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Charging-as-a-Service is an Innovative Business Model that Could Help with California's Vehicle Electrification Goals

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Issue

Access to electric vehicle (EV) charging infrastructure is critical to advancing California's EV adoption goals. The California Energy Commission has projected the state needs "nearly 1.2 million" chargers by 2030 "to meet the fueling demands of 7.5 million passenger plug-in electric vehicles."[1] Currently, California has about 152,000 publicly available EV chargers.[2]

Innovative asset ownership models, like charging-as-a-service (CaaS), could help overcome some of the barriers to deploying and maintaining charging infrastructure. For example, CaaS providers could procure, install, maintain, and replace charging equipment for subscription customers. To better understand how CaaS solutions could expand EV use and charging access, we conducted semi-structured interviews with 13 CaaS companies, electric utilities, and customers to identify the perceptions, challenges, and opportunities of the CaaS business model in addressing charging station needs in California.

Key Research Findings

CaaS providers seek long-term relationships with clients, which increases the longevity of EV charging infrastructure. Long-term relationships are essential to CaaS providers because they need time to make a return on their investments. As a result, there is a strong incentive for CaaS providers to maintain EV charging infrastructure to keep and grow their customer base.

CaaS providers serve as knowledgeable experts clients can rely on to manage EV charging projects and fill important knowledge gaps. Individuals and organizations quickly learn through experience that EV charging infrastructure is most successful when they have a dedicated team to manage the EV charging project. Not every business or institution looking to install EV chargers can devote the time or resources needed to become knowledgeable about the construction process and charger operations. CaaS providers can and do fill knowledge gaps in these areas, such as designing EV use and charger operating plans.

CaaS solutions are flexible and well-positioned to scale EV charging infrastructure. CaaS providers have adjusted their solutions to meet their clients' affordability and scaling needs within the realities and constraints of the field. Working with power capacity limitations, CaaS providers have developed technology and built relationships with electric utilities to plan and scale EV charging infrastructure.

Policy Considerations

Those interviewed for this project provided several policy recommendations that would support CaaS operations and greater EV charging deployment.

1. **Encourage electrician and EV charger maintenance-related workforce development.** EV charging customers have experienced challenges with maintenance. CaaS providers recognize this and are

dedicating significant resources towards building a strong workforce to maintain chargers. Supporting these efforts could help stabilize EV charging operations and reduce concerns among new EV buyers.

2. **Streamline EV charging infrastructure subsidy programs through consistent application rules and flexible budget periods to increase CaaS participation.** Current programs often impose stringent requirements, including short payback periods, complex and varying documentation, and rigid equipment specifications. Harmonizing programs will increase participation in these programs and could allow CaaS providers to offer this model to more customers.

3. **Municipalities should develop comprehensive EV charging infrastructure plans.** Municipalities are key actors in the EV charging landscape. When comprehensive municipal plans exist—like streamlined permitting, building code and rebate alignment, and municipal fleet electrification plans—EV charger projects can be deployed more efficiently and quickly.

4. **Develop comprehensive educational resources for EV charging infrastructure that provides clear guidance on technical and economic considerations for diverse customer segments.** While CaaS providers and electric utilities are well positioned to educate existing and potential customers, a centralized repository of case studies, technical assistance materials, and best practices can serve more people. Filling knowledge gaps about EVs and EV charging is a key step to successfully deploying EV charging stations.[3]

5. **Continue directing EV charging infrastructure incentives in disadvantaged communities.** Despite wide-spread beliefs to the contrary, CaaS providers and electric utilities see demand for EV charging in disadvantaged communities, including for Uber and Lyft EV drivers. These communities could greatly benefit from sustained support for projects such as curbside charging, shared private charging at affordable housing locations, and electric truck charging depots.

More Information

This policy brief is drawn from the report "Assessing the Charging-as-a-Service (CaaS) Model for EV Charging Deployment in California," available at www.ucits.org/research-project/2024-33-3aa. For more information about findings presented in this brief, or the report, please contact Matthew Dean at matthew.dean@uci.edu.

[1]California Energy Commission. Report shows California needs 1.2 million electric vehicle chargers by 2030, June 9, 2021 . https://www.energy.ca.gov/news/2021-06/report-shows-california-needs-12-million-electric-vehicle-chargers-2030.

[2]California Energy Commission. Electric vehicle chargers in California, 2024. https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection/electric.

[3]State-led policy initiatives include the Cal Fleet Advisor, a free technical assistance and advisory program for medium- and heavy-duty fleets in California.

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