

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking 13-11-007 To Consider  
Alternative-Fueled Vehicle Programs, Tariffs, and  
Policies

RULEMAKING 13-11-007  
(Filed November 22, 2013)

**Opening Comments of the California Center for Sustainable Energy on the  
Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and  
Policies**

**California Center for Sustainable Energy**

**December 13, 2013**

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**I. INTRODUCTION**

The California Center for Sustainable Energy (CCSE) is pleased to provide comments to the California Public Utilities Commission (Commission) regarding the Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies. The Ruling set December 13, 2013 as the date for opening comments. Thus, these comments are timely-filed.

CCSE provides responses to six questions posed by the OIR regarding Alternative Fuel Vehicle Rate Design Policy:

1. What is the utility experience to date regarding customer election to use PEV-specific tariffs?

2. What issues need to be considered when designing PEV rates for residential charging?
3. Should the Commission consider new rate tariffs for workplaces providing PEV charging?
4. How can residential and workplace PEV rates incentivize smart charging and allow controlled charging?
5. How should the Commission address demand charges for medium - and heavy-duty plug-in electric vehicles?
6. What other issues related to alternative fuel vehicle rates should the Commission address?

Further, CCSE provides responses to the question posed by the OIR regarding Financing:

1. Should the Commission direct the utilities to provide financing to customers to encourage PEV adoption? If so, what financing options should be considered?

## **II. CCSE RESPONSES REGARDING ALTERNATIVE FUEL VEHICLE RATE DESIGN POLICY**

### **1. What is the utility experience to date regarding customer election to use PEV-specific tariffs?**

Although CCSE cannot speak to specific IOU experiences with their customer base, CCSE has extensive and detailed knowledge of customers' decisions to use PEV-specific rates. As administrator of the Clean Vehicle Rebate Project (CVRP), CCSE conducts statewide PEV driver surveys on behalf of the California Air Resources Board (ARB) and has collected respondent data from over 8,000 PEV owners in California, including data regarding PEV owners' use of PEV-specific tariffs. As a result, CCSE has program-level experience with customers around PEV Time-Of-Use (TOU) rates and tariff options.

According to CCSE PEV owner surveys, adopters in California are using TOU electricity rates to charge their vehicles at a relatively high rate, (84% PG&E, 67% SCE, 84% SDG&E). These

statistics are for non-solar owners<sup>1</sup> (CCSE has observed that customers with PV were notably less likely to take advantage of discounted PEV charging rates, if offered).<sup>2</sup>

Other statistics indicate how TOU rates impact customer charging behavior. PEV owners utilizing TOU rates report fewer charging events in the 4:00pm to midnight period. This data indicates that PEV owners are reacting to the price signals associated with TOU rates by charging when electricity is least expensive.<sup>3</sup>

CCSE also administers the Plug-in Electric Vehicle Utility Customer Education Program (UCEP) in partnership with various stakeholders. The program enables PEV owners and interested consumers to research utility-specific costs and benefits related to available PEV tariffs. Additionally, UCEP assists customers with contacting utility representatives who can assist PEV owners with transitioning to PEV-specific rates.<sup>4</sup>

Based on UCEP experiences, customers sometimes seek additional information on TOU rates and monthly billing impacts based on EV energy consumption. CCSE receives approximately 50 inquiries per month related to PEV-TOU rates and utility PEV programs. Inquiries occur 1-2 months after an individual has purchased their plug-in electric vehicle, which is approximately when those customers would experience an increase in their monthly energy consumption and corresponding bill.

CCSE provides general education on PEV rates and, as a general practice, continued Marketing, Education and Outreach (ME&O) provides an opportunity to transition non-PEV

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<sup>1</sup> California Plug-In Electric Vehicle Driver Survey Results, May, 2013, at 15. Website: [http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California\\_Plug-in\\_Electric\\_Vehicle\\_Driver\\_Survey\\_Results-May\\_2013.pdf](http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California_Plug-in_Electric_Vehicle_Driver_Survey_Results-May_2013.pdf)

<sup>2</sup> California Plug-In Electric Vehicle Driver Survey Results, June, 2012, at 11. Website: [http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California\\_PEV\\_Owner\\_Survey\\_Report.pdf](http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California_PEV_Owner_Survey_Report.pdf)

<sup>3</sup> Ibid, at 16

<sup>4</sup> Electric Vehicle Utility Customer Education Program website: [http://energycenter.org/programs/utility\\_customer\\_education\\_program](http://energycenter.org/programs/utility_customer_education_program)

rate customers to a PEV-specific TOU rate. It is recommended that the Commission consider expanding ME&O activities (through IOUs or third parties), to build expanded customer awareness of PEV-specific tariffs. Future survey reports will continue to provide information on consumer awareness of PEV-specific tariffs.

