

EV Charging Infrastructure Toolkit – Community-Based Organizations & Disadvantaged Communities



Electric vehicle (EV) adoption is experiencing rapid growth. In 2018, nearly 8% of new car sales in the State were EVs.¹ California policy, such as Governor Brown's 2018 Executive Order (EO) B-48-18, set ambitious targets for EV adoption and supportive infrastructure. As the primary authority planning, permitting, and implementing EV charging infrastructure development, local governments are a crucial part of transforming California's transportation sector.

State and local leaders recognize that community-based organizations (CBOs) represent valuable contact points for members of the local region. CBOs serve a wide variety of area residents, including those from disadvantaged communities (DACs) and low-income residents. Given their ability to reach a unique, broad spectrum of residents and businesses, as well as their deep community roots, CBOs are extremely valuable partners in improving sustainable transportation penetration within their municipalities. All residents of the community would benefit greatly from additional transportation options that improve convenience and reduce total expenses.

The primary messages for deploying EV charging stations (EVCS) (e.g., increase EV awareness, increase affordability, reduce range anxiety, business case, and identify funding opportunities) need to reach business owners and community members throughout the Region. CBOs can be an effective partner for delivering messaging because they have established connections and mature relationships with segments of the

¹ California New Car Dealers Association. California Auto Outlook. Vol. 15 No. 1. Available at: <https://www.cncda.org/wp-content/uploads/Cal-Covering-4Q-18.pdf>

community, including hard to reach communities (e.g., multi-cultural populations which speak numerous languages). CBOs deeply understand the needs of their communities and can help develop target messages that will reach desired communities and satisfy their needs. Specific to EV and Electric Vehicle Infrastructure (EVI) market adoption, residents and businesses in DACs have historically been harder to reach. Within Kern County, daily commutes to work are above average and corridor travel is significant. These travel conditions have resulted in impacts to air quality and indicate that the typical resident spends significant time and budget resources on vehicle travel. Electric vehicle use can reduce criteria pollutant emissions, reduce commute time (if charging at work or home), and be an affordable alternative to internal combustion engine vehicles. Despite this opportunity, existing rebate programs have not been heavily subscribed in DACs. This toolkit is designed to help local government agencies and stakeholders understand how to partner with CBOs and leverage their innate understanding of their community's needs, their unique abilities to engage their community in order to spur adoption of EVs and enhance EVI site utilization within Kern County.

Barriers and Solutions to EV Charging in Priority Communities

Awareness, Outreach and Engagement

In 2015, California Senate Bill 350, as part of a larger goal-setting process “for developing renewable energy and advancing energy efficiency”, directed the California Energy Commission to study barriers to zero-emission and near-zero-emission transportation options for low-income customers, including those in disadvantaged communities (SB 350, 2015). As part of this, the California Air Resources Board conducted a segment of the overall Low-Income Barriers Study, entitled Part B (CARB Part B), which focused specifically on overcoming barriers to clean transportation access².

Community feedback in the CARB Part B report suggests that several barriers hinder the adoption of clean transportation in “priority communities”, which here are defined as rural and/or low-income communities underserved in regional transportation planning.

Cultural differences, language barriers, and a lack of access to common outreach distribution channels can leave priority communities isolated from technology deployment efforts and existing resources. CARB Part B notes that “...rural and tribal communities feel overlooked in outreach plans and education efforts” (2018). Contributing to this is the lack of reliable broadband internet service in many remote or low-income communities. This has the effect of limiting resident access to major channels of information about clean vehicle technologies, incentives, charging station locations, and car sharing or vanpools. Due to this gap in accessibility, local community-based organizations and transportation agencies may lack information on or awareness of available clean transportation grants and funding opportunities designed to reduce the upfront cost of purchasing a ZEV. This barrier to information and understanding is a serious impediment to clean vehicle adoption and infrastructure investments.

