

behavior, energy & climate change
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Who Is Buying Plug-in Vehicles in California?

Exploring the Impact of Hybrid Vehicles and Solar Panels

Gil Tal

Michael Nicholas

Justin Woodjack

UCDAVIS UNIVERSITY OF CALIFORNIA

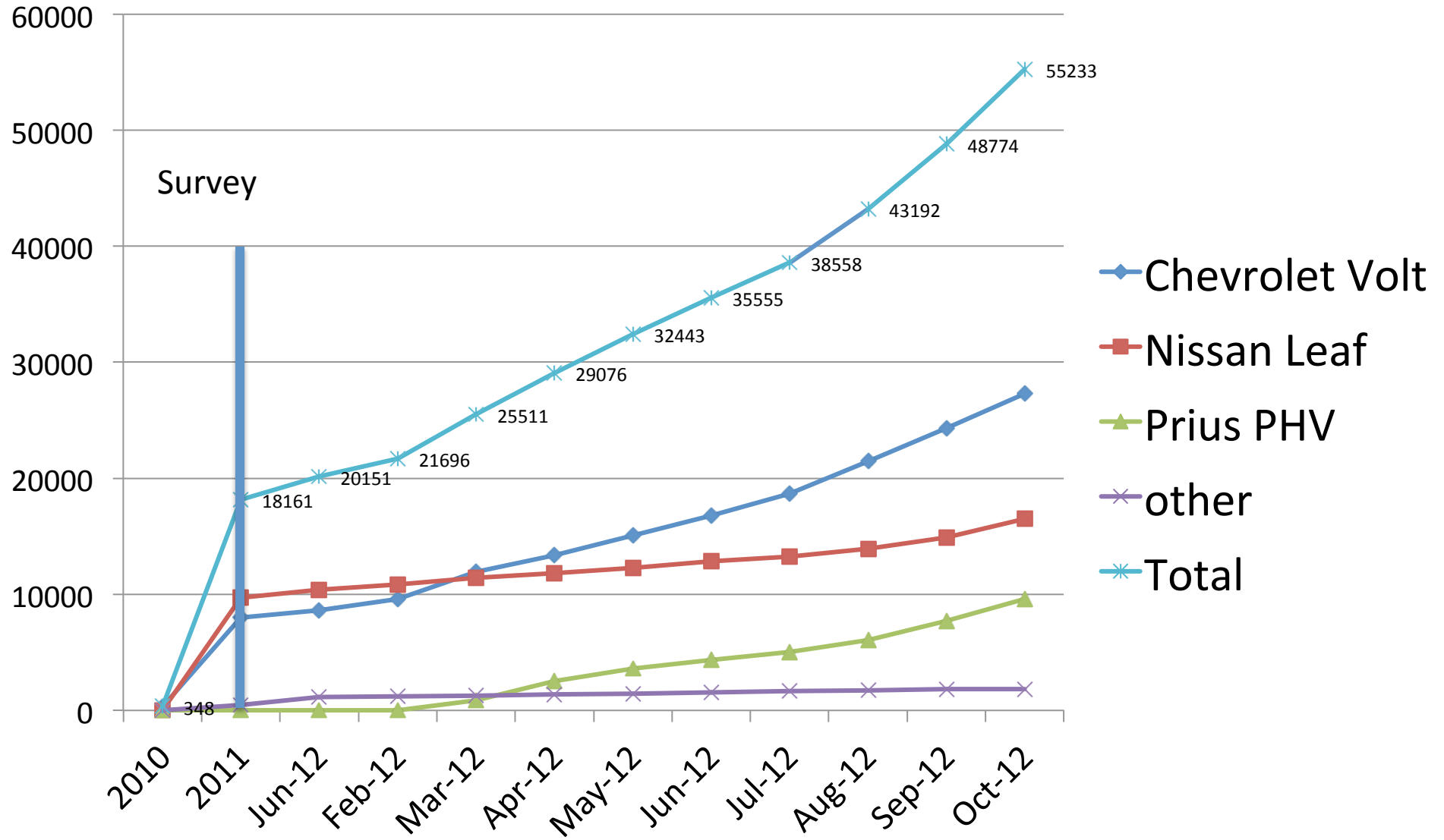


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of the Institute of Transportation Studies

