POLICY BRIEF

UCLA Lewis Center for Regional Policy Studies

Electric Carsharing Models for Low-Income Households in California

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Key Takeaways

» Low-income households stand to benefit from new carsharing models that can provide car access without the financial burden of car ownership.

» New models of delivering carsharing for these low-income households are emerging using different pricing models, location considerations, and electric vehicles (EVs).

» EV carsharing pilot programs in California are commonly located in priority population areas or affordable housing complexes, with low-cost pricing models for members.

The last decade has seen immense growth in electric vehicle ownership across the United States. However, private car ownership, especially for EVs, is costly and can present a significant financial burden for low-income people and households, whose car ownership rates diverge along racial and ethnic lines (Ruggles, 2022). Carsharing services that allow people to use cars on a per-trip basis can ease this burden by providing vehicle access at a lower price than private vehicle ownership. The fleets of many of the newer carshare programs are electric, increasing the use of and familiarity with EVs among a larger and more diverse group of travelers (Nichols & Bernard, 2021).

While carsharing programs are not new, their increased availability in and centering of low-income households and communities is a recent development. This change represents an explicit focus on sustainability and inclusivity co-benefits (Forth, 2020). The recently proposed EV for all Act, brought forward in early 2022 by Congresswoman Nanette Barragán, aims to expand EV carsharing programs nationwide. The bill would appropriate $50 million per year for the next nine years to facilitate EV carsharing service development and maintenance, especially in low-income communities.

California is home to at least five EV carsharing programs targeting low-income users and neighborhoods. This brief describes emerging delivery models based on these five pilot programs, highlighting their similarities and differences and providing additional examples from outside the state. The brief is a follow-on to the spring 2022 InterActions LA conference — Inclusive Approaches to Electric Carsharing. Researchers at the National Center for Sustainable Transportation at UC Davis also recently published a report on publicly funded EV carsharing services, which we link in the references (Rodier et al., 2022).

The Role of Carsharing

Planners are optimistic that reliable automobile *access* — not ownership — can reduce both the likelihood of car ownership and household vehicle miles traveled (Shaheen & Martin, 2011). They also highlight the role of automobile

access in meeting the travel needs of households without private vehicles (Hyun & Cronley, 2019; Mitra, 2021).

People living in households with automobiles tend to make almost all their trips in a personal vehicle (Federal Highway Administration, 2017). Meanwhile, people who live in households without cars make a larger percentage of their trips on public transit and in other shared vehicles (e.g., taxi, Uber, Lyft, carsharing and rental cars) (Chatterjee et al., 2013).

Given this, carsharing can play two roles. First, it can provide automobility that enables some households to shed vehicles, potentially contributing to less auto travel, fuel consumption, and greenhouse gas emissions (Memmott, 2007). A previous online survey of North American carsharing members before and during carshare membership provides evidence of reductions in household car ownership (Martin et al., 2010). After joining a carshare program, household car ownership among U.S. respondents declined from 0.55 vehicles per household to 0.29 vehicles per household.

Second, carsharing can also provide car access to those without vehicles, which may, in turn, increase vehicle miles traveled for those specific households. Cars are expensive to own and operate, restricting their ownership among low-income households (Klein, 2020). In California, 22% of families with incomes below the poverty line do not own a vehicle, with rates rising to 38% for low-income Black households (Ruggles et al., 2022). Given the suburban nature of most metropolitan areas, cars are often an essential economic lifeline for many families (Blumenberg & Ong, 2001; Klein, 2020; Tomer & Kane, 2014).

Low-income households can benefit from selective car use. Carsharing allows these households to more easily travel to destinations and trip purposes not well served by public transit, while relying on transit, walking, or cycling for other trips. Research demonstrates that people most commonly use carsharing for social, recreational, and shopping trips (Schmöller et al., 2020), in other words, on trips that likely

Figure 1.

Select electric carsharing programs in California

contribute to significant quality of life improvements for many families. For low-income travelers, a key benefit of carsharing is the opportunity for increased access to opportunities at a lower price point than private vehicle ownership. Finally, electric carsharing systems allow travelers without EV exposure to test them, often for the first time.