As each individual municipality faces its own unique regional challenges and considerations, one-size-fits-all approaches to outreach and engagement may not be effective in priority communities. In this dynamic context, effective outreach and grant pursuit can be difficult for local agencies, requiring extensive staffing, multi-language engagement, and many events or touch points. Advocates for clean vehicle investments in priority

²California Air Resources Board. “Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents.” Available at https://ww2.arb.ca.gov/sites/default/files/2018-08/sb350_final_guidance_document_022118.pdf

communities, and state guidance developed through community engagement, have suggested some of the following approaches to bridge the information gap and conduct successful outreach.

Solution 1: Cultivate and Maintain Long-Term Community Partnerships

Past outreach efforts and community feedback outlined in CARB Part B have pointed to long-term partnerships with trusted local CBOs as a successful outreach strategy. To address the barriers listed above, effective outreach should be multi-lingual, targeted to relevant transportation needs, and packaged in a relatable, recognizable fashion. And, as noted in CARB Part B, “Residents would benefit from repeated outreach and visits to ensure a more consistent presence in the community, to build trust, and ensure community-based organizations have the tools and resources they need to pass along information to their residents.”³ This persistent, community-rooted approach requires strong local CBOs with a partner able to provide the resources and technical expertise.



PolicyLink Sustainable Communities Engagement Guide

PolicyLink is a national research and action institute advancing racial and economic equity by Lifting Up What Works®. The Community Engagement Guide provides detailed tips and several case studies for successful outreach through community partnerships.

<https://www.policylink.org/resources-tools/community-engagement-guide-for-sustainable-communities>



Institute for Local Government (ILG) Partnering with CBOs Guide

This ILG’s guidance document is for “local government officials interested in collaborating with local community-based organizations to enhance the breadth and depth of participation by community residents in local decision-making.” http://www.ca-ilg.org/sites/main/files/file-attachments/partnering_with_comm_based_orgs_final.pdf

Solution 2: Combine Energy-Related Programs

A complimentary approach to community partnerships is to leverage resources across various energy-related programs to make effective use of limited outreach resources and avoid duplication. CARB Part B note that “developing regional one-stop-shops that provide low-income residents with access to multiple clean energy, transportation, and housing project information could be an important part of the solution.” A holistic program’s strategies and focus areas should be guided by local needs and feedback.



University of Kansas Community Tool Box

This toolbox provides local agencies with a guide to conduct effective community needs assessments: <https://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/develop-a-plan/main>



Grid Alternatives, One Stop Shop Pilot

Grid Alternatives is a non-profit organization historically focused on energy efficiency and renewable generation projects in communities of concern. They have recently added clean vehicle efforts to their programing and were selected to administer CARB’s new “One Stop Shop” pilot program. <https://gridalternatives.org/what-we-do/access-electric-vehicles>

³ https://ww2.arb.ca.gov/sites/default/files/2018-08/sb350_final_guidance_document_022118.pdf

Solution 3: Organize Ride and Drive Campaigns

A “ride and drive” is a common outreach tool to give communities hands-on experience with EVs in their own backyard. These events bring in local dealerships to provide EV test drives, while also including contextual information on the technology, charging infrastructure, and available incentive programs. These elements can even be incorporated into existing community events to ensure robust community turnout.



Center for Sustainable Energy Ride and Drive Case Study

Center for Sustainable Energy has conducted hundreds of ride and drive events throughout California, including their extensive Experience Electric campaign in the Bay Area. Through 27 individual events, the campaign was able to conduct more than 5,000 EV test drives. Surveys were administered at each event to gauge changes in respondent attitudes toward EVs. Overall, 79% of respondents indicated that the ride-and-drive improved their opinion of electric vehicles⁴. In follow-up surveys administered in the months following the ride-and-drive events, 76% of respondents who had purchased an EV during that time indicated that the ride-and-drive they attended had positively impacted their purchase decision⁵.

Solution 4: Expand Educational and Training Opportunities

Another way to engage priority communities in clean transportation technologies is through educational and training programs. This could include providing educational curricula for K-12 students on sustainable transportation modes and technologies. At a higher level, improving access to vocational training and apprenticeships for vehicle production, maintenance, and infrastructure deployment is an excellent opportunity to bring the benefits of EV technology to priority communities.

