R.09-08-009

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

FILED
04-09-13
04:59 PM

Order Instituting Rulemaking on the Commission's own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California's greenhouse gas emissions reduction goals.	RULEMAKING 09-08-009 (Filed August 20, 2009)

Comments of California Center for Sustainable Energy in response to the Assigned Commissioner's Scoping Memo and Ruling-Phase 4

California Center for Sustainable Energy

April 9, 2013

Sachu Constantine
Director of Policy
California Center for Sustainable Energy
9325 Sky Park Court, Suite 100
San Diego, CA 92123-1502
Tel: (510) 725-4768
sachu.constantine@energycenter.org

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I. INTRODUCTION

The California Center for Sustainable Energy (CCSE) is pleased to provide comments in response to the *Assigned Commissioner's Scoping Memo and Ruling-Phase 4* (Scoping Memo and Ruling). The Scoping Memo and Ruling set April 9, 2013 as the date for opening comments. Thus, these comments are timely filed.

CCSE provides responses to the following three questions posed by the Scoping Memo and Ruling in Section 2 regarding the Submetering Protocol Development Process:

1. What are the estimated utility costs of administering each phase of the pilot in the Energy Division's proposal? How should these costs be shared between electric vehicle service providers and the utilities?
2. The Energy Division's proposal includes two pilots, a Single Customer-of-Record pilot and a Multiple Customer-of-Record pilot. Should the results of the Single Customer-of-

Record pilot be used to determine the need to do the Multiple Customer-of-Record pilot?

3. How should the customer's experience with submetering be evaluated?

In addition, CCSE provides responses to the two questions posed in Section 3 of the Scoping Memo and Ruling regarding Utility Cost Recovery Policy for Electric Vehicle Residential Upgrades:

1. Should the current upgrade allowance associated with plug-in electric vehicles be continued, and if so, for how long?
2. What additional analysis is needed in order to better understand costs associated with residential service facility upgrades?

II. DISCUSSION OF QUESTIONS POSED IN SECTION 2 OF THE SCOPING MEMO AND RULING REGARDING THE SUBMETERING PROTOCOL DEVELOPMENT PROCESS

1. What are the estimated utility costs of administering each phase of the pilot in the Energy Division's proposal? How should these costs be shared between electric vehicle service providers and the utilities?

CCSE is not in a position to estimate utility costs of administration, but as a general principle, the costs of a pilot program are reasonably allocated to ratepayers who will benefit if a workable, cost-effective approach to submetering results. We look forward to proposals on cost-sharing from the EVSP market and the utilities.

2. The Energy Division's proposal includes two pilots, a Single Customer-of-Record pilot and a Multiple Customer-of-Record pilot. Should the results of the Single Customer-of-Record pilot be used to determine the need to do the Multiple Customer-of-Record pilot?

CCSE's short answer to the question is no. Both of these pilots, the single customer-of-record (SCOR) and the multiple customer-of-record (MCOR) should be implemented. Further CCSE recommends that these pilots be implemented in parallel.

CCSE argues that these pilots cannot be substituted one for the other. While one may inform the other, it is important to implement and evaluate both. In the current structure of these pilots, only the MCOR model shifts the responsibility of a utility grade submeter and the associated load to an Electric Vehicle Service Provider (EVSP) or a third party entity. As a result, the MCOR pilot also allows the third party or EVSP to separately tariff the plug-in electric vehicle (PEV) load utilizing lower-cost time-of-use (TOU) rates. While it has not been tested, we feel that third-party ownership of submeters that provide access to lower cost TOU rates has the potential to drive innovation in the market and reduce consumer barriers to entry. For example, the MCOR model may open the door for an EVSP or third party entity to establish a subscription based charging model that reduces the initial capital costs of purchasing and installing an Electric Vehicle Service Equipment (EVSE) in exchange for a flat monthly fee.

The example above highlights one of many potential outcomes that could be beneficial to expanding the PEV market. Therefore, we encourage the Commission to implement both pilots as it is important to test the customer experience and the feasibility of the MCOR and SCOR model. More importantly, this proceeding has been delayed several times; however the PEV market continues to expand. CCSE argues it is more appropriate to implement both rather than extend this timeline further. Further, CCSE is interested in working with the Energy Division as well as interested parties in this rulemaking to discuss, in greater detail, the implementation of these pilots.