California EV Carsharing Models

All current EV carsharing programs in California operate as pilot programs, and the programs we highlight are shown in **Figure 1**. Each program is described in greater detail below, while **Table 1** compares the program characteristics. Within these existing programs, there are three emerging delivery models for inclusive electric vehicle carsharing: (i) partnering with affordable housing providers, (ii) community dock-based programs, and (iii) hybrid programs.

Program Types

Affordable Housing EV Carshare
Three current pilots are located at affordable or public housing sites:

» Our Community Car Share in Sacramento.
» Envoy San Pedro in Los Angeles.
» Mobility Hubs in the San Francisco Bay Area.

These programs are exclusively for the use of residents within these sites. The cost to the user varies from free access to $12 per hour. Envoy San Pedro, which has two cars in operation at the Rancho San Pedro public housing development, is available to residents without bank accounts as they can reserve a vehicle in person from on-site staff. When they launch in 2023, the Mobility Hubs program plans to integrate carsharing with other supports like direct access to public transit and bikeshare discounts.

Community dock-based programs
The second type of EV carshare program includes stations across low- and middle-income neighborhoods. The programs are accessible to anyone who would like to be a member, with discounted membership and trip costs for low-income individuals. BlueLA, powered by Blink Mobility (BlueLA), operates in Los Angeles and is one example of this program type. Members cannot book vehicles in advance and require a smartphone and a bank account to sign up for the service and book a vehicle. BlueLA is the most extensive program in California with 100 cars, five charging docks at each of its 40 stations, and plans to expand in 2023.

Hybrid carshare programs
The third model is a combination of the previous two. An example of this type of program is MioCar, a rural EV carsharing program in the San Joaquin Valley. MioCar is the only program in the state that operates in rural communities. The program provides vehicles at six housing sites, but usage is not restricted to residents. There is no membership fee, and cars cost $4 per hour, $35 per weekday, or $45 on Saturdays and Sundays.

Funding Arrangements

California EV carshare programs are supported through a mix of public and private funds. However, the exact funding arrangements are outside the scope of this brief. All of these California pilot programs receive funding from the California Air Resources Board (CARB) through the California Climate Investment (CCI) fund, which uses the state's cap-and-trade proceeds to help achieve California's climate goals. In addition, many of the programs also receive funding from other partners and organizations, such as local energy and utility providers, air quality management districts, or municipal departments of transportation (Herman, 2022).

Limited information on the finances and business models of these programs is available, suggesting further research needs. Questions worth exploring include:

» How much funding is needed for capital and start-up costs versus operating expenses?
» How much funding goes into price subsidies?
» What is the long-term financial viability of these programs, given that much of the current funding comes from time-limited grants?
» Will the private market of mobility providers continue to be involved, given that some previous operators have left the market?

Table 1.