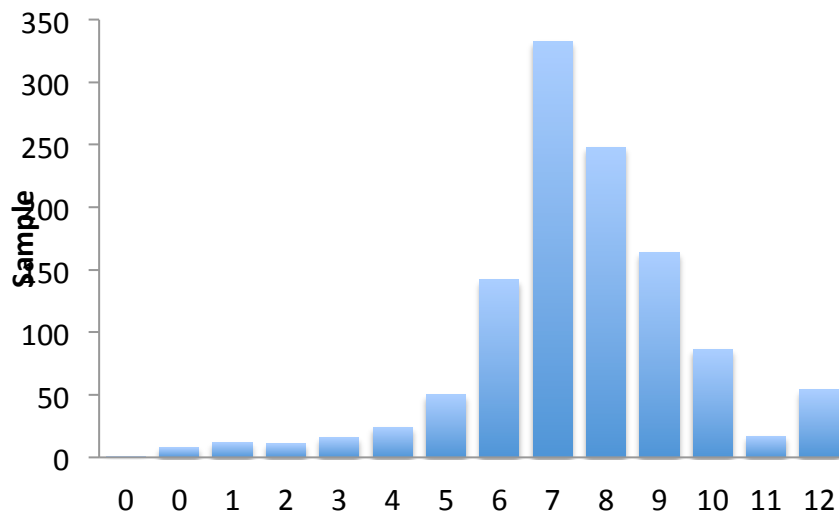
US EV Market



- EV project in San Diego (Ecotality)
- State rebate program (CCSE)
- Data collected February-March 2012

