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Incentives for Plug-in Electric Vehicles Are Becoming More Important Over Time for Consumers

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# Incentives for Plug-in Electric Vehicles Are Becoming More Important Over Time for Consumers

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## Issue

Federal and state governments are offering incentives to those who purchase or lease plug-in electric vehicles (PEVs), which include both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Policymakers are beginning to consider the phase-out of these incentives and how a phase-out might impact PEV market growth. This brief highlights new research on the importance of incentives to consumers over time, based on survey data from 14,000 PEV-owning households in California between 2010 and 2017, collected and analyzed by the Plug-in Hybrid & Electric Vehicle Research Center at UC Davis. The PEV incentives included as part of this research are those currently available to Californian consumers: high occupancy vehicle (HOV) lane access; the US federal tax credit, which offers up to \$7,500 to PEV buyers; and the California Clean Vehicle Rebate Project (CVRP), which offers \$1,500 for a PHEV, \$2,500 for a BEV, and an additional \$2,000 for low-income consumers.

## Key Research Findings and Insights

Phasing out incentives for PEVs could be damaging to the market, as there is a large and growing group of consumers who would not purchase a PEV without incentives. The survey of PEV buyers showed that federal incentives for PEVs were more important in 2016 than in

2010. Survey respondents were asked “How would your decision to purchase the vehicle change if the federal incentive were not available?” If they would purchase the same vehicle, then they could answer “No change,” which would indicate that removing incentives would not impact their purchase decision. The number of respondents who selected “No change” decreased with each successive year (red line in Figure), even when controlling for demographic factors, such as income and age. If incentives were not

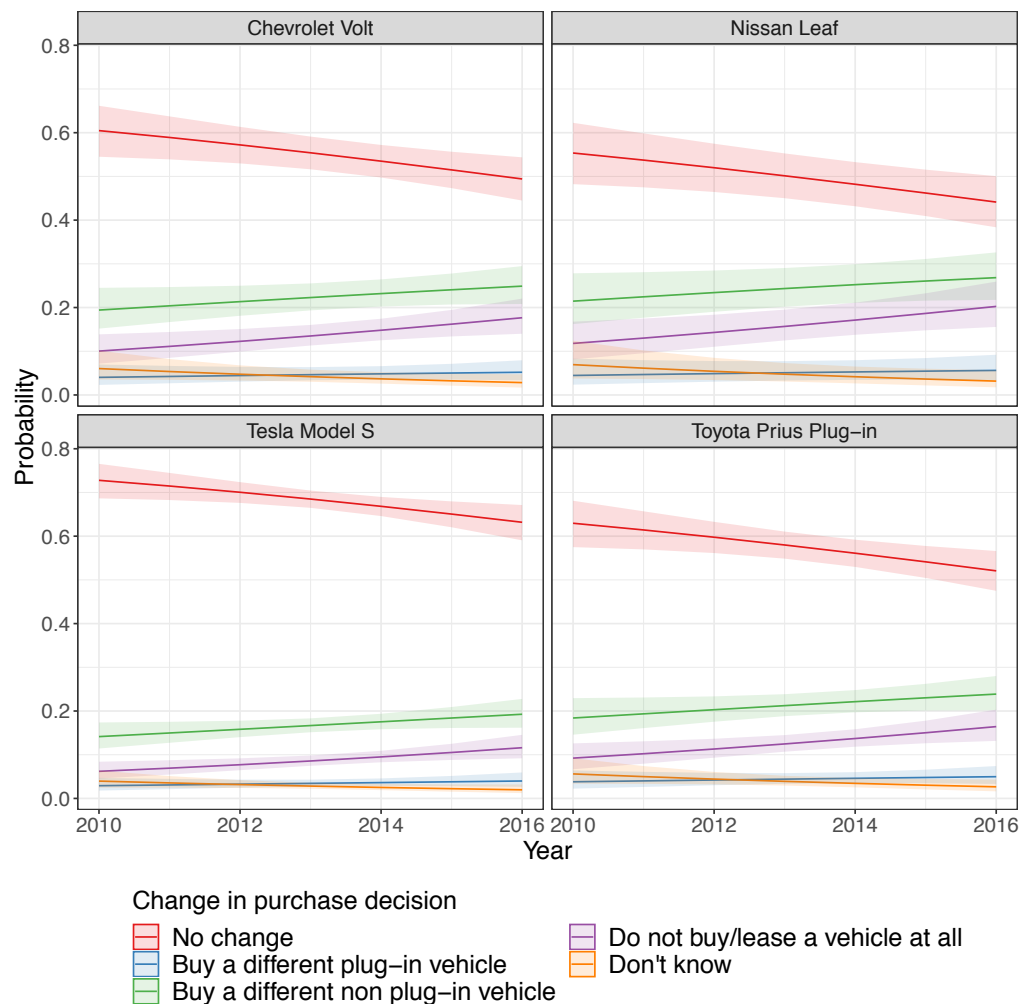


Figure: Probability, over time, of how the average owner of a specific PEV model would change their purchase decision if a federal tax incentive were not available. The probability of PEV owners stating they would make “No change” in their purchase decisions if federal tax incentives were not available (represented in red) has consistently decreased over time, indicating that removing the tax credit would lead to a larger impact in later years.

available, the proportion of PEV buyers who would NOT have purchased their vehicles was higher in 2016 than in 2010. This suggests the PEV market has become more reliant on incentives as time has passed.

**The federal tax credit, California CVRP, and HOV lane access are the most important incentives for PEV buyers in California.** PEV buyers report these incentives as being the most important relative to other incentives (such as discounted parking or home charger installation support), when purchasing their vehicles.

**Not all PEV buyers are the same and they perceive the importance of incentives differently.** When considering the effect of restricting incentives (such as the CVRP in California, which limits incentives for high-income earners), it is important to consider the segment of consumers who would be affected. In analyzing the survey results, the researchers classified electric vehicle buyers into clusters based on how important the incentives were to them and then analyzed what demographic characteristics were associated with these clusters. Clusters that tended to find incentives important generally consisted of younger, lower-income households. Clusters that stated incentives were unimportant typically consisted of higher-income households and households more likely to own a Tesla Model S.

**The importance of incentives differs among vehicle models.** Incentives were more important for buyers of lower priced electric vehicles (see Figure). For example, if incentives were not available in 2016, then only 40% of Nissan Leaf buyers would still have purchased their BEV compared to over 60% of Tesla Model S buyers.

## More Information

This policy brief is drawn from the research report “An Examination of the Impact That Electric Vehicle Incentives Have on Consumer Purchase Decisions Over Time,” prepared by Alan Jenn, Jae Hyun Lee, Scott Hardman, and Gil Tal with the Institute of Transportation Studies at the University of California, Davis. The report can be found here: <https://escholarship.org/uc/item/0x28831g>.

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

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