Priority Community Usage Patterns

In priority communities, home ownership rates are often significantly lower than in high-adoption neighborhoods and residential patterns may be tilted more toward multi-unit dwellings rather than single-family homes with individual garages and driveways. Renters and residents of multi-unit dwellings face additional barriers to installing home-charging for their EVs.

Low-income or rural communities may also suffer from a lack of adequate public EVI to support daily travel. Residents also often face long daily commutes to job centers that make EV charging a serious challenge. In many Central Valley disadvantaged communities, there may be a strong need for infrastructure improvements to the existing electrical delivery infrastructure before charging stations can be installed. Examples include needing to install a higher-capacity transformer or adding an additional service drop and/or meter to serve the charging station(s). Any infrastructure improvement typically comes at a higher expense to the customer requesting the improvement, adding to the cost of installing EVCS.

Solution 1: Multi-Unit Dwelling Charging

While more complex than installing home charging at a single-family home, many developments have successfully incorporated EV charging at multi-unit dwellings.

⁴ https://energycenter.org/sites/default/files/docs/nav/transportation/experience-electric/MTC_EXEL_Final_Report.pdf

⁵ Ibid.



CALeVIP Incentive

The California Electric Vehicle Infrastructure Project (CALeVIP) is a California Energy Commission-funded project that provides incentives for Level 2 and DC fast charging in select locations throughout the state: <https://calevip.org/>



DriveClean Incentive Search Tool

The California Air Resources Board's DriveClean.ca.gov website provides a search tool to help you find incentives for EVs and charging infrastructure:

https://www.driveclean.ca.gov/Calculate_Savings/Incentives.php



Add Solar photovoltaics to EV infrastructure

The National Renewable Energy Laboratory created a summary of considerations for adding distributed solar PV with EV charging: <https://www.nrel.gov/docs/fy14osti/62366.pdf>. Solar Sage provides an easy [online calculator](#) for estimating solar panel costs based on electricity demand.

Solution 2: Workplace Charging

Without access to home charging and potentially with long commutes, reliable workplace charging can be a key solution for many residents of priority communities.



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EV Charging Demand Sample Survey

The U.S. Department of Energy has prepared a sample survey for workplaces to gather information on employee EVCS demand. This may not be appropriate for tenants at your site unless they have many employees, but it gives a good idea of what types of questions to consider: https://afdc.energy.gov/files/u/publication/WPCC_sample_employee_survey_0816.pdf

Solution 3: Public Charging Investments

In the context of priority communities, where few residents have access to home or workplace charging, leading the way with public investments in EVI is even more important. Infrastructure should be available at destinations as well as along commuting corridors to ensure reliable charging for daily needs. Public agencies should look for opportunities to add EV charging at their sites, both for employees and public access. Any public EVI efforts should recognize the barriers faced by priority communities and target investments to enable equitable access. The above resources (see Solution 2: Workplace Charging) may also prove beneficial for public charging, as well as the following:



EV Charging Location Maps

Use these maps to see where nearby chargers are located, how many chargers are available, and their rates and access rules. Keep in mind that demand will continue to grow. PlugShare: <https://www.plugshare.com/>. U.S. DOE: <https://afdc.energy.gov/stations/#/find/nearest>.



CalEPA Climate Investments to Benefit Disadvantaged Communities

The CalEPA website provides information and interactive tools about designated disadvantaged communities and past investments: <https://calepa.ca.gov/envjustice/ghginvest/>

Solution 4: Private Partnerships

Utilities and technology providers may have access to resources for investments in priority communities. Utilities across the state are currently engaged in EV and EVI programming to expand access. Interested agencies should contact their local utility as an early step. However, other companies and technology providers can also be effective partners to expand charging at large workplaces, destinations, etc.



CALeVIP Connects

CALeVIP Connects is provided as part of the CALeVIP incentive program. It is a free online directory that allows you to connect directly with EV service providers and request information for potential EV charging projects. <https://calevip.org/find-an-evsp>

Cost of EVs and Charging Equipment

Electric vehicles, and necessary charging equipment, remains expensive relative to low-cost standard alternatives. There is currently limited used EV inventory. California has several programs to subsidize clean vehicle acquisition, especially for low-income drivers. However, awareness of these programs remains a barrier.

