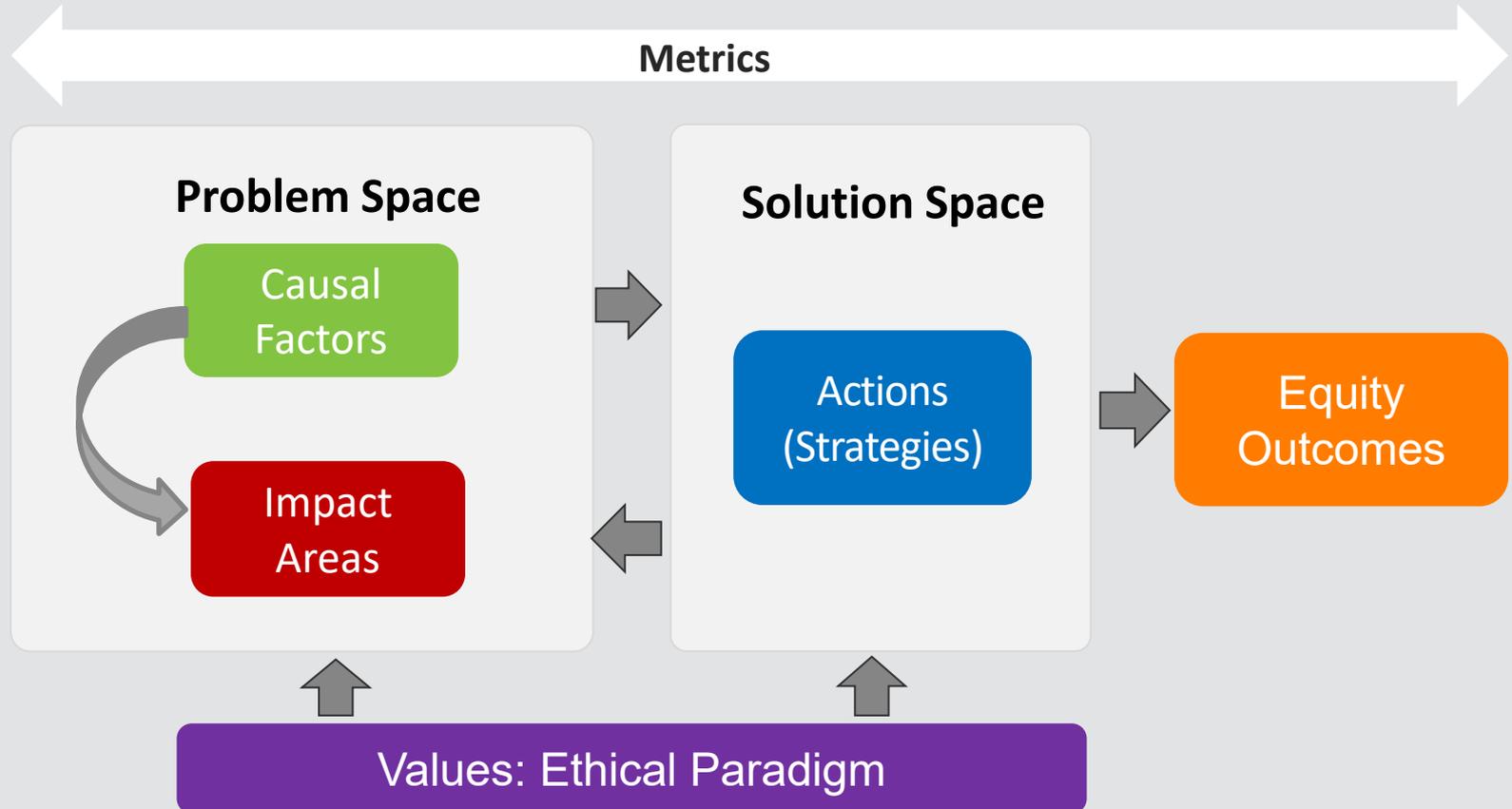
Map of In-Person Listening Sessions



TOWARDS A MORE JUST PROCESS



Analytic Approach



Steering Committee Feedback

1

Process Question:

How can we operationalize the justice and equity principles laid out by Angelinos in this process?

2

Recognition Question:

Are we forgetting any “causal factors” of current energy inequities?



2

Methods



QUALITATIVE DATA COLLECTION METHODS



139 total participants



5 representative regions

Round 1



5 listening sessions



36 virtual participants

Round 2



10 listening sessions



103 in-person participants

Activities



Partner with CBOs



Record, Transcribe & Anonymize

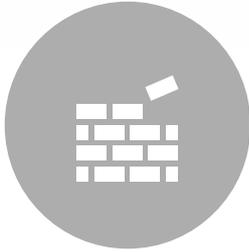


Categorize & Analyze



Share & Co-Design Actions

NREL PROCESS: MODELING IMPACTS



Pre-Listening Session

Action

- Organizing Meetings:
- CBOs
 - NREL Technical Teams

Purpose

Co-design listening session questions



Listening Sessions

Action

Conducted listening sessions with CBO partners

Purpose

Build a continuous, multi-directional, transparent, & sustained engagement process