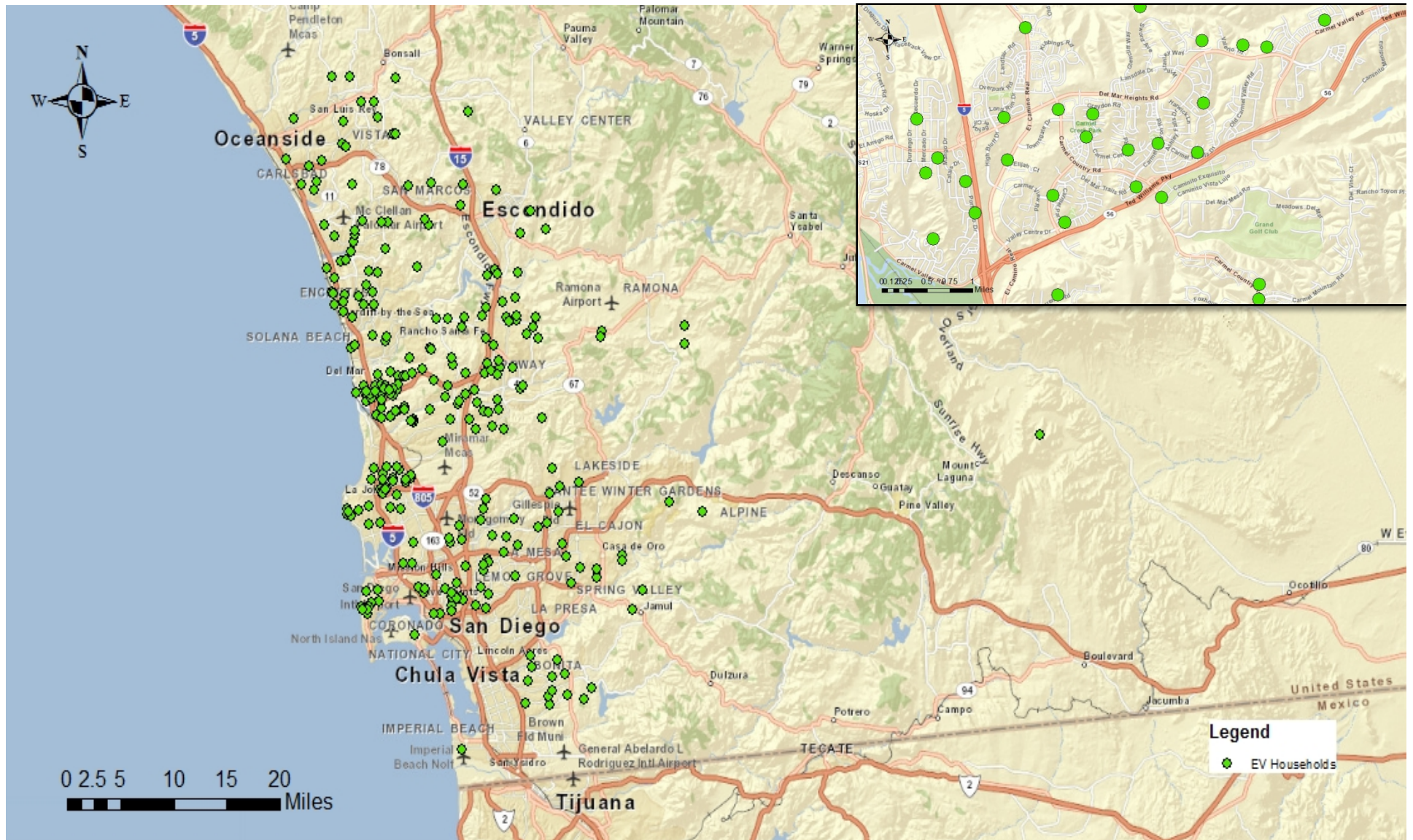


Survey	Leaf	Volt	Tesla
San Diego	312	24	0
State	836	1	25
Total	1151	25	25



CA Sample N=1201

Nissan LEAF Vehicle Distribution



Innovators or Early Adopters

- 76% wait for the car up to 18 months
- Average waiting time 6 months
- 72% buy a LEAF, only 28% lease it
- 60% Lease a Volt but N=25
- 9.1% of LEAF owner have another Nissan