Even for those who know they qualify for incentives, other obstacles remain. Low-income drivers may not qualify for a low-interest loan or lease option, or be able to afford the upfront price prior to rebate reimbursement. Residents may also distrust dealerships and financial lenders, or lack access to formal banking or research tools for car shopping.

Many residents are also priced out of vehicle ownership altogether, relying on public transportation, some form of car sharing, or other mobility options for their daily needs. Participation in emerging mobility technologies can be hampered for residents without bank access or a smart phone. Language barriers can also be a factor.

Solution 1: Make Incentive Programs Accessible to Residents

State and local agencies sponsor a variety of intersecting incentive programs, often with complex and multi-faceted eligibility requirements. Recognizing the need to simplify information and streamline access to these subsidies, agencies have moved toward creating "one-stop shops" and other localized, holistic resources. Local partners with multi-lingual resources and on-the-ground capacity should be armed with the information and tools to guide residents through the various programs they may qualify for. Local agencies can participate in statewide efforts to establish these regional one stop shops with CBO partners. Information about government-funded programs should be complimented with any applicable utility or other private resources. Incentive programs to help cover up-front costs or access low-cost financing are especially important to allow low-income drivers to unlock the lifecycle savings that EVs can offer compared to combustion engine vehicles.



DriveClean Incentive Search Tool

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https://www.driveclean.ca.gov/Calculate_Savings/Incentives.php



Clean Vehicle Rebate Project

The primary rebate incentive program for EVs across the state also provides information about other incentive programs and resources on its website. <https://cleanvehiclerebate.org/eng/ev>



One Stop Shop Pilot

Grid Alternatives was selected to administer CARB's new "One Stop Shop" pilot program in 2018, combining information on how to access the various incentive programs in one accessible location. <https://gridalternatives.org/what-we-do/access-electric-vehicles>

Solution 2: Unlock Lifecycle Cost Savings

Incentive programs to help cover up-front costs or access low-cost financing are especially important to allow low-income drivers to unlock the lifecycle savings that EVs can offer compared to combustion engine vehicles. To realize these savings, EV drivers must have reliable access to low-cost charging. Overnight home charging is generally a very low-cost option for EV drivers with chargers installed at their residences. Those without home charging may be paying more for publicly accessible charging or be faced with increased costs to deliver home charging at their multi-unit dwelling. Therefore, agencies implementing EVI deployment intended to benefit priority communities should consider providing low-cost or free charging for the public. In areas with low current adoption rates, this is unlikely to lead to over-use and can also allow installers to choose lower-cost, nonnetworked charging equipment.



EV Charging Cost Report

The U.S. Department of Energy has prepared a report on average equipment and installation costs for non-residential EV charging projects: https://afdc.energy.gov/files/u/publication/evse_cost_report_2015.pdf

Solution 3: Equitable Car Sharing and Mobility Programs

Beyond personal car ownership, car sharing and mobility platforms can be a flexible supplement to transit and other modes that allows priority communities to access the benefits of EVs. These options are in especially high demand in rural communities, where informal car sharing networks have operated for many years. Efforts to promote shared use mobility such as car sharing platforms, transportation network companies, and worker vanpools. State and local agencies have funded a number of pilot projects in this space. These efforts should focus on providing service in priority communities and ensuring equity through expanded payment and accessibility options. Local agencies can participate in statewide programs and implement EVI designed and sited to enable EV mobility programs.



