

# UC Davis

## Policy Briefs

### Title

Why are Some California Consumers Abandoning Electric Vehicle Ownership?

### Permalink

<https://escholarship.org/uc/item/5s738624>

### Authors

Hardman, Scott  
Tal, Gil

### Publication Date

2021-04-01

### DOI

10.7922/G2VQ310V

### Data Availability

The data associated with this publication are available at: <https://doi.org/10.25338/B8WS6R>

# Why are Some California Consumers Abandoning Electric Vehicle Ownership?

Scott Hardman and Gil Tal

Plug-in Hybrid & Electric Vehicle Research Center

Institute of Transportation Studies, University of California, Davis

April 2021

## Issue

California has set an ambitious goal of 100% zero-emission vehicle sales by 2035. Most consumer research to date has focused on understanding the factors influencing the initial purchase of plug-in electric vehicles (PEVs). But for the market introduction of PEVs, which include both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), to be successful, subsequent vehicle purchases by initial adopters need to continue to be PEVs rather than conventional vehicles. Discontinuance, the act of abandoning a new technology after once being an adopter, could make achieving California's goal more challenging.

Researchers at the University of California, Davis surveyed California PEV buyers two to seven years after they first purchased their electric vehicle to understand whether they have continued to choose PEVs with subsequent purchases, and if not, what factors may have led to their discontinuance of the technology.

## Key Research Findings

**Twenty-one percent (21%) of PHEV adopters and 19% of BEV adopters discontinue PEV ownership when making a subsequent decision on vehicle ownership.** These adopters now own only gasoline or conventional hybrid vehicles. Transitioning from BEV to PHEV ownership, or vice versa, is considered continuing PEV ownership. Of the adopters who discontinued PEV ownership, more than 65% would consider a PEV for their next vehicle purchase. This suggests that many of these households have not permanently abandoned the technology.

**Discontinuance is related to dissatisfaction with the convenience of charging and limited home charging.** Respondents who discontinued PEV ownership were less likely to have charging access at home, and those who did have charging access at home were less likely to have a level 2 (240-volt) charger (Figure 1). Public and workplace charging has no significant relationship with the decision to continue or discontinue PEV ownership. The results highlight the importance of home charging in the decision to continue PEV ownership.

**Electric driving range is not correlated with the decision to continue or discontinue PEV ownership.** PEV electric driving range is increasing, giving PEV owners dissatisfied with the range of their vehicle opportunities to buy a vehicle with longer electric range rather than abandoning the technology.

**Female adopters and households with fewer vehicles are more likely to discontinue PEV ownership.** Female buyers are also less likely to purchase a PEV in the first place, which highlights the need for more research to understand how the PEV market can be more inclusive. Those who continue PEV ownership have more vehicles in their households than average California households, while those who discontinue ownership have a similar number of vehicles.

**Very few current PEV models have the attributes desired by those who discontinued PEV ownership.** Respondents who discontinued PEV ownership desired BEVs and PHEVs with a combination of short charging times, long ranges, and low purchase prices that are not currently available in the market.