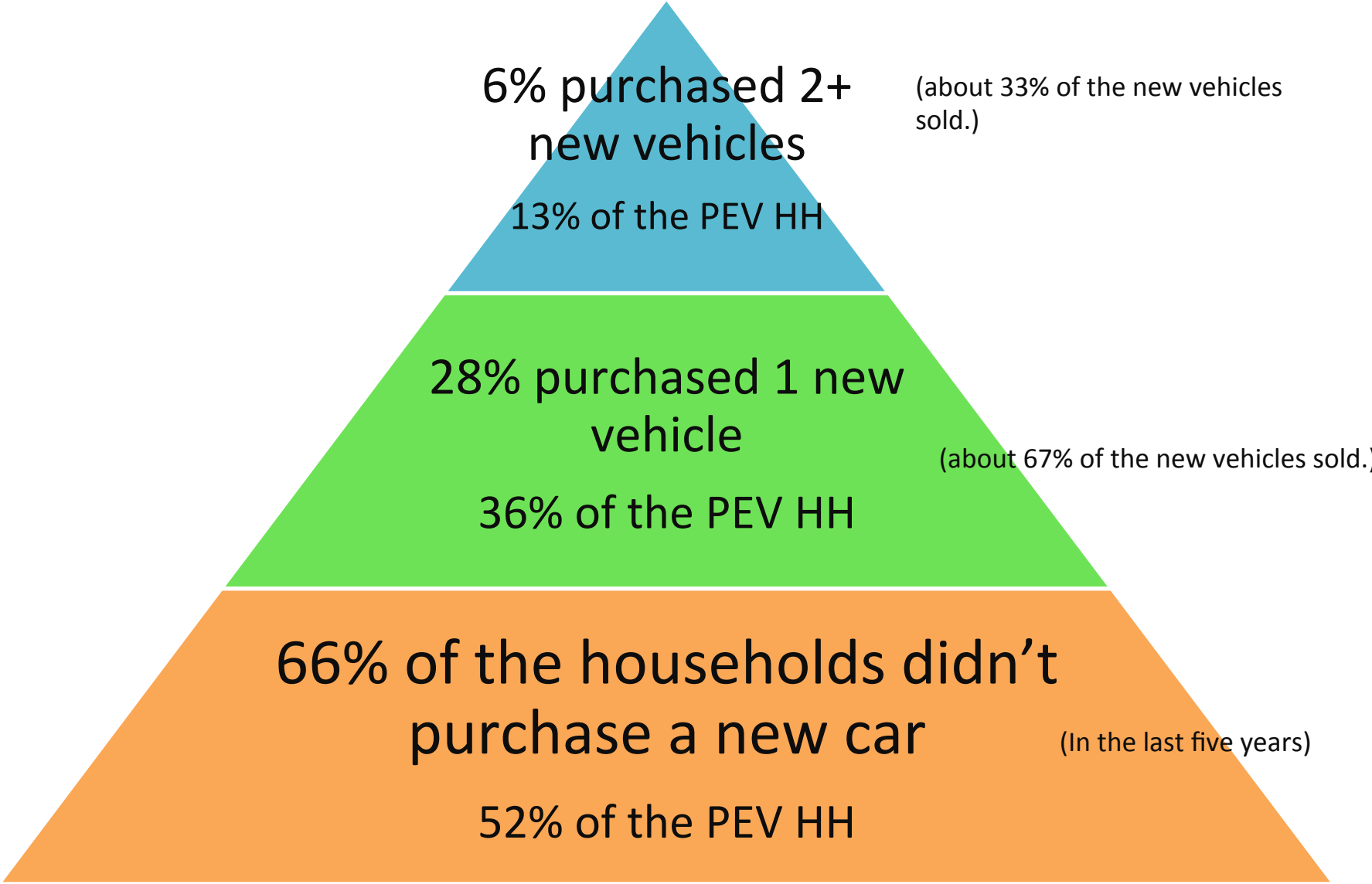


Households Characteristics

- 83% have yearly income higher than \$100K
 - 46% incomes is higher than \$150K
 - 16% decline to state.
- 96% live in single family House
- 96% own their house
 - 1% rent in SD
 - 5% rent in other areas
- 42% have solar panels
 - 18% consider installation
 - 40% have no plan to install
- Average Household size 2.7