Post-Listening Sessions

Action

Feedback loop with NREL Technical Teams and CBOs

Purpose

Continue transparent & sustained co-design process to inform modeling



Grounding Findings

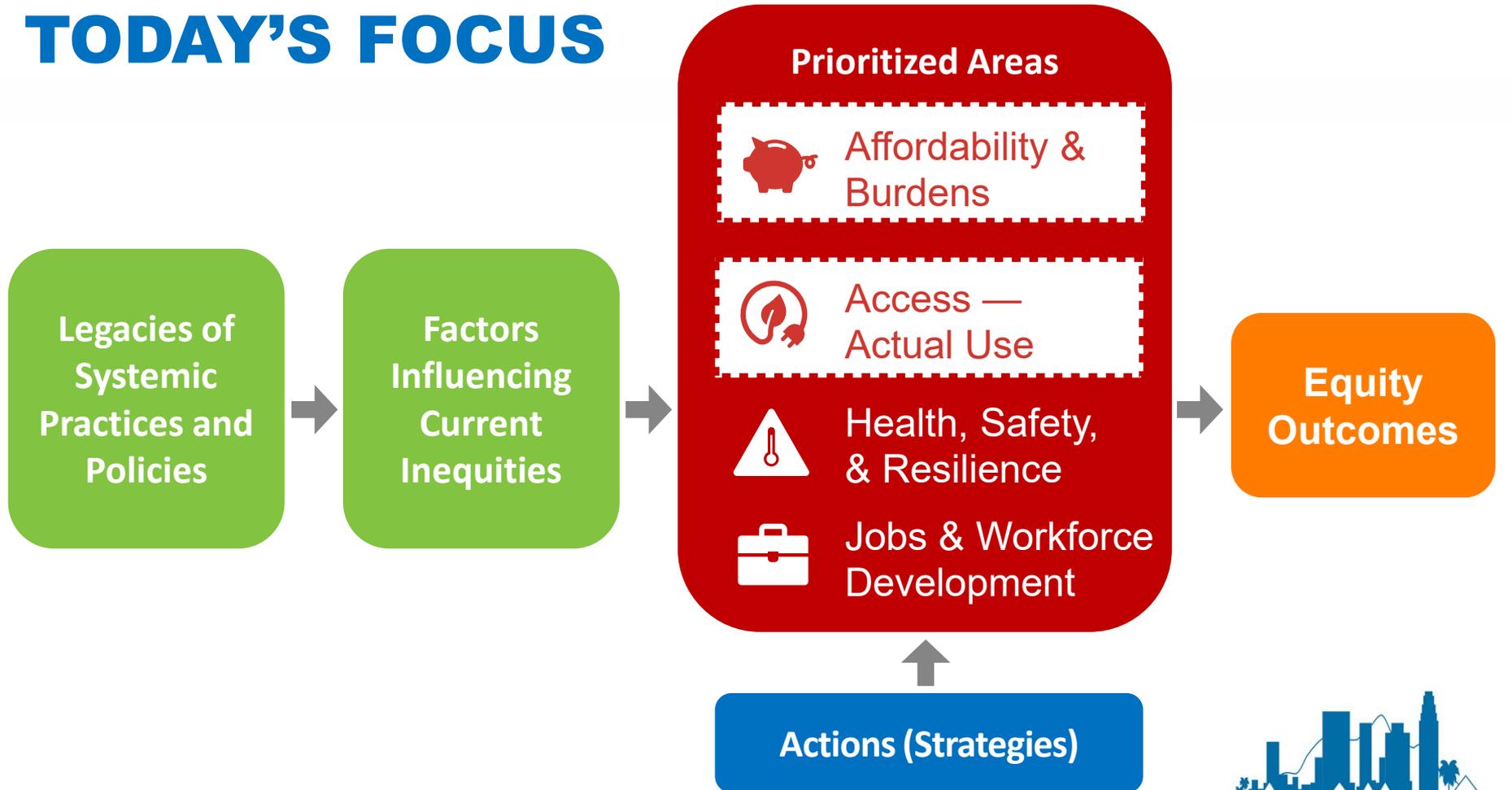
Action

Continuing feedback loop with communities

Purpose

Continue transparent & sustained co-design process *with* communities

TODAY'S FOCUS



DIALOGUE COMPOSITION

Causal
Factor

Impact
Area

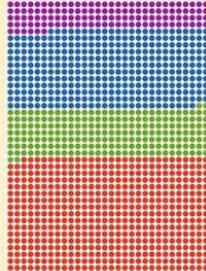
Actions
Strategies

Values

Round
1

Round
2

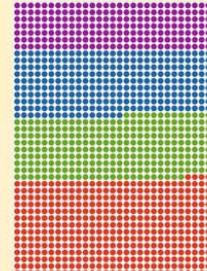
San Fernando



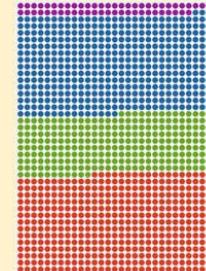
South LA #1



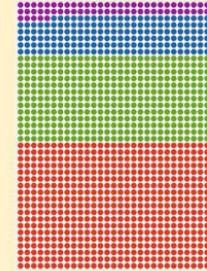
South LA #2



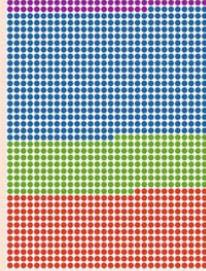
East LA



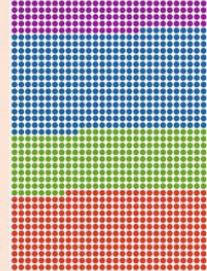
Harbor



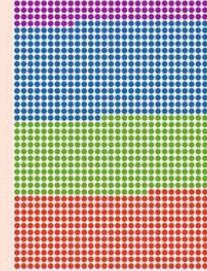
South LA #1 (SLATE-Z)



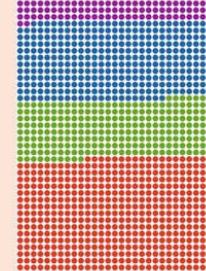
Pacoima



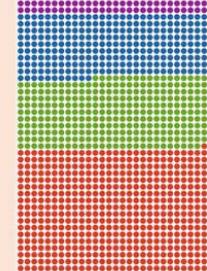
South LA #1 (SCOPE)



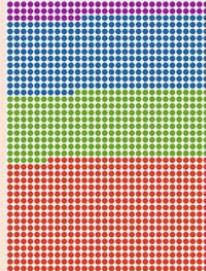
Harbor #1 (UCLA)



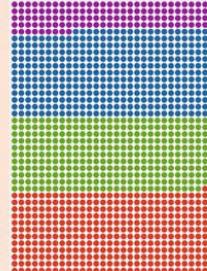
Harbor #2 (UCLA)



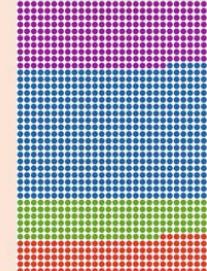
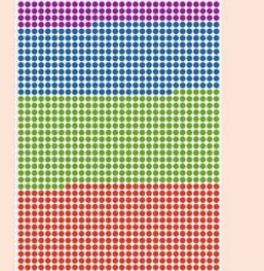
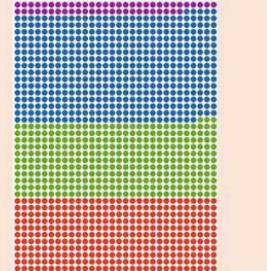
South LA #2 (Watts)



South LA (Esperanza)



East LA #1 (Climate Resolve) East LA #2 (Climate Resolve) South LA #2 (Comm. Build/SLAANC)



3

Key Preliminary Findings



Recurring Ethical Principle

*“The very **definition of equity**, which we spent a lot of time talking about. And even now those of us who have been disadvantaged are sometimes uncomfortable with. **Means it's not about how much. It means that we've all made a commitment that, until we catch up, nobody else gets anything.** So more and more of it becomes ours. Because we have been inequitably treated. But what we want to know is, **how is it proceeding.**”*



Steering Committee Feedback

1

Process Question:

How can we operationalize the justice and equity principles laid out by Angelinos in this process?