3. **How should the customer's experience with submetering be evaluated?**

CCSE argues that for submetereing to be successful, the complete process from installation to billing needs to be easy to understand and come at a low cost to the customer. If customers

experience anything but a simple, seamless process, the result will be a negative experience and will likely inhibit deployment. Therefore, the overall customer experience should be evaluated based on the following four key factors:

1. Complexity of the installation and billing process
2. Consumer knowledge of the installation and billing process and the associated benefits
3. Capital cost associated with the submeter installation
4. Transactional cost related to the installation and billing process

Each pilot should be evaluated from a customer point of view. While it is important for the installation and billing process to be simple and straightforward, it is also critical that customers have a clear understanding of how all of this will work. In addition, customers will want to know why they should install a submeter. Thus, the pilots should also evaluate if customers clearly understand the benefits that result from greater access to TOU rates through a submeter in each of the proposed pilots. In addition to expanding the customer understanding of these benefits, it is also important for the pilots to identify what benefits are more important to customers. Further successful pilots will require little to no out of pocket expenses to customers. CCSE is happy to discuss how this can be accomplished with the Energy Division as well as interested parties to this rulemaking once more details are provided regarding how these pilots will be implemented.

III. DISCUSSION OF QUESTIONS POSED IN SECTION 3 OF THE SCOPING MEMO AND RULING REGARDING UTILITY COST RECOVERY POLICY FOR ELECTRIC VEHICLE RESIDENTIAL UPGRADES

1. Should the current upgrade allowance associated with plug-in electric vehicles be continued, and if so, for how long?

CCSE supports extending the cost recovery policy adopted by the Commission in D.11-07-029 related to residential service facility upgrade costs triggered by home-based PEV charging. Further, CCSE supports the recommendation from Pacific Gas and Electric

Company (PG&E) to extend the cost allocation policy for up to three years and to continue to gather input regarding infrastructure upgrade costs throughout this period. While early-adopters of PEV technology made individual purchase decisions, they are in effect carrying out California state policy, which explicitly calls for the deployment of PEVs and alternative fuel vehicles. Grid-modernization and the deployment of so-called smart grid technologies and capabilities are also explicit goals of state policy, and those same early-adopters should not be arbitrarily assigned costs before appropriate allocations have been determined. Furthermore, the PEV market is in its early stages with high marginal costs and the goal of policy here is to drive costs down until mass market adoption is feasible. Finally, while clusters of PEV deployment may trigger necessary upgrades, projected diffusion of these vehicles will remain modest over the next three years and the associated costs to ratepayers will be *de minimus* compared to overall distribution system requirements.

CCSE contends that infrastructure upgrades are necessary and part of larger state policy goals related toward increasing both residential distributed generation and the deployment of PEVS. Forward thinking state policies like SB 1 (Murray) and AB 118 (Nunez) have provided key incentives that encourage consumer adoption of these technologies that may necessitate infrastructure upgrades. As solar and PEV penetration increase, we should not be penalizing consumers that are reacting to these policy levers with additional costs. Additionally, upgrades are necessary as California moves toward a more modern, "smart" grid, which will benefit all utility customers. Therefore, at least initially, these costs should be socialized, not shifted to early adopters that are following the guidance of state policies.

Shifting infrastructure upgrade costs to PEV customers could potentially create a barrier to PEV adoption. The additional cost associated with a PEV and charging infrastructure continues to be a significant obstacle to expanding this market. Similarly, the marginal costs of these early upgrades may be significantly higher than the average cost of the upgrades in a more mature market or when grid modernization is implemented more comprehensively to

the benefit of all ratepayers. Reducing this cost through successful incentive programs has been critical to market expansion, resulting in the deployment of over 25,000 vehicles in the past two years. While the PEV market has grown substantially, this number is a fraction of the intended goal of 1.5M vehicles by 2025 stated in Governor Brown's Zero Emission Vehicle Action Plan and Executive Order B-16-2012[1]. As the market matures it is important to mitigate additional costs associated with this technology not increase them.

Using the Clean Vehicle Rebate Project (CVRP) data, projections for market penetration remain modest over the next three years. We estimate cumulative deployment of PEVs in California will reach between 90,000-160,000 vehicles by the end of 2015[2]. This projection includes both battery electric and plug-in hybrid electric vehicles, and is based on monthly CVRP rebate data from 2011-2012. It is important to note that these projections are based on early deployment data, and may change as the PEV market matures. That said, even the high end estimates are relatively low compared to the total number of vehicles registered in California each year. To put these estimates in perspective, approximately 1.6M new light-duty vehicles were registered throughout California in 2012 alone.[3] Thus, the high end projections of cumulative PEV deployment through 2015 represent only 10% of the total vehicles sold in one year. Further, as we discuss in more detail below, we are beginning to see evidence of PEV deployment clusters in the three key markets (Bay Area, Los Angeles and San Diego). In some cases these clusters may require infrastructure upgrades. However, based on our PEV projections, it is likely that costs associated with necessary improvements to ratepayers will be *de minimus* compared to overall distribution system requirements.