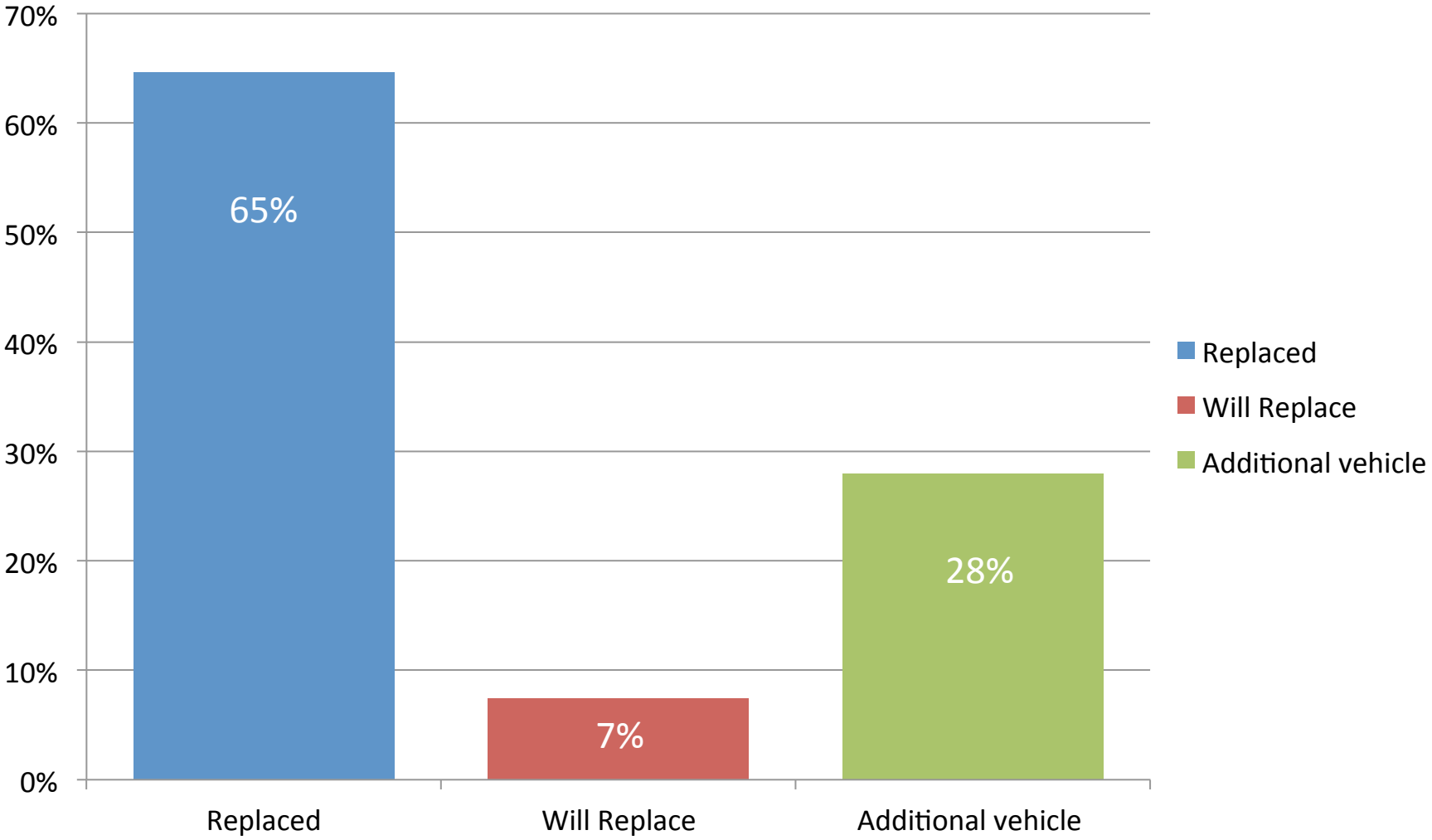


A Small Percentage of Californians are Responsible