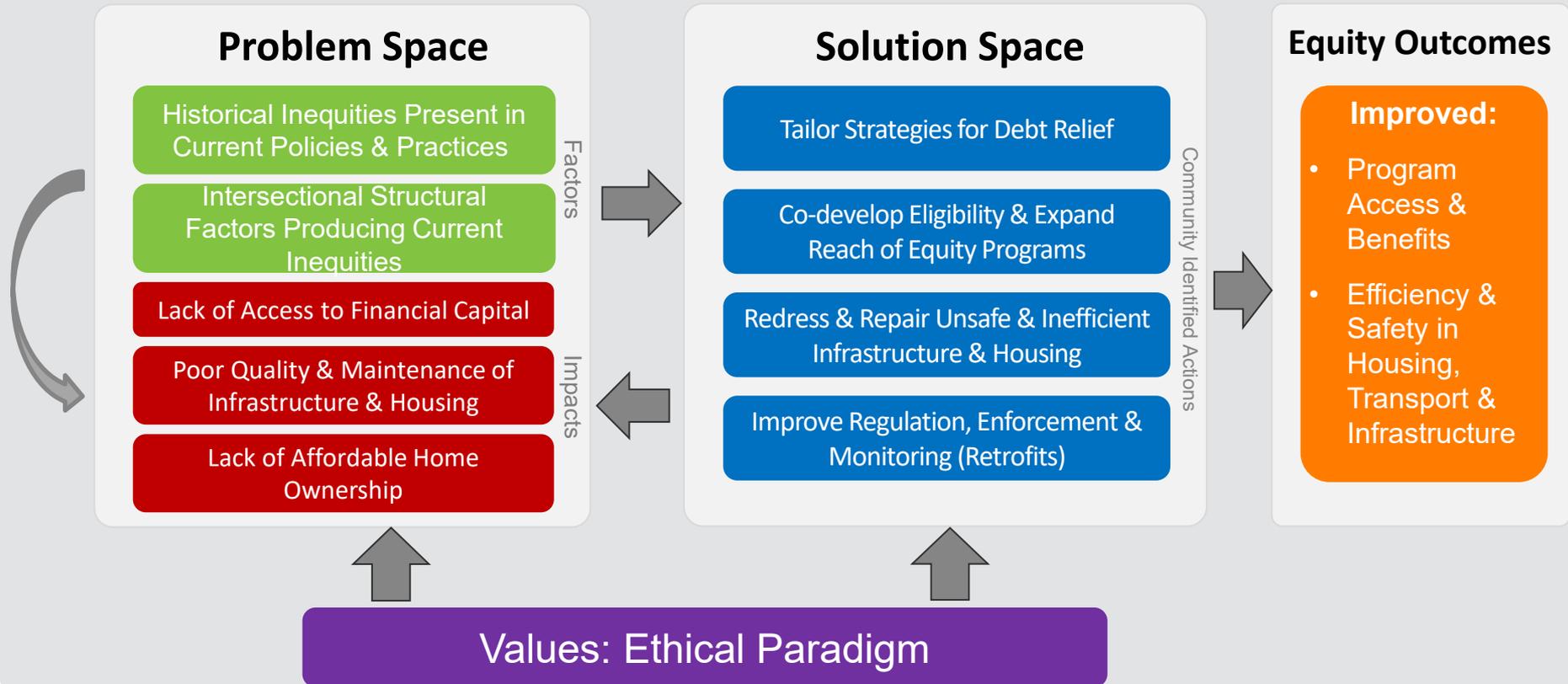
2

Recognition Question:

Are we forgetting any “causal factors” of current energy inequities?



Key Findings: Recognition Justice



Action 1:

Tailor Strategies for Debt Relief & Preventing the Accumulation of Debt

*“If the bill was split from...[the] starting of the pandemic, to where you said it's over. **If that bill was split between what you owe presently and then you work out a payment plan for people**, I think that it would be a win win, and then these improvements can happen, the bills still get paid, water and power does get their money, the people are satisfied. But I haven't seen it...when the pandemic happened 2.5 years ago, take what that number was to present when you said utility moratorium is over, stop it right there. Look at what that is, then make that be another bill that you'll have to pay into to get it down but keep the present bill as it is, that's going on right now.”*

Action 2:

Co-Design Equity Programs to Prioritize Energy & Housing Security

*“The owners, if they upgrade the stuff, they're gonna raise the rents...thank god we live in a rent-controlled area... if you don't live in a rent controlled area, you gotta think real carefully if this would, if you want that problem, sometimes it's not for you, basically just **try to live with the appliances that you have** and upgrade the appliances you have and **tell your owner to change the plugs**, because at the end of the day you don't want no car that you can't afford ... when you live in an old building, and they upgrade the electric and they **upgrade** the floors and all this stuff **it's gonna affect people's rent because they're not in a rent controlled [area]**... a lot of people won't be able to stay where they're at. So, they're asking to add some more onto that with the car and electric and all that, make sure you can afford it”*

Action 3:

Programs to Safely Upgrade & Remediate Existing Housing & Infrastructure

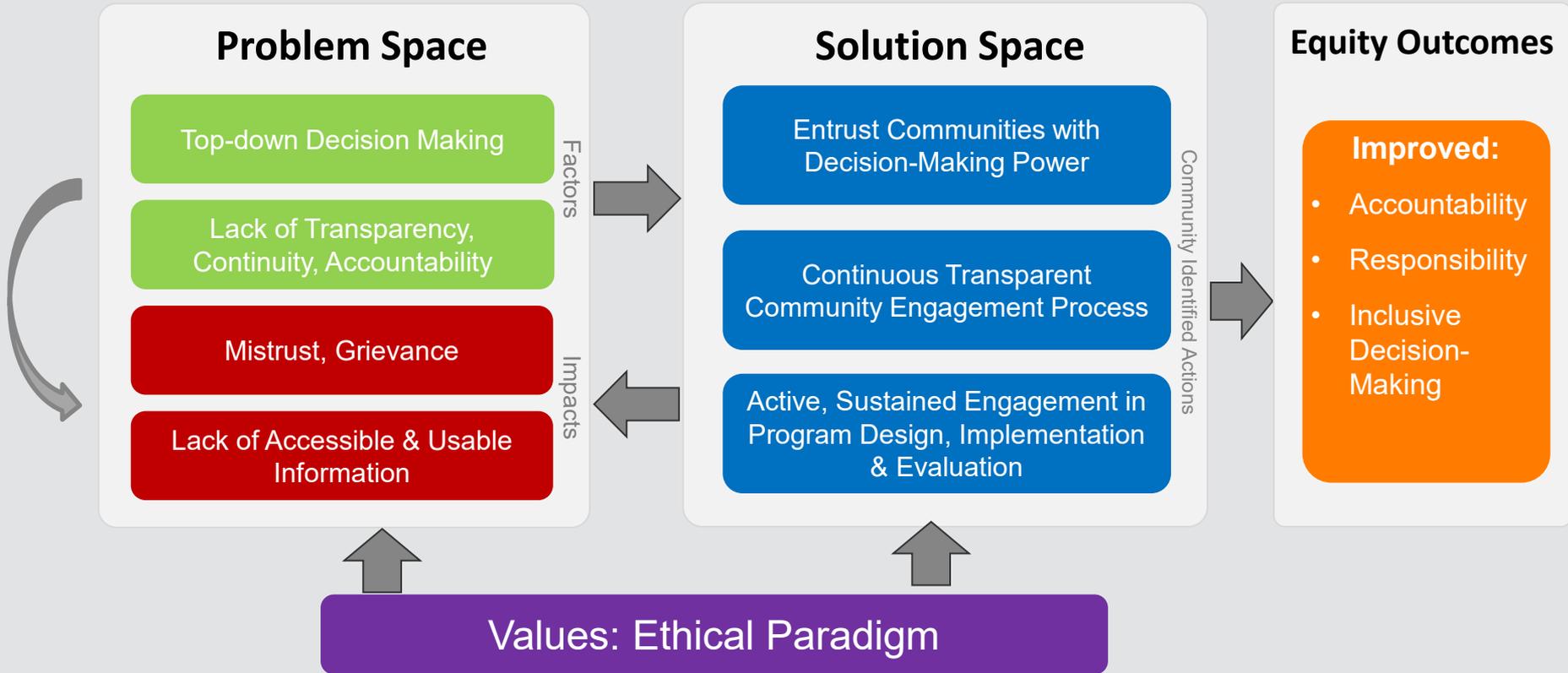
*“[W]hile I appreciate raising the concern about addressing current infrastructure, insuring up that infrastructure. I also wonder if there is a plan to remediate some of the infrastructure that currently exists in South LA that is problematic, in terms of known adverse health outcomes...one thing is **capacity**. **Does our infrastructure have the capacity to deal with these things**. But...just in terms of - from what I understand from the community - there is a **sense of neglect**. In terms of the **outdated infrastructure that needs remediation**...I’m hearing **discussions about what are we going to do to fix, improve the infrastructure to make way for new**. But how are we going to remediate the old? And I think that's also about **building trust in the community**... Where is the **plan to remediate some of the things that currently are causing damage and have been causing damage for quite some time now?**”*

Action 4:

Improve City Regulations, Accountability and Enforcement

*“There’s a lot of barriers, especially with **old houses**, and Boyle Heights has a ton of old houses. Or they have houses that are old that were flipped. Like a friend of mine just bought a house on Lorena, and **the flipper just basically hid all the old stuff** in there and when he found out that basically it was a **fire hazard** for him to have these **old electrical wires**. ...**The regulations just aren’t there and there’s no support for families who can’t afford to fix these things**. And it’s not necessarily families’ faults that this is happening, or homeowners’ faults, or renters.”*

Key Findings: Procedural Justice



Action 5:

Co-Design Community-Outreach With Local, Trusted Messengers

*“I think education needs to be upfront. And it has to be education directed to the lower income people and also moderate-income people. Who, frankly, **aren't convinced that electric is the way to go**. Second, when it comes to churches. Churches have historically been the way that a lot of education is disseminated. A number of pastors in small churches, medium size churches, aren't on board yet. It's going to be difficult to push this forward without them. I would also like to see...the churches maybe, if you are talking electric vehicles, I would also like to see a **partnership with the churches**. And maybe these electrical stations, maybe they receive that. Education happens in front of the churches as a catalyst to bring people onboard.”*

Action 6:

Guarantee Continuity, Transparency, & Accountability in Community Engagement

*“For continuity’s sake...when they come back again, they should at least keep somebody on board. And bring the others back. Because every time you [LADWP] start over, they are starting from a deaf point of view. If you've already been involved, you've heard the message, you at least have a perspective, a context. And you have a lens by which to hear and see what’s going on. **They [LADWP] keep starting over the same.**”*

Action 7:

Regulate Predatory Solar Developers

*“We were going to hire a company for that...they said they did not charge anything. But...**the moment we wanted to install it, they were charging us.** So, we canceled that, because they said one thing and then they said another. And I already told the neighbor, and he told me, “don't believe that.” He says, “they just come and install it, and when the time comes...they tell you to sign, and your bill will arrive.” And that is why we have not installed it, for the same reason.”*

Thank
you!



