



September 16, 2011

California Energy Commission
Dockets Office MS-4
Re: Docket No. 11-IEP-IL
1516 Ninth Street Sacramento, CA 95814-5512
Via email docket@energy.state.ca.us

DOCKET

11-IEP-1L

DATE Sept 16 2011

RECD. Sept 16 2011

Comments of the California Center for Sustainable Energy on the California Energy Commission's *Draft Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report.*

The California Center for Sustainable Energy ("CCSE") respectfully submits the following comments in response to the California Energy Commission's Draft Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report.

Executive Summary

The San Diego Region is at the forefront of plug-in electric vehicle (PEV) deployment with the highest per capita amount of PEV purchases and electric vehicle supply equipment (EVSE) installations in the United States. CCSE has been actively involved in these efforts as the administrator of California's Clean Vehicle Rebate Project (CVRP), the regional lead for EV readiness grants, as well as the manager and host of a regional PHEV emerging vehicle technology demonstration.

As a result of our work directly with early adopters of vehicle electrification technologies, we would like to offer some of our observations and analysis with respect to market drivers and policy barriers which, if left unaddressed, could inhibit future growth of this market.

- PHEV demand – CCSE has identified a critical rate structure barrier –lack of access to TOU pricing for PHEV owners – as a potential impediment to the growth of PHEVs going forward.
- BEV Demand – Extending the benefits of BEVs beyond early adopters will require commensurate growth in public access charging. Based on the San Diego region's experience to date, even with subsidized public-access EVSEs, there are still many challenges in making the case for commercial EVSE installation. If not properly addressed, CCSE believes that slower than expected growth in commercial/public EVSE installations will inhibit future BEV demand.

PHEV Market Demand

The IEPR PHEV forecasts outlined on page 73 show strong adoption rates of PHEVs, especially as compared to BEVs. CCSE believes that PHEV's offer a compelling alternative to BEVs based on price and range and could drive future growth of the EV category. However, CCSE believes that in order for this to happen, California's utility rate structure needs to be amended for PHEV consumers.

While the State of California is strongly committed to incentivizing PHEV purchases through state rebates (\$1,500) and HOVs access, the rationale for these incentives is based on the assumption that vehicle owners will charge at home and that charging at home is less expensive than conventional gas fueling. CCSE analysis shows that based on the current utility rate structure and marginal costs for





residential “fueling” it will not be cheaper or more convenient for many PHEVs owners to charge at home.

The source of this analysis came from CCSE’s participation in a Toyota PHEV demonstration using the Plug-In Prius and dozens of San Diego drivers over the past 12 months. As a result of our analysis, CCSE determined three likely scenarios related to PHEV charging behaviors:

Implications for PHEV adoption in California

- To extend PHEVs beyond early adopters, a critical driver will be the real costs for consumers to operate them vs. conventional gas powered vehicles. CCSE’s analysis concluded that the cost to plug in and “fuel” a Prius PHEV equivalent to \$3.75 per gallon is \$0.29 per kWh. CCSE determined that the marginal electricity rate for majority of Prius PHEV owners would likely be \$0.27 - \$0.40 per kWh. Adding PHEV load to residential use will push marginal rates to \$0.27 - \$0.40 for most consumers, making the economic case for fuel savings and PHEV purchase more difficult and could impact future demand.
- The CEC and many other forecasters are assuming that the majority of PHEV will be charged at home. However, based on CCSE’s analysis of the Toyota Plug-in Prius demonstration project, 95% of Prius PHEV owners are not likely to have a Level 2 residential charging, separate utility EV-only-meter, or a sub-meter. As a result, owners will not have access to utility EV-TOU rates, making PHEVs more expensive to fuel with electricity than with gasoline.
- The environmental benefits of PHEVs vs. HEVS would be decreased if consumers choose not to charge at home.
- CCSE believes it is important to encourage workplace charging to enable PHEV adoption and to capture the economic and environmental benefits of PHEV ownership. Because of the limited all-electric range of PHEV’s, access to workplace charging essentially doubles the size of the battery for a typical daily commute, thus doubling the economic and environmental benefits of using electricity as a transportation fuel.