for Most New Car Purchases

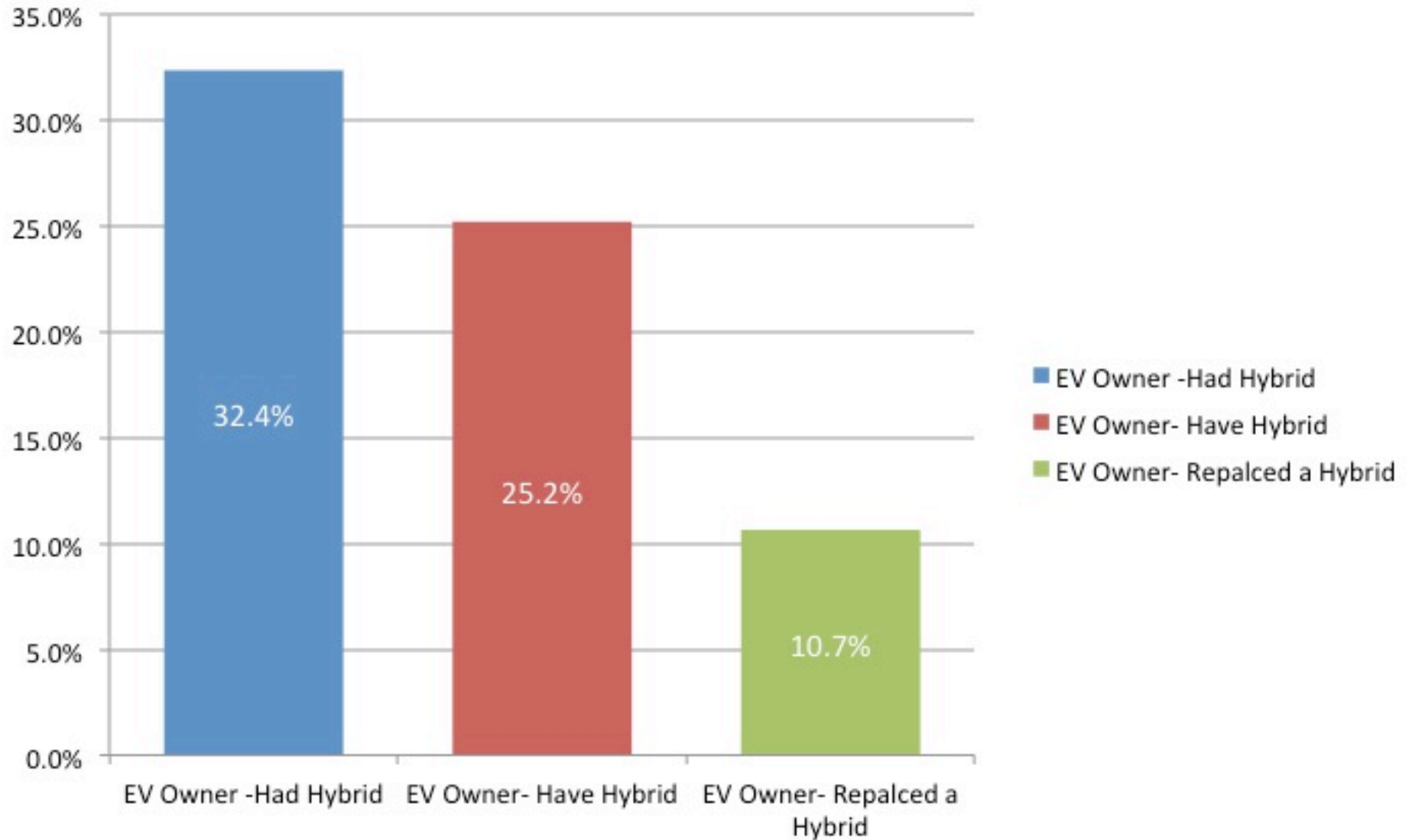