Thank
you!



4 Q&A

1

Process Question:

How can we operationalize the justice and equity principles laid out by Angelinos in this process?

2

Recognition Question:

Are we forgetting any “causal factors” of current energy inequities?

Transportation Electrification

Preliminary results and draft strategies
discussion



Equity Strategy Modeling & Analysis

NREL is conducting modeling, analysis, and strategy development along 10 prioritized pathways:

Low-income energy bill stability

Universal access to safe and comfortable home temperatures

Housing weatherization and resilience to extreme events

Improved access to solar/storage, energy efficiency in multifamily- and/or renter-occupied buildings

Targeted community solar siting

Resiliency in disadvantaged neighborhoods through solar-plus-storage siting

Equitable light-duty electric vehicle (EV) and charging access

Multimodal strategies for reduced transportation energy burdens

Distribution grid upgrades to enable equitable solar, storage, and EV adoption and resilience

Mitigation of medium- and heavy-duty vehicle health impacts through electrification

This presentation focuses on the highlighted pathways.



Equity in LADWP EV Charging & Used EV Investments

LADWP INVESTMENTS

ELECTRIC VEHICLES



Incentive Programs

NUMBER OF YEARS



TOTAL AMOUNT SPENT

\$71,239,371

AVG. AMOUNT PER CUSTOMER
DAC/Non-DAC

\$41
\$64

% OF INCENTIVES
Normalized by # of Customers
DAC/Non-DAC



WHICH COMMUNITIES DISPROPORTIONATELY BENEFITED FROM PROGRAMS?

DAC/Non-DAC

Mostly Non-White/White

Mostly Hispanic/Non-Hispanic

Mostly Renters/Owners

Below/Above Median Income

Non-DAC

White

Non-Hispanic

Owners

Above

Analysis of LADWP EV and EV charging infrastructure incentives indicate 75% of incentives went to households in non-disadvantaged communities.

The \$71 million in LADWP EV incentives disproportionately benefited predominantly White, non-Hispanic, home-owning, and wealthier neighborhoods.



LADWP EV Charging & Used EV Incentives

by Product & Rebate Type



Program	Which communities disproportionately benefited from incentives?				
	Non-DAC/DAC	Mostly White/ Mostly Non-White	Mostly Non-Hispanic/ Mostly Hispanic	Mostly Owners/ Renters	Above/Below Median Income*
Commercial New Charger	Non-DAC		Non-Hispanic	Renters	Above
Direct Current Fast Charger	No statistically significant difference				
Residential New Charger	Non-DAC	White	Non-Hispanic	Owners	Above
Residential New Sub-Meter	Non-DAC	White	Non-Hispanic	Owners	Above
Residential Used Vehicle	Non-DAC	White	Non-Hispanic	Owners	Above

NOTE: Medium-duty and heavy-duty (MDHD) EV incentives and commercial new sub-meters could not be analyzed due to an insufficient data.

*Median income: \$73,100 annual salary (2019)

DAC = disadvantaged community as defined by SB 535

Programs with a **statistically significant difference** in the **dollars spent on rebates received by households** between the sociodemographic metrics are marked in **blue** or **gold**. Unmarked boxes indicate no statistically significant difference.



Did census tracts receive EV incentives proportional to their population*?

*number of households

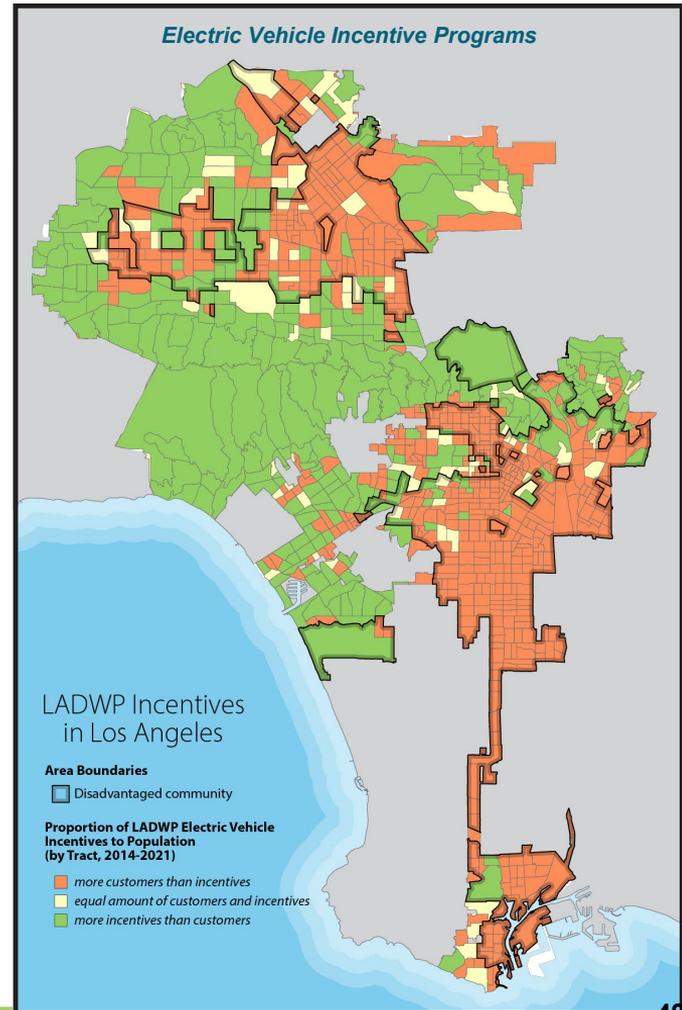
Areas including South LA, and the San Fernando Valley did not receive EV and EV charging infrastructure incentives proportional to their populations

Tracts where:

- % of households* > % of incentives received**:
"more customers than incentives"
- % of incentives received** > % of households*:
"more incentives than customers"
- % of incentives received** = % of households*:
"equal number of customers and incentives"

*% of households = number of households in a census tract divided by the total number of households

**% of incentives received = number of incentives granted to tract divided by the total number of incentives



Public EV Charging Stations

Are public *electric vehicle charging stations* distributed equally across neighborhoods?

