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**Title:** What vehicles are electric vehicles replacing?

**Abstract:** As public investment in electric-vehicle (EV) deployment continues to grow, a greater understanding of the impacts of that investment is needed. A considerable amount of analysis has examined EV impacts in terms of the emission performance of the EVs deployed, for example under a wide range of electricity-generation conditions. Equally important but less-studied components of the impacts of EV deployment stem from what would have happened had a given EV not been deployed. Complete knowledge of such "counterfactual behavior" can be difficult to ascertain, but a key starting point is an understanding of the vehicles being replaced by EVs. This investigation aims to enhance that understanding by addressing such questions as: "What vehicles are being replaced by rebated EVs in California?", "Are EVs just replacing other clean vehicles?", and "Are the vehicles EVs are replacing changing over time?". To characterize the vehicles being replaced by rebated EVs in California, this investigation draws upon survey data collected by the Center for Sustainable Energy on behalf of the California Air Resources Board's Clean Vehicle Rebate Project (CVRP), which provides rebates to California consumers and organizations for the purchase or lease of light-duty plug-in-hybrid, battery, and other EVs. It examines over 40,000 responses weighted to represent approximately 185,000 project participants to survey questions about the vehicle replaced by the consumer's rebated EV. Specifically, it utilizes questions related to vehicle replacement rates (vs. additions to the household fleet), what vehicles were replaced, and, for recent cases, the factors that influenced these decisions and what purchase decisions would alternatively have been made had CVRP rebates not been available. This analysis paints an overall picture of EVs replacing older, more polluting vehicles at a high rate. The majority of replaced vehicles are still conventional gasoline vehicles, while replacement of older EVs (and thus generation of used EVs for more used-car markets) slowly becomes more common over time. Collectively, the findings: 1) specifically enable more detailed assessment of the emission and market benefits of the California rebate program, 2) inform assessment of the impacts of EV deployment in other contexts, and 3) provide broader insights into an evolving EV market.