Household Fleet Changes With the New EV

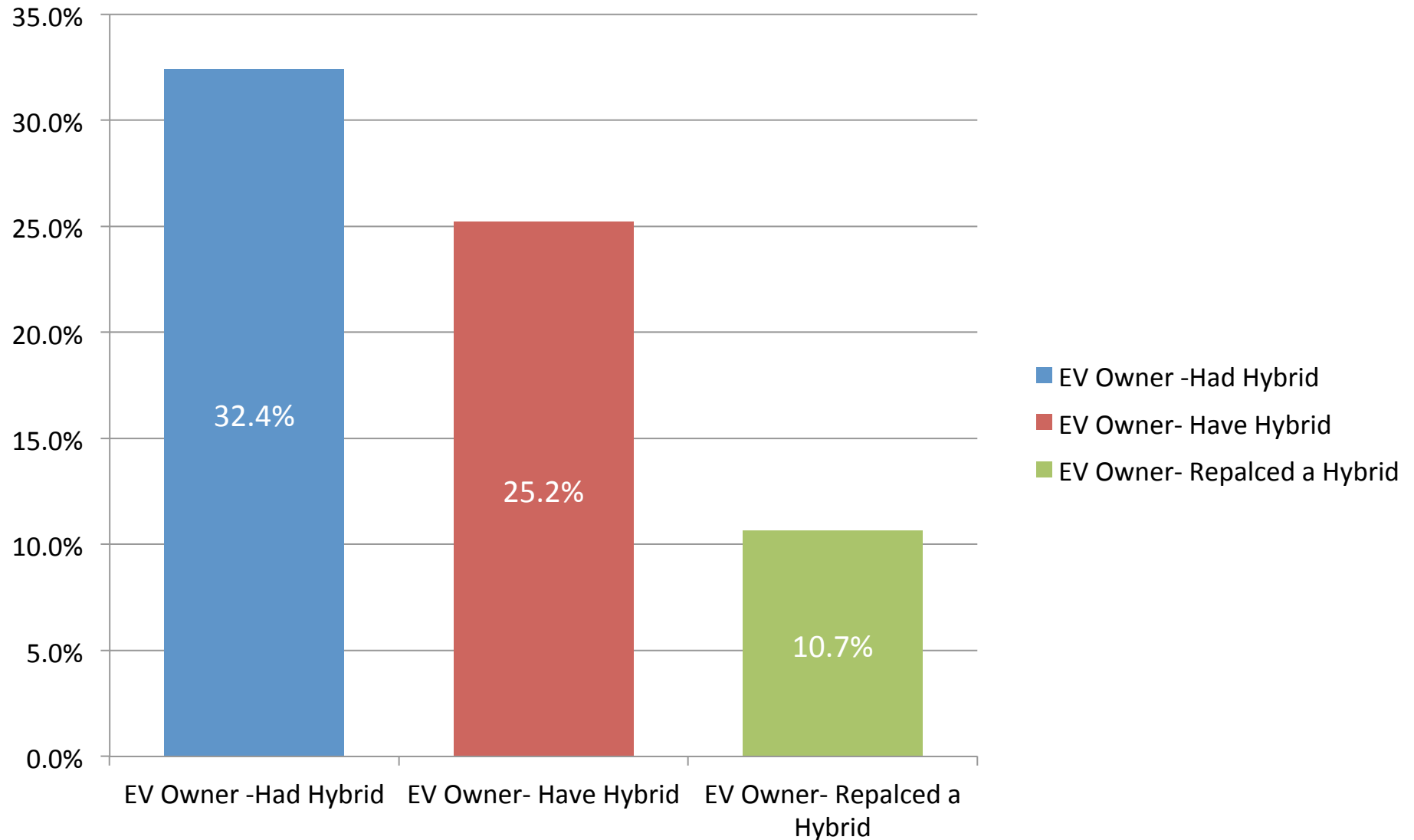
"Vehicle Change"