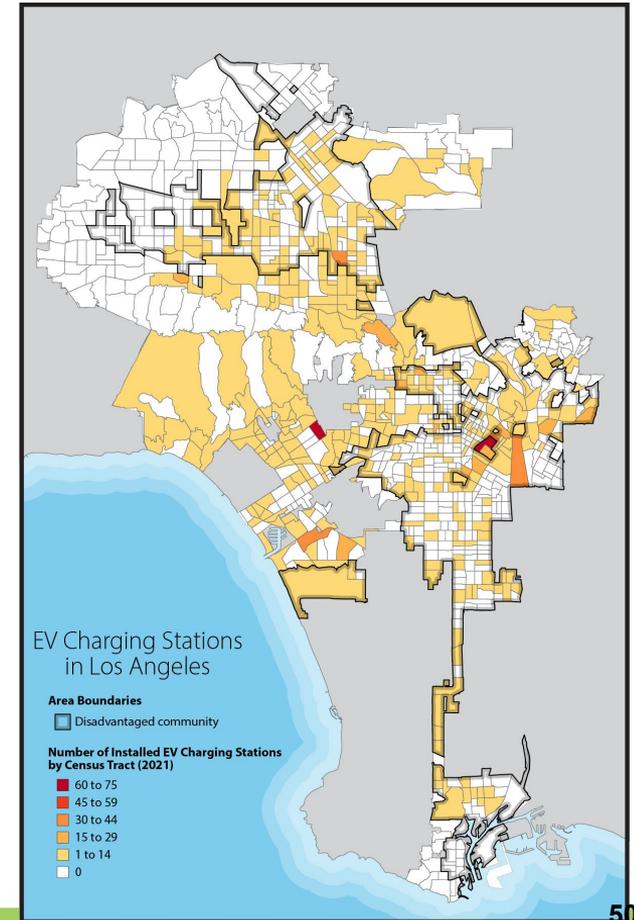
[Link To Methodology](#)

Non-DAC/DAC	Mostly White/ Mostly Non-White	Mostly Non-Hispanic/ Mostly Hispanic	Mostly Owners/ Renters	Above/Below Median Income*
No statistically significant difference		Non-Hispanic	No statistically significant difference	

*Median income: \$73,100 annual salary (2019)

Non-Hispanic communities have more charging stations than **Hispanic** communities. For all other populations, there is no statistical significance in the distribution of EV charging stations throughout the city.

Public EV charging stations in LA consist of the following networks: Blink, ChargePoint, Electrify America, EV Connect, EVGateway, EVgo, FLO, Greenlots, OpConnect, PowerFlex, SemaCharge, Tesla, and Volta, and include non-networked charging stations.



Source: [Alternative Fuels Data Center](#)

Q&A

Current EV and EV Charging Distributional Equity Analysis



Equitable Light-Duty Electric Vehicle (EV) & Charging Access

Multimodal Strategies for Reduced Transportation Energy Burdens

Alana Wilson, NREL
Bingrong Sun, NREL
D-Y Lee, NREL



Equitable Light-Duty EV & Charging Access



Used EVs

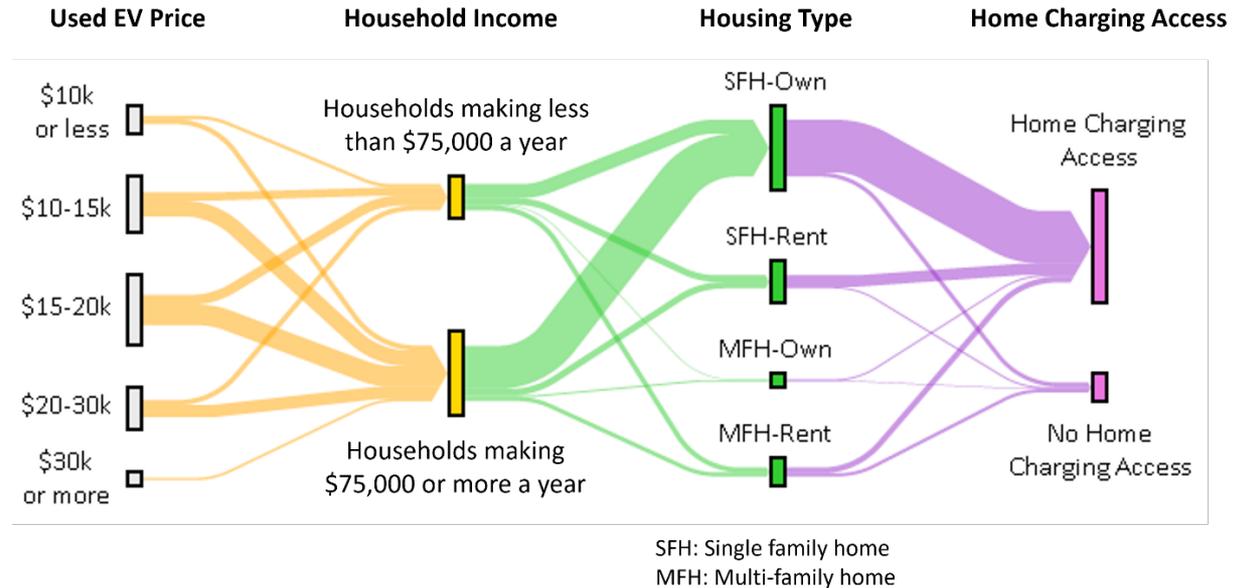
Key Findings

In a business-as-usual scenario, by 2035:

- ~30% of used EV consumers are households that make less than median income (\$75K)
- ~50% of LA households that make less than \$75,000 a year and are predicted used EV consumers live in rented properties and/or multifamily homes
- ~40% of predicted EV consumers living in multifamily buildings will not have access to power outlets near where their vehicles park.

Access to EVs depends on cost, income, home charging access, personal car ownership, and other factors.

preliminary

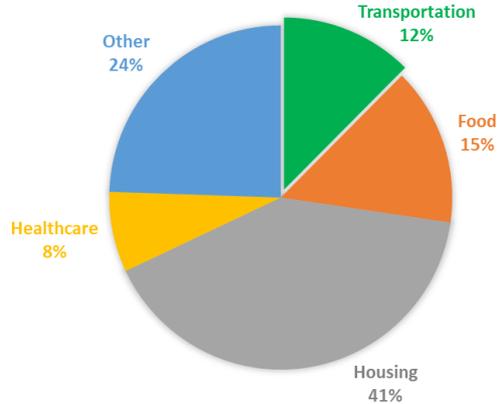


Preliminary sociodemographic and economic characteristics (2022 dollars) of used EV owners in LA, 2035 (based on business-as-usual scenario) (Source: EVI-Equity)

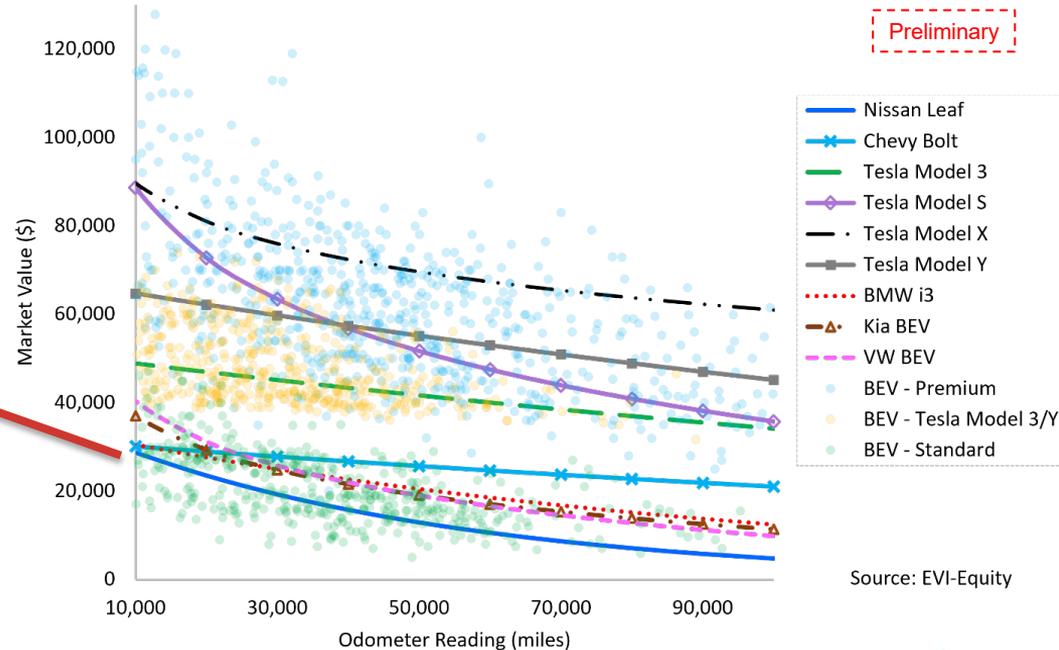
Used EVs

Key Finding: With federal (\$4,000) and city (\$2,000) rebates, purchasing a standard used EV can maintain or lower household transportation expenditures for moderate income households.