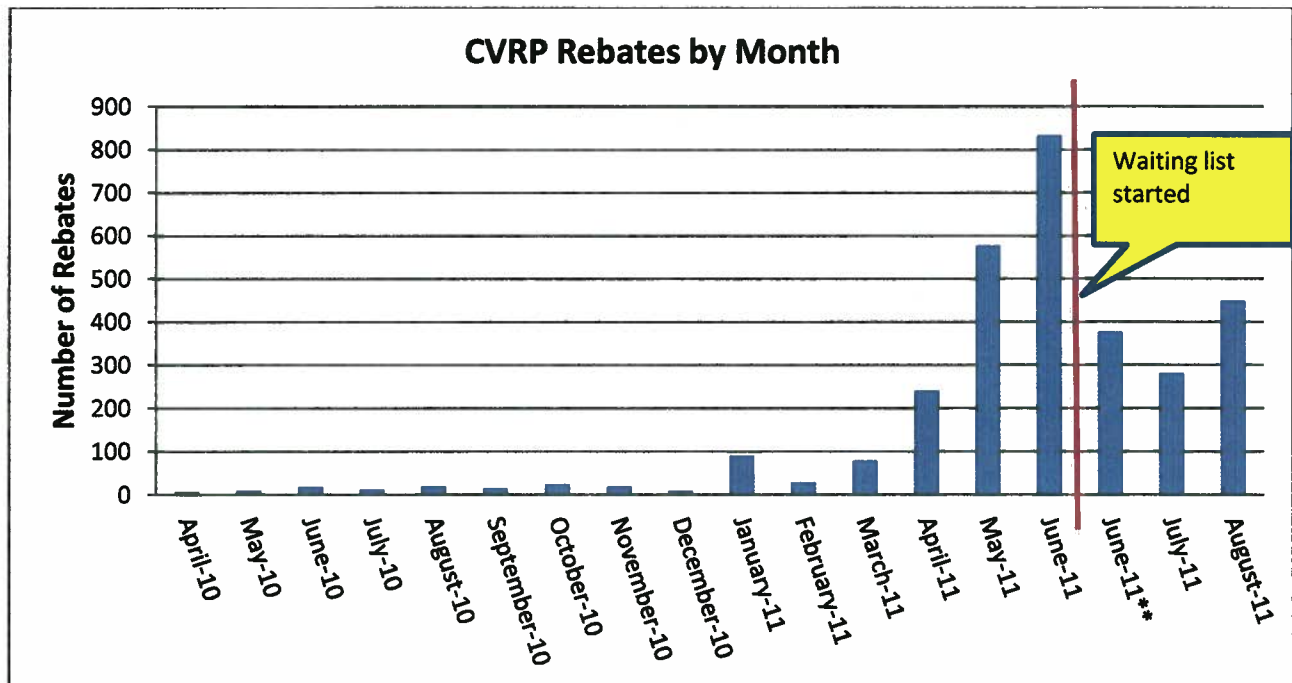


SDG&E	<i>Tariff Name</i>	DR
	Requirements	Domestic Residential
	Rates	Tier 1 – \$0.13 Tier 2 – \$0.15 Tier 3 – \$0.27-\$0.28 Tier 4 – \$0.29-\$0.30
SCE*	<i>Tariff Name</i>	D
	Requirements	Domestic Residential
	Rates	Tier 1 – \$0.13 Tier 2 – \$0.15 Tier 3 – \$0.24 Tier 4 – \$0.28 Tier 5 – \$0.31
PG&E	<i>Tariff Name</i>	E-1
	Requirements	Domestic Residential
	Rates	Tier 1 – \$0.12 Tier 2 – \$0.14 Tier 3 – \$0.29 Tier 4 – \$0.40 Tier 5 – \$0.40

BEVs

The San Diego market has one of the highest EV adoption rates. 98% of the CVRP rebates CCSE has administered have been for BEVs. To date, the CVRP has been oversubscribed, with over 1,900 consumers having already received a rebate, over 2,000 people on a waiting list, not including the thousands of people on the Nissan waiting list who have been waiting almost two years to receive an electric vehicle. Based on this oversubscription it is too early to determine the upper limit of “early adopter” demand.





Note: CVRP data current as of September 1, 2011. Second half of June, 2011 reflects waiting list.

Public Access Charging

CCSE believes that the public/commercial EVSE installations forecasted in the draft IEPR report do not match up with current or even optimistic estimates in our region. Currently, the CEC is forecasting that 1,500 commercial/public access charging stations will be installed in San Diego by the end of 2011. Stakeholders in this region have lowered the estimate to 1,000. While officially the new goal is 1,000, most regional stakeholders assume that 700-800 is a more realistic optimistic estimate for commercial/public access installations in San Diego by the end of 2011. Based on our extensive work within the region we have identified the following obstacles that have inhibited the installations of commercial EVSEs.

- A key assumption going into the EV project was that commercial hosts would see value in having a charger and it has been hard to convince them of that in the San Diego region. More work needs to be done to communicate the value proposition to potential hosts which is adding to the time involved for the overall decision process.
- Installations costs are higher than expected even with the subsidy.
- Time and costs are higher also due to the additional legal hurdles such as California real estate law and the need for multiple parties involved to be involved in commercial EVSE transactions (e.g. tenant/property owner/contractor and EVSE provider).





Center for
Sustainable Energy
CALIFORNIA

8690 Balboa Ave.
Suite 100
San Diego, CA 92123

main 858.244.1177
fax 858.244.1178
www.energycenter.org

- CCSE has identified commercial metering as a significant barrier for EV charging infrastructure development. Based on our analysis of existing commercial tariff rates, cost recovery for hosts operating public EVSE involves significant risk due to unpredictable demand charges. CCSE analysis shows that breakeven electricity costs for organizations hosting EVSEs on existing commercial tariffs will typically range from \$0.60 to \$3.50 per kWh. Potential ways to mitigate these issues include stand alone commercial metering for EVSE installations, customer energy management capability, and active EVSE operational management. Unfortunately, these options involve extra cost and/or capabilities that most hosts don't have.
- The current EVSE subsidy in the San Diego region will end with the EV Project and forecasting future growth in commercial EVSE is challenging for our region. The presence of a heavily subsidized EVSE project performed by one firm distorts the market demand in San Diego. It is hard to determine whether having a more competitive marketplace once the EV Project ends will drive down the cost of installation sufficiently to stay on par with current subsidized prices. Even so, CCSE believes the current challenges that *subsidized* EVSE installations are facing will persist.

While the IEPR has made an assumption that the majority of BEVs owners will charge at home, CCSE believes that growth in public access charging is critical to the future growth of BEVs. Consumers see value in being able to extend their range. Until range issues can be address through significant EVSE infrastructure development, the BEV market will be limited in the San Diego region to owners who can afford to operate their BEV as a second vehicle.

CCSE appreciates the opportunity to provide this information and welcomes comments and further discussion on these topics.

Sincerely,

Michael D. Ferry
Transportation Programs Manager
California Center for Sustainable Energy
8690 Balboa Ave, Suite 100
San Diego, CA 92124
Tel. 858-244-7287

Attachment: PHEV back-up analysis





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