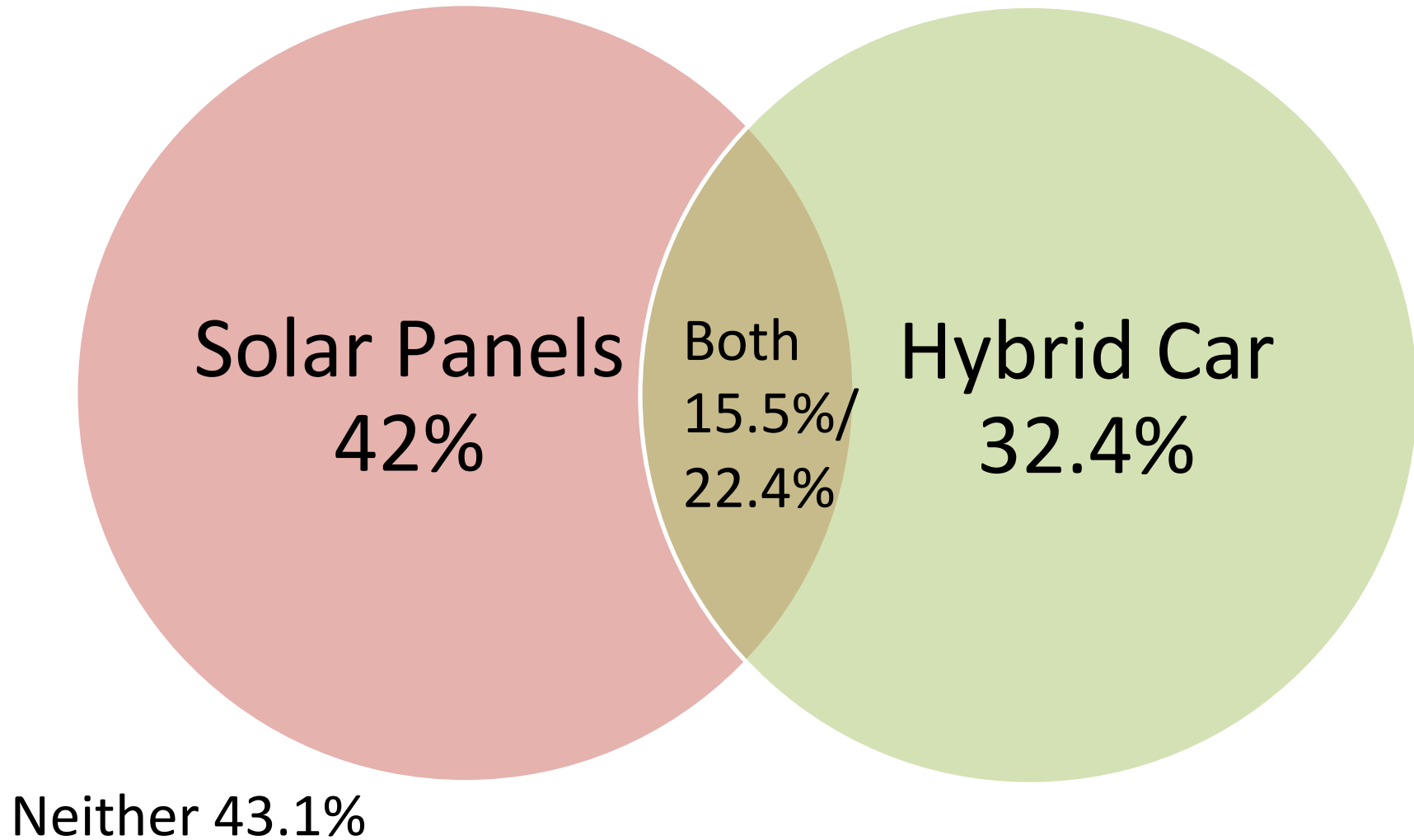
Hybrids May Serve as a Gateway to Plug-ins but they are not replaced by the Leaf



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EV Owners Make Long-term Pro Environment Investments



Comparison of Hybrid or Solar Customers to Others

Hybrid and or Solar	Neither
Higher income \$145K+	High income \$138K+
HH Cars= HH Drivers	More cars than drivers
Buy not lease	Buy not lease
69% Early orders	65% Early orders
98% Own their house	93% Own their house
98% Single family house	95% Single family house
64% EV commuters	55% EV commuters
More of both in the bay area 19%	More in San Diego 50%

Consumers comments on Solar and EV

- I am seriously considering solar in addition now that the EV has increased load enough to make it economically viable in the near term.
- We knew when we had the solar system installed that eventually we'd have an electric car, so we haven't had a bill for two years running now. We will always over produce until we get a second electric car.
- Our net metering, so far, has zeroed out any electric bill due at the annual "True Up" Settlement period. This next December will more accurately reflect how the LEAF is impacting the electric bill when we get ONE FULL YEAR of using the Leaf incorporated into the SDG&E bill.
- Even with only one vehicle charging at night his electric costs are as high monthly as my hybrid gas costs, and he drives his only slightly less than I do mine. And that includes the fact that we already had enough solar power at home to cover out annual costs before purchasing the Tesla. I worry about the effectiveness of Electricity in terms of economy.
- Suggestion: Solar powered charging stations.

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CONCLUSIONS

- PEV Consumers are similar to new car buyers in general, with
 - Higher income
 - More hybrids
 - More solar panels
- Not all of the first buyers can be classified as pent-up demand
- Solar panels and hybrids are highly correlated with EV ownership. But is it
 - Pro environment behavior?
 - Long term investment?
 - Technology early adoption?
- Policy questions:
 - How to sell more EVs to solar panels owners?
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 - What about the rebound effect (induced demand)?

Thank you
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