Household Expenditure Breakdown for an Example Household with \$60,000 Annual Income; and Purchased Used Nissan Leaf



Market Value of Used Battery Electric Vehicles (BEVs) in California in 2022



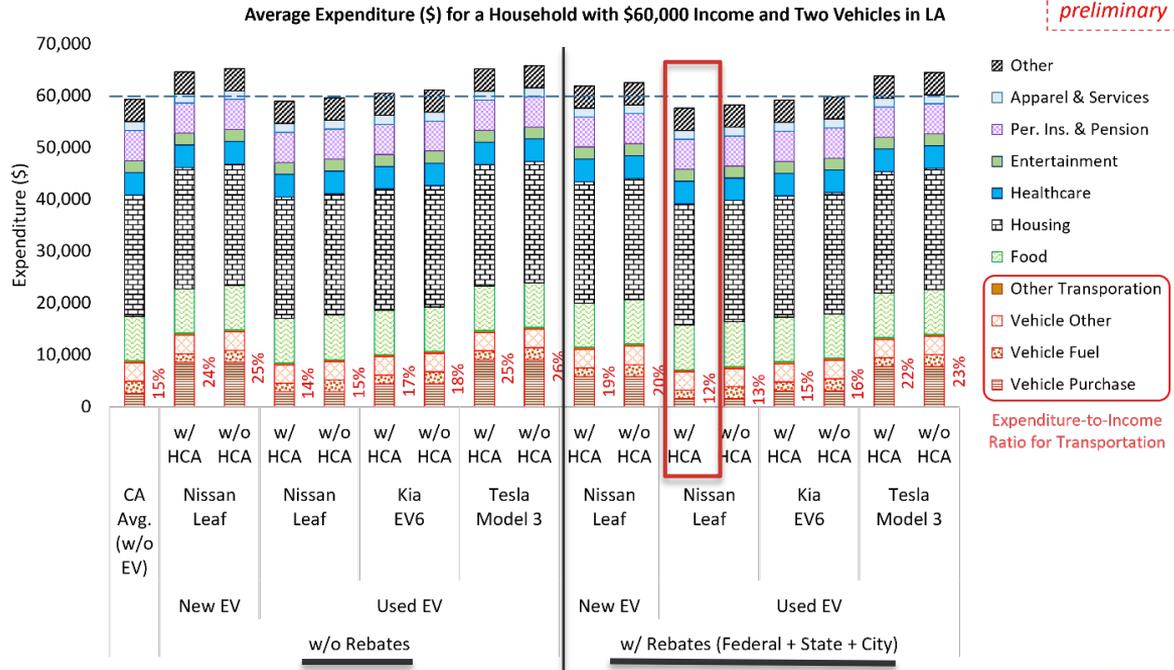
Source: EVI-Equity

Used EVs and the longitudinal evolution of their market value in California in 2022 (Source: EVI-Equity)

Used EVs

Key Finding:

- Home charging access can make the difference between used EV adoption increasing or decreasing expenditures for low- to moderate-income households.
- A used Nissan Leaf could reduce household expenditures for moderate income households with charging access.
- Combining federal, state, and LADWP rebates can mean additional used EV models (e.g., Kia EV6), lower low- to moderate-income household costs.



Expenditure-to-income ratio for an example household with an income of \$60,000 that purchased one new versus one used EV in LA
(HCA = home charging access)

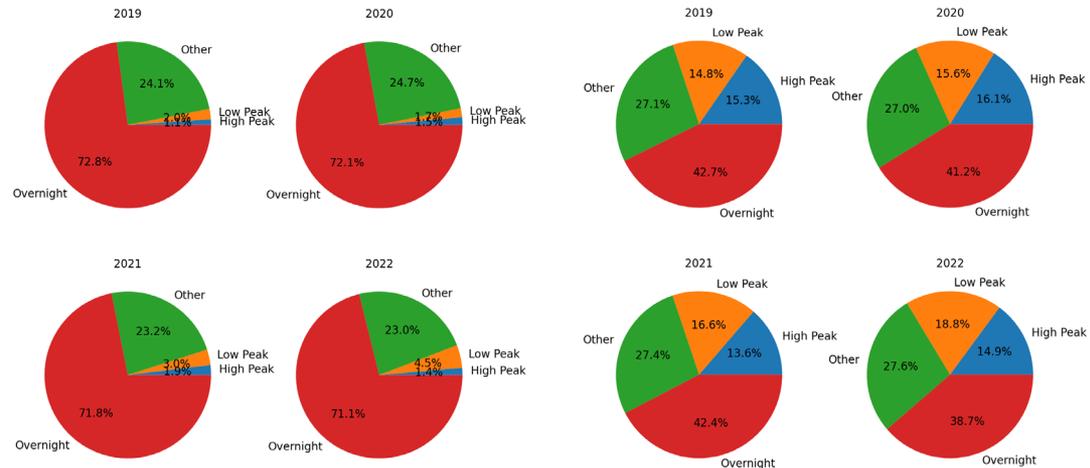
EV Charging

Key Findings:

- Charging profiles vary by customer type, which can inform load management
 - ~40% of sampled commercial charging consistently occurred overnight vs. >70% of residential
 - Apartments had lowest peak charging of commercial chargers analyzed (22% vs. 78%)
 - BlueLA carshare sites use ~50% overnight charging

NREL analyzed hourly load data for EVSE that received an LADWP rebate for EV charging time-of-use rate sub-meters

- 35 locations with full time series (2019-2022)
 - 22 residential; 13 commercial
- ~20% of charging occurs during peak electricity demand hours



Residential (n=22)

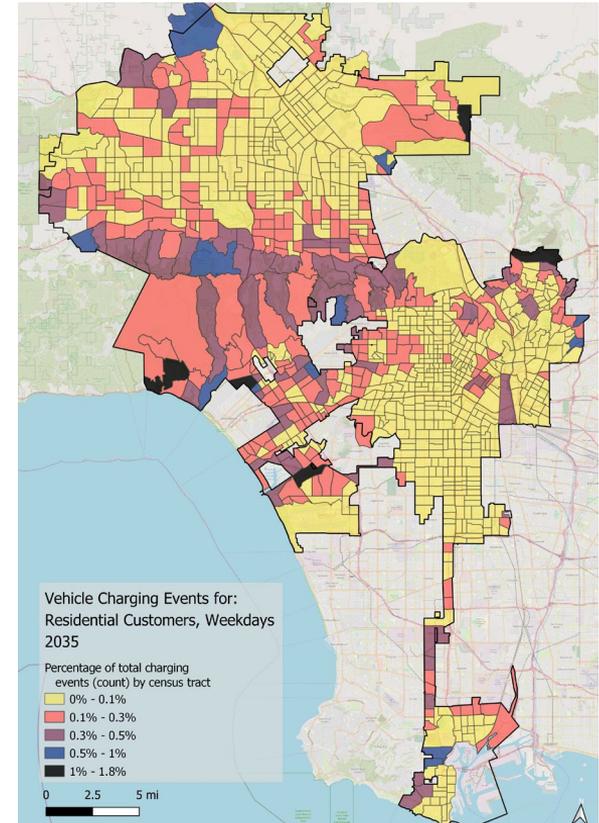
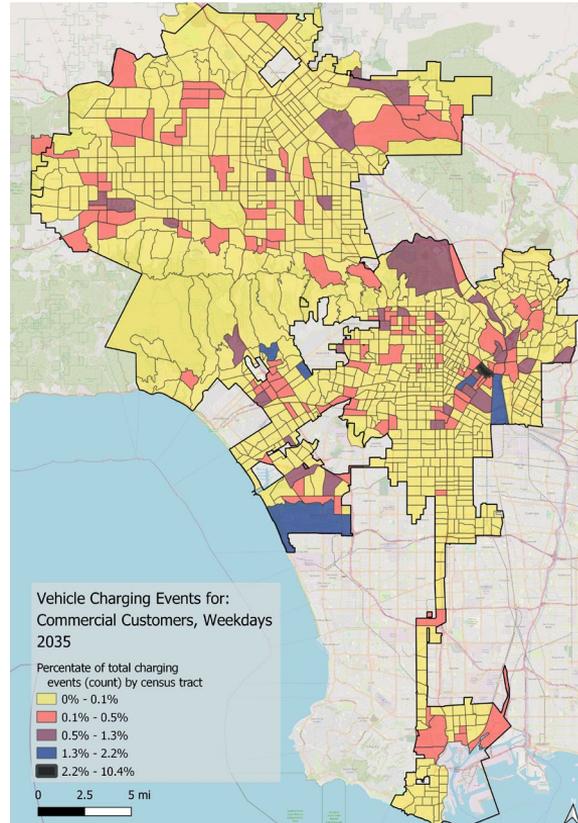
Commercial (n=13)