CARB Car Sharing and Clean Mobility Projects

The California Air Resources Board has sponsored a handful of clean vehicle mobility projects throughout the state. Information about these efforts is available on its website: <https://www.arb.ca.gov/msprog/lct/carsharing.htm>



Shared Use Mobility Center

The Shared Use Mobility Center provides expert technical assistance and a number of helpful resources available on its website including a "Learning Center" with extensive case studies and learning modules: <https://sharedusemobilitycenter.org/>



Greenlining Institute Mobility Equity Framework

The Mobility Equity Framework report suggests principles, action steps, and indicators to guide mobility efforts. Its appendices also provide many helpful resources related to equitable mobility programs: <http://greenlining.org/wp-content/uploads/2018/03/Mobility-Equity-Framework-Final.pdf>

Existing Policies and Efforts to Expand Clean Transportation Access

Federal, state, and local agencies have put forward numerous policies to identify and address barriers to EV and EVI deployment in priority communities. Several of the most significant recent efforts focused on DACs are highlighted below as well as tools to access more comprehensive and regularly updated lists.

Highlighted California State Legislation

Senate Bill 375 (Steinberg, Chapter 728, Statutes of 2008) - Sustainable Communities and Climate Protection Act: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080SB375

Senate Bill 535 (De León, Chapter 830, Statutes of 2012) - Greenhouse Gas Reduction Fund investments in disadvantaged communities: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB535

Senate Bill 1275 (De León, Chapter 530, Statutes of 2014) - Charge Ahead California Initiative: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB1275

Senate Bill 350 (De León, Chapter 547, Statutes of 2015) - Clean Energy and Pollution Reduction Act: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350

Assembly Bill 1550 (Gomez, Chapter 369, Statutes of 2016) - Greenhouse gases: investment plan: disadvantaged communities: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1550

Assembly Bill 2722 (Burke, Chapter 371, Statutes of 2016) - Transformative Climate Communities Program: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB2722

Selected California State Programs

Carl Moyer Memorial Air Quality Standards Attainment Program: <https://www.arb.ca.gov/msprog/moyer/moyer.htm>

Community Air Protection Program: <https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program>

Clean Vehicle Rebate Project (CVRP): <https://cleanvehiclerebate.org/eng>

Enhanced Fleet Modernization Program (EFMP) and EFMP Plus-Up Pilot Project: <https://www.arb.ca.gov/msprog/aqip/efmp/efmp.htm>

Financing Assistance for Lower-Income Consumers: <https://www.arb.ca.gov/msprog/lct/vehiclefinancing.htm>

One-Stop-Shop for CARB's Equity ZEV Replacement Incentive Projects: <https://gridalternatives.org/what-we-do/access-electric-vehicles>

Clean Mobility Options Pilot Projects: <https://www.arb.ca.gov/msprog/lct/carsharing.htm>

Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP): <https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program>

Finding Other Laws and Programs

The following tools provide additional information about relevant laws and programs to promote equitable EV and EVI access.



SB 350 Low-Income Barriers Study

Along with a comprehensive discussion of barriers and potential solutions to equitable EV access, CARB's Low-Income Barriers Study provides a list of relevant California legislation and programs:

https://ww2.arb.ca.gov/sites/default/files/2018-08/sb350_final_guidance_document_022118.pdf



Alternative Fuels Data Center – Laws and Incentives

The U.S. Department of Energy hosts a searchable database of federal and state laws and incentives related to alternative fuels on its Alternative Fuels Data center website:

<https://afdc.energy.gov/laws/>

Additional Resources

CalEPA Climate Investments in DACs

<https://calepa.ca.gov/envjustice/ghginvest/>

SB 350 Low-Income Barriers Study

https://ww2.arb.ca.gov/sites/default/files/2018-08/sb350_final_guidance_document_022118.pdf

Caltrans Priority Populations and Disadvantaged Communities Support

<https://calepa.ca.gov/envjustice/ghginvest/>

Greenlining Institute EV Equity Toolkit

<http://greenlining.org/publications-resources/electric-vehicles-for-all/>

Grid Alternatives Access to Clean Mobility Resources

<https://gridalternatives.org/what-we-do/access-electric-vehicles>

CARB Community Air Protection Program

<https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program>

CalEPA Environmental Justice Program

<https://calepa.ca.gov/EnvJustice/>

Veloz/PEV Collaborative Resources

<https://www.veloz.org/veloz-resources/>

California GoBiz ZEV Resources

<http://businessportal.ca.gov/zero-emission-vehicle-program/zev-resources/>





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