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[1] *2013 ZEV Action Plan: A roadmap to 1.5M zero emission vehicles by 2025.* (2013, February) http://opr.ca.gov/docs/Governor's_Office_ZEV_Action_Plan_(02-13).pdf

[2] Projections were generated by applying a second-degree polynomial equation to CVRP rebate data. High end estimates are based on 2012 data alone, while low end estimates include the full two years of observed market activity.

[3] *California Auto Outlook*. (2013, January) 9(1). http://www.cncda.org/secure/GetFile.aspx?ID=2444

2. What additional analysis is needed in order to better understand costs associated with residential service facility upgrades?

As stated above, CCSE agrees with PG&E that the cost allocation policy should be extended for a period of three years to provide for additional analysis and market maturation. While we argue that infrastructure upgrade costs should be socialized as it is part of overall grid modernization, we also recognize the importance of determining the long-term infrastructure costs associated with PEV deployment. The Joint IOU Load Research Final Report (Report) filed on December 28, 2012 provides a starting point regarding the impact and behavior of early adopters, but not a clear understanding of a more mature PEV market. CCSE recommends extending the Report's previous scope to include the impact of newer vehicles that have entered the market with larger on-board chargers as well as the effect of PEV deployment clusters on infrastructure upgrades.

CCSE argues that the data and conclusions from the current Report are biased, as a result of the PEV market being dominated by two vehicles throughout the majority of the period studied. Based on data from the CVRP, PEV consumers in California were largely driving either a Chevy Volt or a Nissan LEAF until March 2012 when new vehicles entered the market[4]. Since that time there have been several additional vehicles introduced to consumers, with 29 different makes and models now eligible for the CVRP rebate. While many of these new vehicles are similar to the Nissan LEAF and Chevy Volt, there are significant differences. As noted in the Report by the IOUs, many new vehicles have a higher charging level than the vehicles prevalent during the study period and may not be representative of the PEV fleet today or in the future. The data and conclusions of this Report are also based on early adopter behavior, which as the IOUs acknowledge, may not be representative of the average customer.

[4] The Chevy Volt was not eligible for the CVRP until February 2012. Approximately 2,300 Chevy Volt's were sold in California before the Volt became eligible for the CVRP but these vehicles are not reflected in the CVRP database.

Refining and continuing the analysis will provide greater insights for policy makers when deciding the issue of cost allocation.

Through our administration of the CVRP, CCSE has identified that there is early evidence of a clustering effect with respect to PEV deployment across the state. Using CVRP applicants as a proxy for PEV deployment, it is clear that there are zip codes with higher concentrations of PEVs than surrounding zip codes[5]. In some cases these clusters are focused on an individual zip code level; however there are areas where we see regional clusters forming. To date there are approximately 7 regional clusters from across the state that includes two or more zip codes with a concentration of at least 65 PEVs grouped together. It is important to note that while regional clusters are occurring, it is happening at a small scale and not uniformly across the state. With around 25,000 PEVs deployed across the state, the majority of these approximately 71 high concentration zip codes have around 50-100 vehicles and are located in three regions—Southern Bay Area, Coastal Los Angeles and Northern San Diego County. Additionally, CCSE recognizes that analysis at the zip code level is limited and likely does not provide enough detail to determine where or what specific upgrades are needed. That said, evidence from the CVRP indicate that clusters are developing and their potential impact should be included in future analyses by the IOUs.

IV. CONCLUSION

CCSE appreciates the opportunity to provide these comments in response to the Scoping Memo and Ruling. Moreover, we appreciate the Commission's attention to the expanding PEV market. Facilitating increased deployment of PEVs serves CCSE's mission of a clean energy future for California, and the recommendations in response to this Scoping Memo and Ruling are important efforts in that regard. We support PG&E's proposal to continue with

[5] See www.energycenter.org/CVRPrebatemap for access to an online interactive mapping tool that provides regional data on the distribution of CVRP rebates across California.

current policy for three years while expanding our insights through further research, and we support the parallel implementation of the two submetering pilots to facilitate innovation and efficiency in deploying electric vehicle charging infrastructure. We look forward to the continuing dialogue in this proceeding and offer our insights and data from the experience with the CVRP.

Date: 4/09/2013

Sachu Constantine
Director of Policy
California Center for Sustainable Energy
9325 Sky Park Court, Suite 100
San Diego, CA 92123-1502
(510) 725-4768
sachu.constantine@energycenter.org