

# Consumer Awareness of Plug-in Electric Vehicles: A Study of Sacramento

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## Issue

California has ambitious goals for transitioning to cleaner vehicles. In 2012, California set a target of 1.5 million zero-emission vehicles (ZEVs) on the road by 2025 and, in 2018, set a target of 5 million ZEVs on the road by 2030. However, Californians are largely unaware of the state's efforts to dramatically increase ZEV adoption [1]. From 2014 to 2017, consumer awareness, knowledge, and purchase considerations of ZEVs in California did not change. This is despite significant state investments in ZEV purchase incentives, a doubling of charging stations and vehicle models for sale, and an increase in the ZEV market share from 3.3% of new car sales in 2014 to 5% in 2017.

Achieving California's ambitious ZEV targets will require a substantial increase in the number of consumers who go through the sequential stages of adoption. First, consumers must be aware the vehicles exist; then they need to become more knowledgeable of the pros and cons of the vehicles, including, but not limited to, available incentives (both monetary and non-monetary) and the availability of charging infrastructure. They will then consider purchasing a ZEV by weighing the pros and cons before finally making a decision.

## Key Research Findings

To better understand the interplay between consumer awareness, local initiatives and policies, and plug-in electric vehicle (PEV) adoption, researchers at the Plug-in Hybrid & Electric Vehicle (PH&EV) Research Center at UC Davis assessed consumer interest in purchasing a PEV. (PEVs, a subset of ZEVs, include plug-in hybrid vehicles [PHEVs] and battery electric vehicles [BEVs].) The researchers administered a household survey in the county of Sacramento and analyzed data on PEV sales and trends in the region. This assessment will be used as a baseline for future studies to measure the impact of current and future activities and investments in the region (including the \$44 million investment by Electrify America) on consumer awareness and PEV market growth. Highlights from the baseline assessment are as follows.

The Sacramento region is one of the leading PEV markets in the United States but has lower PEV availability than other California urban areas. In 2018, 3.5% of new vehicle sales in the City of Sacramento were PEVs [2]. In addition, there were around 10,580 registered PEVs in the Sacramento Area Council of Governments (SACOG) region by the end of 2017. In 2018, 295 public charging stations were located in the SACOG region (45 of which were DC fast chargers) [3], amounting to 28 locations per 1,000 PEVs, and 0.30 locations per 1,000 households. However, at the end of 2017, the percentage of cars on dealer lots that were PEVs was lower in Sacramento (2.3%) than in other California cities (7% in San Jose, 3.8% in San Francisco, and 3.3% in both San Diego and Los Angeles).

Consumer awareness of PEVs in the Sacramento region is moderate. 50% of consumers had seen electric vehicle-related advertising, 15% were aware of electric vehicle "Ride

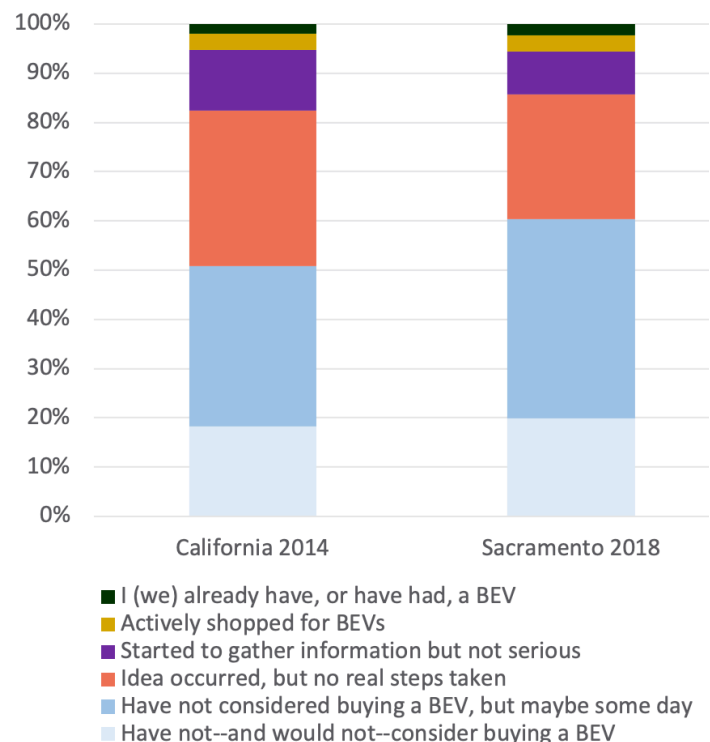


Figure: Answers to "Have you considered buying a BEV for your household?" for both the California statewide survey conducted by the PH&EV Research Center in 2014 and the Sacramento region survey conducted by the PH&EV Research Center in 2018.

& Drive” events held in the region, 47% knew of the California Clean Vehicle Rebate (CVRP), and 27% were aware of the Sacramento Municipal Utility District (SMUD) purchase incentive. Of the survey respondents, 40% could name a PHEV for sale in the United States, and 50% of respondents could name a BEV.

**Despite moderate levels of awareness, the number of consumers in Sacramento considering the purchase of a PEV is low.** The percentage of consumers considering a BEV purchase in the Sacramento region in 2018 was no higher than it was in a 2014 survey of Californian consumers (Figure). The percentage of consumers who had “Actively shopped for BEVs” (the gold portion of the graph in Figure) did not change from 2014 to 2018. Also, the number of consumers who “Started to gather information but [were] not serious” (purple portion of the graph) did not increase. Data on the consideration to purchase a PHEV showed the same trend.

Individuals who have considered buying a PEV are a small, self-selecting group of consumers. These consumers are self-motivated to find information about PEVs on the internet, have good knowledge of the vehicles (including how they are refueled), know someone by name who owns a PEV, and are enthusiastic about PEVs in general.

## More Information

This policy brief is drawn from the research report “Understanding the Impact of Local Policies and Initiatives on Plug-In Electric Vehicle Adoption - An In-Depth Study of the Sacramento Region,” prepared by Scott Hardman, Nora Jang, and Dahlia Garas with the Plug-in Hybrid & Electric Vehicle Research Center located at the Institute of Transportation Studies at the University of California, Davis. The report can be found at <https://escholarship.org/uc/item/2zc5c6hn>.

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

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<sup>1</sup> Kurani K, Hardman S. *Automakers and Policymakers May Be on a Path to Electric Vehicles; Consumers Aren't*. GreenLight Blog 2018.

<sup>2</sup> Slowik P, Lutsey N. *The Continued Transition to Electric Vehicles in US Cities 2018*.

<sup>3</sup> Alternative Fuels Data Center. *Maps and Data 2018*. [https://afdc.energy.gov/fuels/electricity\\_locations.html#/find/nearest?fuel=ELEC](https://afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC) (accessed October 7, 2018).

<sup>4</sup> Turrentine T, Hardman S, Kurani K, Allen J, Beard G, Figenbaum E, et al. *Driving the Market for Plug-in Vehicles: Increasing Consumer Awareness and Knowledge 2018.4*.

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