**2. What issues need to be considered when designing PEV rates for residential charging?**

It is essential to keep the customer's needs in mind when designing PEV rates. These would include simple rate design, straightforward metering options for the customer, and provision of competitive low cost rate options.

It is also critical to assess the grid impacts of charging behavior. PEV rates should not encourage charging during the peak demand periods and should be priced accordingly. The rate structure should anticipate future (2020) utility load profiles, including the expected growth in the evening peak, as discussed in the CPUC Vehicle to Grid Integration (VGI) White Paper.<sup>5</sup>

The Commission should consider additional pilots to further detail performance parameters. Ideally, these pilots would produce findings around: 1) quantity of PEVs connected to grid, by hour; and 2) total energy grid draw, by hour. From these pilots, the Commission would be able to better identify the impact of new PEV rates on: a) mid-day and evening peak demand load, and b) impact on the projected 2020 peak generation demands.

The Commission should also take steps to assure that information on PEV rates is: 1) reaching the customer and 2) understood by the customer. To accomplish this, the Commission should consider mandating expanded ME&O activity by IOUs or a third-party, with mandatory

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<sup>5</sup> White Paper: Vehicle -Grid Integration (VGI), A Vision for Zero-Emission Transportation Interconnected throughout California's Electricity System, Energy Division, California Public Utilities Commission, October 2013, at 9.

program reporting to the Commission. This ME&O would increase awareness, and provide critical program feedback to the Commission.

**3. Should the Commission consider new rate tariffs for workplaces providing PEV charging?**

Yes, the Commission should consider new rate tariffs for workplaces providing PEV charging. A new rate tariff would be in alignment with recent legislative activity designed to accelerate PEV infrastructure, around PEV building code,<sup>6</sup> and PEV open charging access mandates.<sup>7</sup> Further, whereas current tariff design can work to dissuade businesses from adopting PEV infrastructure (due in part to energy costs and/or demand charges), a new workplace PEV rate tariff could lower company cost barriers, encouraging companies and PEV owners to consider expanding workplace charging as a cost-effective activity.

A March 2013 survey of PEV drivers identified that approximately two-thirds of PEV owners do not have access to workplace charging. Driver satisfaction with public charging infrastructure remains low (between 17% and 23%).<sup>8</sup> These trends indicate that workplace charging is generally underutilized, and has a lower level of confidence for PEV drivers.

The Commission needs to assure that workplace rate structures are not an impediment to businesses or PEV drivers. Workplace PEV charging rates should be simple, low cost, and akin to residential TOU rates. If the customer's experience is anything but a simple, seamless process, the result will be a negative experience and will likely inhibit deployment. Notably, demand charges are a major obstacle for large scale deployment of workplace EV

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<sup>6</sup> California Legislation: AB 1092 Levine

<sup>7</sup> California Legislation: SB 454 Corbett

<sup>8</sup> California Plug-In Electric Vehicle Driver Survey Results, May, 2013, page 6. Website: [http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California Plug-in Electric Vehicle Driver Survey Results-May 2013.pdf](http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California%20Plug-in%20Electric%20Vehicle%20Driver%20Survey%20Results-May%202013.pdf)

infrastructure. The Commission should consider exempting companies from demand charges until its aggregated workplace charging exceeds a certain amount.

As a proposed first step, the Commission should consider mandating that the IOUs implement a new workplace-specific PEV tariff pilot, to test company-side adoption of new PEV tariffs.

This pilot would serve to feed larger decisions around workplace PEV rates. This pilot should have mandatory program reporting to the Commission.

#### **4. How can residential and workplace PEV rates incentivize smart charging and allow controlled charging?**

To incentivize residential and workplace PEV rates, the Commission should maintain PEV rates at a lower or competitive rate to alternative charging options. In the aggregation model proposed in the CPUC Vehicle To Grid Integration White Paper,<sup>9</sup> smart charging will benefit from an open and user-friendly protocol, and should be in “real time” to the extent possible, to assure instantaneous market interaction between customers and rates.

Residential and workplace PEV rates should also be linked to “real-time” data on grid conditions, since the objective of smart and controlled charging is to incentivize behavioral changes in accordance with larger energy grid matters. Ideally, this would include linking smart charging and controlled charging to “grid condition signals”, or other similar systems, similar to those recommended by Cal ISO discussion papers.<sup>10</sup> This would seek to assure connectivity between PEV rates, incentives and system-wide energy management objectives.