2035 EV Charging Business-as-usual Scenario Preliminary Results

Key Finding:

In a 2035 business-as-usual scenario, residential EV charging occurs predominantly in west LA, indicating EV adoption and charging access and benefits will continue to be heavily inequitable without a deliberate program and incentive equity focus.

Initial analysis shows the different spatial distributions of commercial (left) versus residential (right) customer charging events.

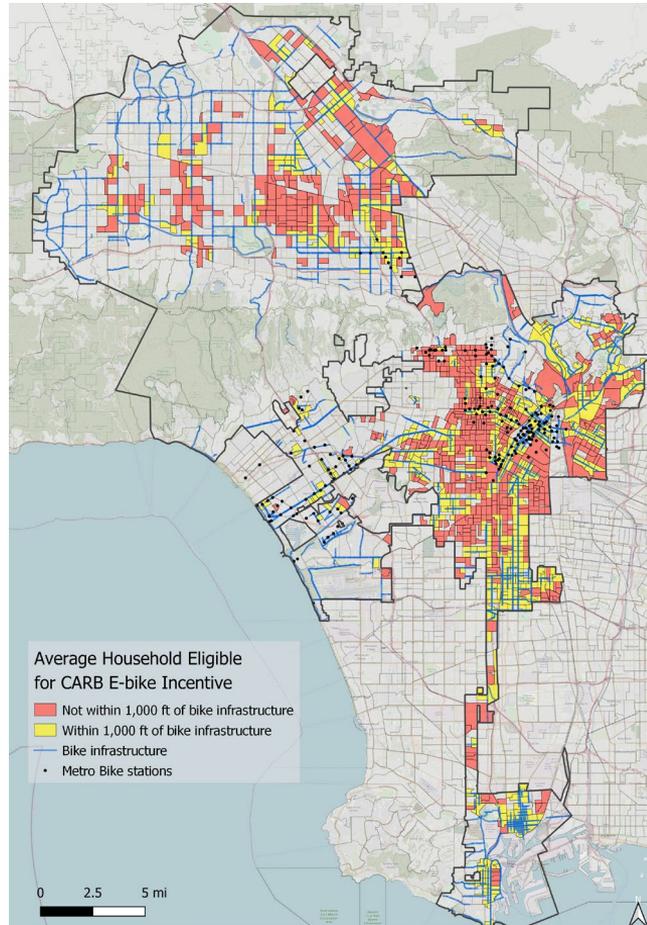


Multimodal Strategies for Reduced Transportation Energy Burdens



Equitable and Safe E-bike Access

“This program will be one more way California is helping to ensure everyone in our state has access to clean transportation”
-CARB Deputy EO Craig Segall



E-bike benefit

Forthcoming CARB e-bike incentives* limited to households at 300% of Federal Poverty Level**

- 49% of LA census block groups (map: red & yellow areas)

Inability to access the benefit

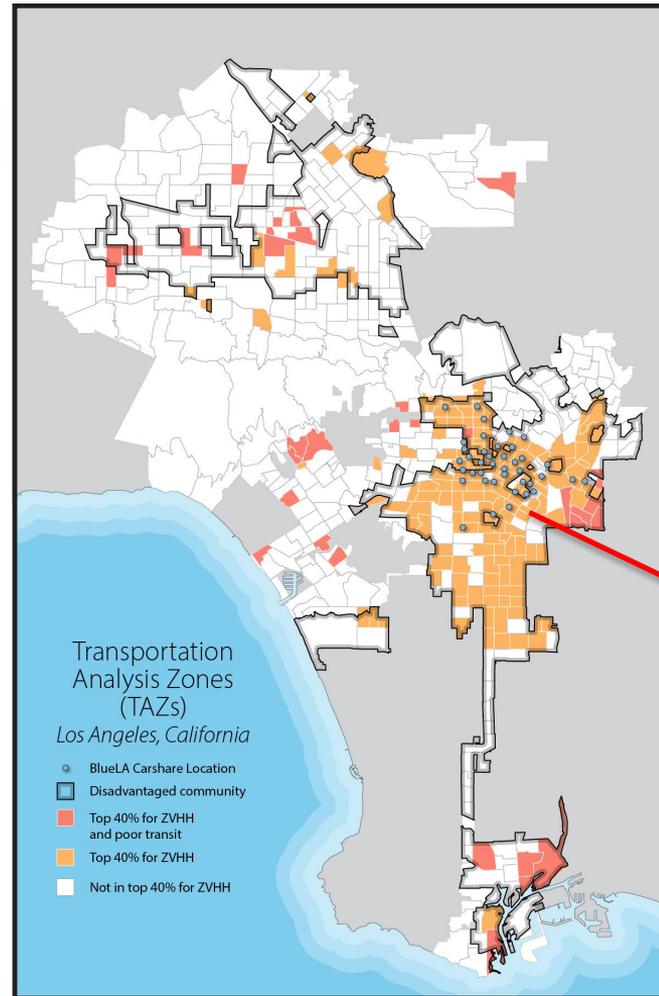
Key Finding: Fewer than 50% of households eligible for CARB e-bike incentives are within 1,000 feet of existing bike infrastructure.

Red areas are areas where >50% of households are eligible for the e-bike incentive **but don't have nearby access to bike infrastructure.**

* Budget of \$10 million (~6k incentives). Note that demand for other existing e-bike incentives far exceeds supply
**Map uses ACS 2015-2019 income & FPL



Initial Priority Areas for Multimodal Strategies



Areas that are:

- In the top 40% for zero vehicle households* (ZVHHs – 12% or more of households without vehicles),
- In the top 40% for low-quality transit **,
- SB235 designated disadvantaged communities

Example: In census tract 6300, approximately 83% of households do not own vehicles (2,026 of 2,433 households).

*ACS 2015–2019

** EPA Smart Location 2020



Multimodal Transportation Electrification Strategies for Disadvantaged Communities



Shared e-bike access



Shared EV access

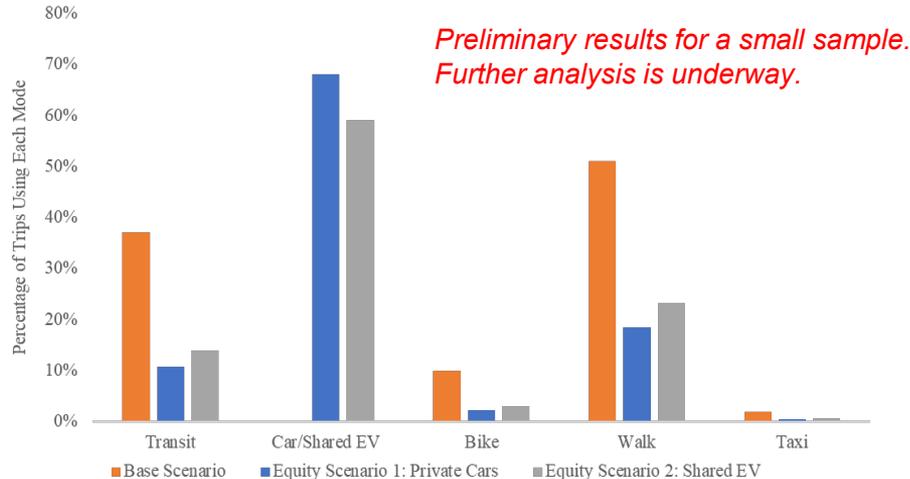


Improved transit

Transportation Analysis Zone ID & Neighborhood	Most affordable	Most time efficient	Access to most opportunities	Transportation Analysis Zone ID & Neighborhood	Most affordable	Most time efficient	Access to most opportunities
3718 – Panorama City				4111 – Boyle Heights			
3731 – Panorama City				4114 – Boyle Heights			
3734 – North Hills				4115 – Boyle Heights			
3737 – Panorama City				4150 – Boyle Heights			
3864 – Reseda				4335 – East Hollywood			
3866 – Canoga Park				4611 – Wilmington			
3872 – Winnetka				4612 – Wilmington			
3877 – Van Nuys				4614 – San Pedro			
4067 – Boyle Heights				4630 – Wilmington			
4105 – Boyle Heights				<i>Calculated for low-vehicle ownership, low transit access, disadvantaged communities</i>			

Mode Equity Analysis

Key Finding: EV car sharing could substantially reduce transportation time and increase access to opportunities in neighborhoods with very low car ownership rates.



Percentages of trips that use different travel modes in three scenarios

* Only operational costs (e.g., gas, insurance, maintenance) are considered in the privately owned car scenario. Vehicle purchasing cost is not included.

Daily Impact on Cost, Travel Time, and Accessed Destinations in Three Scenarios for All Households in a TAZ

Scenarios	\$	Hours	Ratio of Destinations Within Reach
Base Scenario 1: Without privately owned car	4,970	1,407	1
Base Scenario 2: Privately owned car	5,120*	803	9.3
Equity Scenario 1: Shared EV program	6,704	933	8.5

With original travel time budget but now faster travel modes, what are the impacts?

Which multi-modal strategies can increase access towards this level?



Equity Strategies



Current Inequities

75% of LADWP EV and EV charging infrastructure incentives went to households in non-disadvantaged communities

The \$71 million in LADWP EV incentives disproportionately benefited predominantly White, non-Hispanic, home-owning, and wealthier neighborhoods.



Community Solutions Guidance

Affordable and electric options to enhance mobility and reduce pollution

Culturally informed, transparent, tailored, and consistent outreach and communication

Simplified application materials and methods for LADWP and city incentives.



Modeling & Analysis Key Findings

With federal (\$4,000) and city (\$2,000) rebates, standard used EVs (e.g., Nissan Leaf) are affordable for median income households and maintain or lower household transportation expenditures

Combining federal, state, and city rebates can make additional used EV models, like the Kia EV6, affordable for many low-to moderate-income households.



Equity Strategy

Establish a purchase price cap and/or household income threshold for LADWP used EV incentive

- Modeling underway to identify incentive thresholds for affordable EV access

Partner with CBOs to target incentive outreach to disadvantaged communities, renters, and multifamily home residents.



Current Inequities

Mostly non-Hispanic communities have more charging stations than mostly Hispanic communities

75% of LADWP EV and EV charging infrastructure incentives went to households in non-disadvantaged communities



Community Solutions Guidance

Ensure charging stations are located to respond to daily household routines

Set up low-income communities for EV infrastructure without adding burdens

Infrastructure for charging personal EVs, shared EVs, e-bikes, etc.



Modeling & Analysis Key Findings

By 2035, ~50% of potential LMI used EV consumers will be renters or live in multifamily buildings

40% of households living in multifamily homes lack access to charging at or near parking

Home charging is more affordable than public charging and can make the difference between used EVs increasing or decreasing expenditures for median income households

Apartments had lowest peak charging of commercial/multi-family chargers analyzed

Commercial customers are 4-6x more likely to charge during peak hours than residential customers



Equity Strategy

Home charging access

- Provide at- or near-home charging access for renters and multifamily residents to enable more equitable purchase and EV charging options

Public charging

- Provide support (e.g., vouchers) for those relying on public EVSE due to no home charging
- Develop public charging for residential charging in disadvantaged communities with charging deserts



Multimodal Transportation Electrification **DRAFT** for discussion

Current Inequities

In LA, SB235 census tracts, 16% of households don't own vehicles (vs. 12% citywide)

Even with LADWP, state, and federal incentives, used EVs are still not necessarily the best option or affordable for low-income households.

Community Solutions Guidance

Tailor access to affordable e-mobility technologies based on needs

Expand electric bike e-scooter, and EV-sharing programs

Improve quality of public transit and safety of streets

Modeling & Analysis Key Findings

Behavior modeling shows EV car sharing can provide affordable access to EVs, substantially reduces transportation time, and increases access to opportunities in areas with very low car ownership rates

The best multimodal strategy for different communities can vary

Equity Strategy

Provide a portfolio of options including EV car-share, e-bike, e-scooter, programs in low-income census tracts with low vehicle ownership

- Areas include Boyle Heights, Wilmington, and Panorama City neighborhoods
 - 20 census tracts, most in those neighborhoods, have poor transit

Pair e-bike incentives with bike infrastructure expansion and charging

- Modeling currently underway will identify spatial distributions of strategy benefits

Discussion

Please share ideas and suggestions about the draft equity strategies

(A continued response opportunity will be available after the meeting.)

DRAFT Transportation Electrification Equity Strategies – Discussion

EV Access & Benefits

- Establish a purchase price cap (e.g., \$20k) and/or household income threshold for the LADWP used EV incentive
- Partner with community-based organizations to target incentive outreach to disadvantaged communities, renters, and multifamily home residents.

EV Charging Access & Benefits

- Provide at-home or near-home charging access for renters and multifamily building residents to enable more equitable opportunities to purchase and charge EVs.
- Provide financial support (e.g., vouchers) for those who must rely on public EVSEs due to lack of home charging access
- Develop publicly accessible charging infrastructure to support residential charging in disadvantaged communities with charging deserts.

Multimodal Transportation Electrification

- Establish EV car-share, e-bike, e-scooter, programs in low-income census tracts with low vehicle ownership and limited transit access
- Focus on areas that fit those criteria and are SB235 DACs, especially neighborhoods like Boyle Heights, Wilmington, and Panorama City
- Pair bike infrastructure expansion and charging with e-bike programs and incentives



Going Forward

Tentative

Steering Committee Meetings

March 15, 2023 (Virtual)

- Community Listening Sessions Summary (Part 2)
- Preliminary Results and Discussions: Housing weatherization and resilience to extreme weather events

March 29, 2023 (Virtual)

- Preliminary Results and Discussions:
 - Local Solar and Storage
 - Grid Reliability and Resiliency
 - Air Quality and Health
- Energy Atlas

Subsequent Meetings

- Third Wednesday of each month, 10:00 a.m. – 12:00 p.m. PT
- Virtual for near-term

For another opportunity to provide input on the transportation strategies, watch for an email with a link.



Thank you!