Program characteristics

	Our Community Car Share	Envoy San Pedro	Mobility Hubs in Affordable Housing Pilot Program	BlueLA	MioCar
City/Region	Sacramento	Los Angeles	San Francisco Bay Area	Los Angeles	San Joaquin Valley
Model	Affordable housing	Affordable housing	Affordable housing	Community dock-based	Hybrid
Launch year	2016	2020	Forthcoming	2018	2019
Mobility operator	Zipcar	Envoy	Envoy	Bollore (previous) Blink Mobility (current)	MioCar (nonprofit organization)
Site locations	9 low-income communities	Public housing development in San Pedro	Betty Ann Gardens in San Jose, Nystrom neighborhood in Richmond, Oakland and one other site in consideration	Priority population neighborhoods: Echo Park, East Hollywood, Koreatown, Pico-Union, Downtown, Boyle Heights	Affordable housing sites in Arvin, Dinuba, Lamont, Orosi, Visalia, and Wasco
Cars in operation	18	2	TBD	100	27
Charging stations	18	2	TBD	200 chargers across 40 stations	17 chargers across 6 stations
Cost to consumer	Free for up to three hours per day and nine hours per week	Current rate is $3 per hour Program initially priced at $9 per hour	$12 per hour with daily max of $96 Discounted rates for low-income residents will be available	Priced by the minute with discounted multihour packages and two pricing tiers Hourly is $9 or $12 per hour; 3-hour package is $15 or $20 Membership fee is $1 or $5 per month	$4 per hour, daily max of $35, or $45 on weekends Trips over 150 miles incur a $0.35 surcharge per mile
Funding	$5.8 M in CARB grants over multiple phases $1.8 M additional funding from other government partners	Financial support from the Los Angeles Cleantech Incubator (LACI)	$2.25 M in CARB grants Additional support from the Metropolitan Transportation Commission	$4.7 M in CARB grants over multiple phases $4 M from the City of Los Angeles (Department of Water and Power and others) $10 M from original operator, $24 M from current operator	$3.2 M in CARB grants Additional support from the San Joaquin Valley Air Pollution Control District
Other partners	Sacramento Metropolitan Air Quality Management District, Sacramento Housing Redevelopment Authority, Mutual Housing, Sacramento Municipal Utility District, Policy in Motion, City of Sacramento	Housing Authority of the City of Los Angeles (HACLA)	Transform, East Bay Asian Local Development Corporation, Related Companies (Oakland site), First Community Housing (San Jose site), Richmond Community Foundation (RCF), City of Richmond. (Richmond site)	Los Angeles Department of Transportation, T.R.U.S.T South LA, Salvadoran American Leadership and Educational Fund (SALEF), Koreatown Immigrant Workers Alliance (KIWA)	Self-Help Enterprises, San Joaquin Valley Air Pollution Control District
Advanced booking available	✓	✓		✓	✓
Alternative payment available		✓			

Other recently published research also calls for increased evaluation of the costs and program designs of these programs, given the uncertainty of ongoing funding (Rodier et. al, 2022).

Beyond California

EV carsharing programs are becoming increasingly popular outside of California as well. In Boston, the Good2Go program launched in 2021. It includes two pricing tiers, including a 50% reduced rate option for low-income households or people on selected public assistance programs. This program currently has four locations across both low- and middle-income neighborhoods.

Evie is another recently launched program in Minnesota's Twin Cities region that uses a free-floating model with 150 vehicles. Vehicles are parked in "home areas" within Minneapolis and St. Paul. Members can leave or acquire the cars at city parking meters, residential areas with permit parking, or at designated charging stations within those zones. Evie offers a variety of pricing plans, including income-based discounts and student programs with discounted membership and rental rates.

Finally, CarShare Vermont has served the state since 2008 with pricing that includes a discounted tier with no membership fees and reduced hourly rates. This program is transitioning their entire vehicle fleet to electric and hybrid vehicles, which currently comprise 42% of their fleet. In 2021, CarShare Vermont expanded its service locations with four new stations at affordable housing developments.

Conclusion

The number of EV carsharing programs that emphasize accessibility and inclusivity is growing. Some programs are tailored to specific groups within low-income areas, while others are broadly accessible to all using tiered pricing approaches to increase affordability. As many of these programs are nascent, future evaluations can help shed light on whether they meet their intended objectives and provide benefits to low-income households and communities. In addition, future research should seek to understand the business models and financial viability of these programs to better understand how these pilot efforts can be financially sustainable and provide a stable and reliable path to clean car access.

These programs are often or exclusively directed to low-income residents from diverse backgrounds who may not have previously driven an electric vehicle. Working in partnership with trusted and contracted community organizations is an opportunity to increase awareness, provide information in multiple languages, and provide easy-to-understand guidelines or training sessions. All the programs in this review rely on smartphone use. Therefore, access to and comfort using technology may be barriers to widespread use among low-income households. Additionally, only one program allowed people to use an alternative payment method, demonstrating another potential accessibility improvement.

No matter the exact model, locating EV carsharing programs in communities of need and pricing them at affordable rates are required elements to serve low-income populations. As the number of EV carsharing programs that are inclusive of these populations continue to expand, there is hope that this market will continue to mature, stabilize, and provide greater opportunities for affordable car access.

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