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Publicly Funded Electric Carsharing Services Can Reduce Emissions and Expand Transportation Access, but They Need More Study

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POLICY BRIEF

Issue

Carsharing, in which members have access to a network of shared vehicles for short-term rentals, has existed in the US for more than two decades. Within the last six years though, carsharing services have proliferated under a wider variety of business models. These programs are increasingly seen as a means of increasing transportation access in underserved communities—particularly in those with limited public transit service. The recent incorporation of electric vehicles in carsharing programs is also seen as a promising public policy for reducing greenhouse gas emissions (Figure 1). Government support for carsharing has accelerated, with state and federal agencies investing millions of dollars in support of equity and sustainability goals.

As funding grows, it becomes increasingly important to learn from carsharing services that have already been implemented. Researchers at the University of California,

Davis and the non-profit organization Mobility Development reviewed evaluations of the travel, emissions, and equity effects of past US carsharing programs and analyzed the evolution of carsharing and its various business models. The aim of the research is to inform the design of and improve the value of investments in future electric carsharing programs.

Key Research Findings

Carsharing, especially with electric vehicles, is likely to reduce transportation greenhouse gas emissions. Studies of carsharing programs dating back to 2004 show that members appear to reduce their vehicle miles traveled and associated greenhouse gas emissions. Carsharing members often decrease vehicle ownership or refrain from purchasing an additional vehicle as a result of having access to the program. The use of electric vehicles in carsharing is expected to provide further greenhouse gas reduction benefits compared to programs using conventional vehicles.

For-profit carsharing services are likely to limit service to high-demand urban areas where residents can pay market-rate fares. Private carsharing companies locate their services where they can make a reasonable profit for their efforts. Studies show that these services tend to be located in major metropolitan areas with high-quality transit and in affluent, highly educated, young, white neighborhoods. Acquisitions of non-profit carsharing services by rental car companies, such as Enterprise and Avis, have led to service cutbacks in less profitable low-income communities.



Figure 1. An electric vehicle available to members of Miocar, a rural, all-electric, affordable carsharing service serving the San Joaquin Valley in California. Source: miocar.org

Non-profit carsharing is feasible in the US and could provide opportunities to expand service. Local non-profit carsharing programs that address environmental and social goals in their communities can be found both in and out of major urban areas. While many non-profit carsharing programs have been acquired by rental car companies, several still exist and are operating with minimal public subsidies. Examples include eGo in Denver and Boulder, Colorado; Hourcar in Twin Cities, Minnesota; Carshare Vermont in Burlington; and Ithaca Carshare in New York.

Publicly- or community-controlled electric vehicle carsharing programs show potential for improving access for marginalized communities. The new wave of carsharing programs include the use of electric vehicles and/or provide low-cost services for underserved communities. They use a variety of business models, including programs initiated and funded by governments with the intention of providing an enduring public service, short-term pilots implemented with public funding to test specific goals, and privately led public-private partnerships that may receive grant funding but are largely independent of public oversight. Examples include BlueLA in Los Angeles, Our Community Carshare in Sacramento, Míocar in the San Joaquin Valley, and Evie in Minneapolis.

Policy Implications

Electric vehicle carsharing is a promising strategy to reduce vehicle travel and greenhouse gas emissions while promoting equitable access. When subsidized, these services may provide an affordable transportation alternative, particularly in rural and suburban areas where high-quality transit is costly to provide. They have the added benefit of increasing exposure to electric vehicles, which may translate to greater acceptance and adoption of these vehicles.

Still, researchers know little about what the new wave of carsharing programs will cost at scale and how they will be used. Peer-reviewed evaluations that verify and quantify the benefits of these programs, many of which use different business models and are located in different geographic contexts, can inform longer-term government investments in electric carsharing services. Programs that fund these services should reserve a portion of project costs for research evaluation at this emergent stage.

More Information

This policy brief is drawn from “Challenges and Opportunities for Publicly Funded Electric Vehicle Carsharing,” a white paper from the National Center for Sustainable Transportation, authored by Caroline Rodier, Juan Carlos Garcia Sanchez, Makenna Harrison, Jerel Francisco, and Angelly Tovar of the University of California, Davis, and Creighton Randall of Mobility Development. The full paper can be found on the NCST website at <https://ncst.ucdavis.edu/project/challenges-and-opportunities-publicly-funded-electric-car-sharing-programs>.

For more information about the findings presented in this brief, contact Caroline Rodier at cjrodier@ucdavis.edu.

The National Center for Sustainable Transportation is a consortium of leading universities committed to advancing an environmentally sustainable transportation system through cutting-edge research, direct policy engagement, and education of our future leaders. Consortium members: University of California, Davis; University of California, Riverside; University of Southern California; California State University, Long Beach; Georgia Institute of Technology; and the University of Vermont.

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