The Commission should consider mandating the IOUs to set up pilots around smart charging and controlled charging that are linked to such devices and signals, for the purposes of gathering critical information in trial form. Further, the Commission should identify and

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<sup>9</sup> White Paper: Vehicle-Grid Integration (VGI), A Vision for Zero-Emission Transportation Interconnected throughout California’s Electricity System, Energy Division, California Public Utilities Commission, October 2013, at 20.

<sup>10</sup> Heather Sanders, California Independent System Operator, Smart Grid Technologies & Strategy, Enabling Price Responsive Demand, Discussion Paper, 1/5/2012, at 3.

evaluate the appropriate condition signals that currently exist, and how to leverage the existing CPUC knowledge base around Locational Marginal Pricing rates.<sup>11</sup>

**5. How should the Commission address demand charges for medium - and heavy-duty plug-in electric vehicles?**

The Commission should address demand charges for medium and heavy-duty PEVs by providing more demand charge exemptions, and study the grid impact of these exceptions. A demand charge exemption was provided by the CPUC to Foothill Transit.<sup>12</sup> More demand charge exemptions will influence fleets to consider expanded deployment of EV buses, and will work to avoid having demand charges limit adoption of the vehicles. The CPUC could leverage such an expanded effort to study the effects of the pilots on the energy grid (e.g. on systems such as distributors, transformers, etc.). This would provide critical data around bus charging behavior, and would ideally be examined in this or alternative CPUC regulatory proceedings.

**6. What other issues related to alternative fuel vehicle rates should the Commission address?**

The Commission should be made aware that there may be an inherent connectivity between alternative fuel vehicle owners and renewable energy sources. Specifically, according to CCSE survey data, 39% of surveyed PEV owners have solar photovoltaic (PV) panels installed on their homes, 90% have installed a residential charger, and 90% reside in a single family

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<sup>11</sup>California Public Utility Commission, Locational Marginal Pricing:  
[http://www.cpuc.ca.gov/PUC/energy/wholesale/01a\\_cawholesale/MRTU/01\\_lmp.htm](http://www.cpuc.ca.gov/PUC/energy/wholesale/01a_cawholesale/MRTU/01_lmp.htm)

<sup>12</sup> Rates and Electric Transit, CPUC Energy Division, Adam Langton, September 2013, at 9.  
[http://www.arb.ca.gov/msprog/bus/zbus/workshop/3c\\_Langton.pdf](http://www.arb.ca.gov/msprog/bus/zbus/workshop/3c_Langton.pdf)



detached home.<sup>13</sup> When evaluating PV ownership rates by utility type, CCSE observe that PEV owners located in IOU territories are statistically more likely to adopt PV. This could be due in part to the higher electricity rates paid by customers in IOU territories, particularly among those with consumption profiles that drive them into higher tiers.

### III. CCSE RESPONSE REGARDING FINANCING

#### **1) Should the Commission direct the utilities to provide financing to customers to encourage PEV adoption? If so, what financing options should be considered?**

Yes, the Commission should consider having the IOUs provide financing to address PEV charging-related barriers faced by customers, including consideration of on-bill financing. Although this would be a new level of support to the IOUs residential customers, historically, IOUs have provided such financing to commercial customers to conduct various energy efficiency upgrades. By expanding financing options to residential PEV customers, the IOUs could significantly reduce the up-front cost barriers to installing PEV charging infrastructure, including metering and EVSE.

Above all, directing the IOUs to provide some form of financing to a wider customer base would utilize existing IOU capability, and accelerate adoption of PEVs in the market. CCSE recommends close coordination with the existing IOU sub-metering pilots.

### IV. CONCLUSION

CCSE appreciates the opportunity to comment on this Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies. A robust and well thought-out

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<sup>13</sup>California Plug-In Electric Vehicle Driver Survey Results, May, 2013, page 5. Website: [http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California Plug-in Electric Vehicle Driver Survey Results-May 2013.pdf](http://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California%20Plug-in%20Electric%20Vehicle%20Driver%20Survey%20Results-May%202013.pdf)

R.13-11-007

VGI plan is essential to accelerate PEV adoption. CCSE looks forward to the continued opportunity to work with the Commission, utilities, and other stakeholders to implement a successful VGI strategy.

Respectfully Submitted,

December 13, 2013

A handwritten signature in black ink, appearing to read "Sachu Constantine". The signature is stylized and cursive.

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