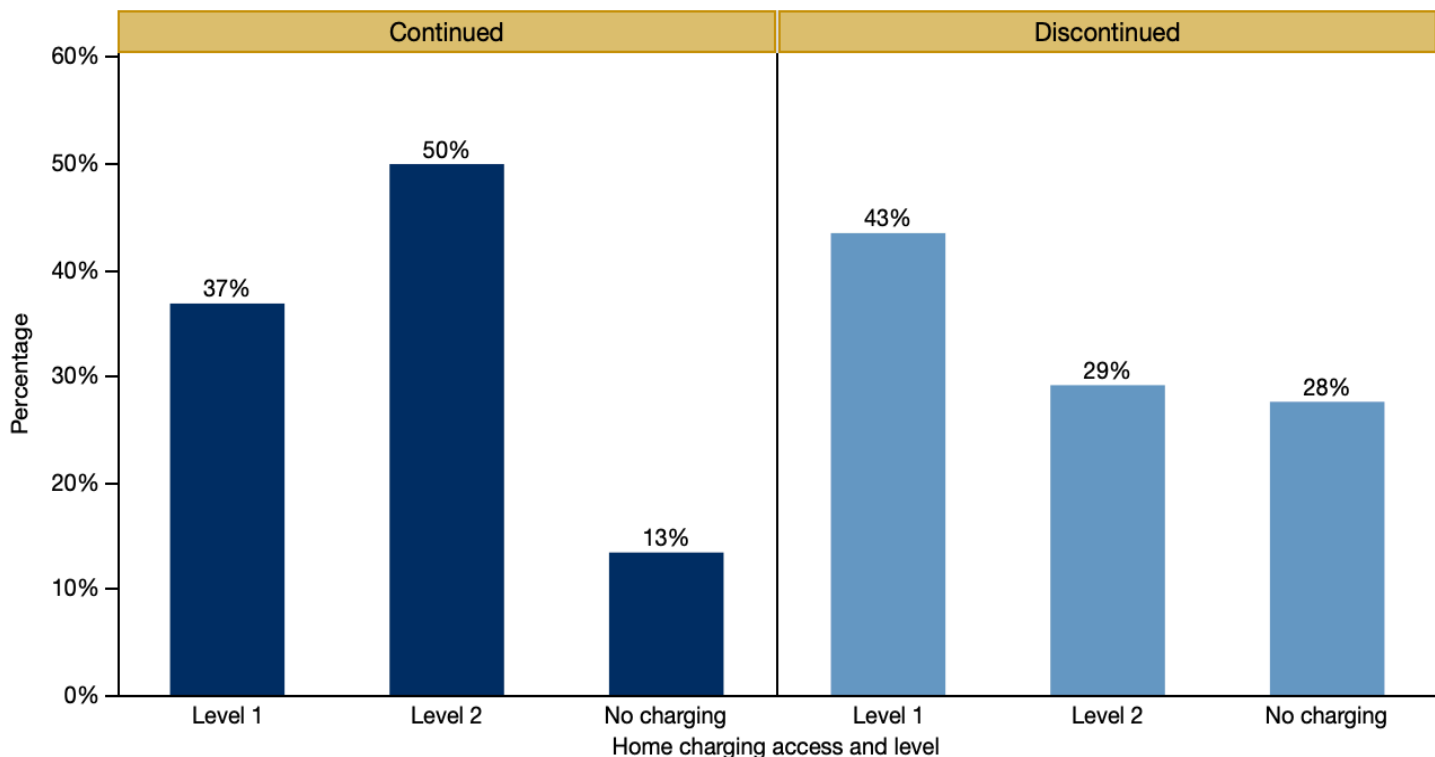


Figure 1. Percentage of those who continued or discontinued PEV ownership who have access at home to a level 1 charger, level 2 charger, or no charger.

## Policy Implications

PEV discontinuance is occurring concurrently with increasing consumer reliance on purchase incentives, stagnant consumer awareness of PEVs, and the need to expand the market beyond early adopters to lower income consumer groups. These issues present challenges in meeting California’s 100% zero-emission vehicle sales goal. Solving them may require purchase incentives that are persistent (e.g. a revenue-neutral feebate program), greater focus on home charging access for those that don’t have it, more efforts to engage consumers in the electric vehicle transition, and consideration of how to encourage automakers to bring lower-cost, long-range BEVs to the market. Finally, more research is needed to understand why female consumers and households with fewer vehicles are less likely to purchase a PEV in the first place and more likely to discontinue PEV ownership.

## More Information

This policy brief is drawn from “Discontinuance Among California’s Electric Vehicle Buyers: Why Are Some Consumers Abandoning Electric Vehicles?,” a report from the National Center for Sustainable Transportation, authored by Scott Hardman and Gil Tal of the University of California, Davis. The full report can be found on the NCST website at <https://ncst.ucdavis.edu/project/discontinuance-among-californias-electric-vehicle-buyers-why-are-some-consumers-abandoning>.

For more information about the findings presented in this brief, contact Scott Hardman at [shardman@ucdavis.edu](mailto:shardman@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.

Visit us at  
[ncst.ucdavis.edu](http://ncst.ucdavis.edu)

Follow us:

