BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider Alternative-fueled Vehicle Programs, Tariffs, and Policies.	Rulemaking 13-11-007 (Filed November 14, 2013)

COMMENTS OF THE UTILITY REFORM NETWORK IN RESPONSE TO ORDER INSTITUTING RULEMAKING AND SCOPING MEMO

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I. INTRODUCTION

On November 22, 2013, the California Public Utility Commission's (Commission or PUC) issued the Order Instituting Rulemaking (OIR) to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies, R.13-11-007. In the OIR, the Commission requested parties to submit comments on the OIR and provide answers to specific questions on vehicle-grid integration, alternative fuel vehicle rate design and policy, and financing as well as on general issues. The Utility Reform Network (TURN) respectfully submits these comments in response to the OIR and addresses the Commission's specific questions below.

II. COMMENTS

TURN supports California's interest in developing a vibrant market for Alternative Fueled Vehicles (AFVs), especially zero emissions vehicles. The Governor's 2013 ZEV Action Plan calls for the CPUC to lead development of

- channels to identify where PEV chargers are being installed,
- understanding of local grid impacts of PEV use,
- projects for ZEVs and their electricity demand,
- determining potential for ancillary services provided by PEV batteries and hydrogen stations,
- pilot systems to mitigate PEV charging demand impacts through energy storage, demand response, distributed generation or other mechanisms.

In providing responses to the following questions, TURN is mindful that, while Executive Order B-16-2012 has ordered the support and facilitation of rapid commercialization of zero-emission vehicles and has set an aggressive goal of achieving

1.5 million such vehicles by 2025, the Order has also set interim goals that call for methodical means for achieving the ultimate goals. Namely, the 2015 and 2020 orders call for the establishment of benchmarks that help achieve the ultimate goals. Fortunately, the Commission had the foresight to lay the groundwork for developing the benchmarks and achieving the goals laid down in the Governor Brown's order in previous proceedings, such as, R.09-08-009. In particular, the Commission is already working with the utilities and stakeholders to develop the load research data that would be helpful for many of the rate-design questions the Commission has developed for this new OIR.

TURN notes, however, that "supporting and facilitating" rapid commercialization of PEVs is different than *causing* such commercialization. In TURN's view, the purpose of this OIR should be to determine the most efficient way for utilities to be prepared for and to facilitate the electric vehicle commercialization that the State intends to promote. The utilities, however, do not have the primary responsibility for this commercialization, and it is not the responsibility of utility ratepayers to provide incentives to commercialize PEVs in California. There are already myriad benefits that act to incentivize PEV ownership. The Federal government offers a tax credit of between $2,500 and $7,500[1] and California provides a $2,500 rebate[2] on the purchase of new, qualified EVs.

AFVs also provide users with a number of non-monetary but tangible benefits. Drivers are given access to high-occupancy-vehicle lanes on freeways, offering time savings. They may charge or fuel their vehicles at home, avoiding inconvenience and the time of going to service stations. These benefits accrue, without any utility financial assistance. In most situations, with the prices of gasoline we have experienced for the last few years, off-peak and super off-peak charging provides the electricity needed for travel at prices significantly below the cost of using gasoline. Moreover, the price of electricity through time is more stable than the price of gasoline, an additional benefit to the vehicle owner, whether a fleet or a residence.

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[1] Qualified Plug-In Electric Drive Motor Vehicle Tax Credit, U.S. Department of Energy, available online as of December 12, 2013 at http://www.afdc.energy.gov/laws/law/US/409.

[2] Clean Vehicle Rebate Project, California Center for Sustainable Energy, available online as of December 12, 2013 at http://energycenter.org/clean-vehicle-rebate-project; *see also* AB 8, 2013.

As it stands, the Commission has already authorized ratepayer subsidies in the form of line and service extension allowances for Plugin-Electric Vehicle (PEV) purchasers in the residential class and through the common treatment of distribution costs in excess of the allowances. [3] While TURN understands the Commission's interest in encouraging initial uptake of PEVs, for the longer term, any allowance should be recoverable through PEV charging rates. As TURN has stated before in Phase 4 of R.09-08-009,[4] the current line and service extension allowances are not structured to support the broader policy goal of encouraging electric vehicle adoption. TURN, therefore, continues to recommend a separately calculated allowance for line and service extensions for PEVs.

To the extent that a role can be found for utilities to incentivize PEV adoption, it can be found in rate design and the provision of any ancillary services and renewable integration benefits derived from controlling PEV charging, which we discuss below. TURN is concerned that the utility administrative costs of implementing any incentive rates or incentives for residential charging circuits not absorb the economic benefits of encouraging AFV use. The Commission should not allow utilities to move forward with any incentive programs for AFVs until the Commission and parties understand the full extent of the tasks and costs involved in implementing any incentive programs or rates. It is likely that the costs to each utility for undertaking AFV incentive rates or programs will vary substantially. In this case, the Commission should consider approaching these issues on a utility-specific basis, rather than simply assuming that "one size fits all."

III. RESPONSE TO QUESTIONS IN OIR

A. Vehicle-Grid Integration

TURN does not have any comment on these issues at this time.

[3] D.11-07-029, which was extended until June 2016 through D.13-06-014 (p. 2).

[4] Comments of The Utility Reform Network in Response to Assigned Commissioner Peterman's Phase 4 Scoping Memo and Ruling, R.09-08-009, April 9, 2013, p. 4.

B. Alternative-Fuel Vehicle Rate Design Policy

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

While there is information that utilities are providing regarding alternative TOU rates for residential PEV charging, the data gathered in 2013 will include significantly larger samples than were available in 2012. In the analysis of the data, it will be useful to see a comparison of the impact of PEV-only rates and the impact of whole-house TOU rates on charging behavior and the time distribution of whole house loads. The added cost of infrastructure required to separately meter AFV loads can then be compared with the benefits.

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

Properly set TOU rates should provide appropriate incentives both for recharging or fueling AFVs off peak, as well as for timing other customer loads. The Energy Division's White Paper on Vehicle-Grid Integration demonstrates that most PEV charging is accomplished within 2 hours.[5] SDG&E's Electric Vehicle Pilot Interim Report found that 80% if sampled customers' charging events lasted less than four hours.[6] While this may change as a smaller percentage of AFV users are early adopters, and charging times increase, it appears that vehicle operators will have flexibility to schedule charging or fueling when energy costs least, and distribution system demands are low. It also appears that PEV users have taken advantage of this flexibility. In the "Joint IOU Electric Vehicle Load Research Final Report," all three utilities found that on-peak charging comprised only 15 to 22 percent of total charging energy, where that load was separately identified.[7] As one would expect, larger price differentials between off-peak prices non-off-peak prices encouraged more off-peak charging.[8]

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[5] "Vehicle–Grid Integration", Energy Division, California Public Utilities Commission, R. 13-11-007, October 2013, p. 6 (henceforth "VG Integration").

[6] "First Year Evaluation for San Diego Gas and Electric's Electric Vehicle Pilot", Freeman, Sullivan and Co., December 21, 2012, p.19

[7] "Joint IOU Electric Vehicle Load Research Final Report" Ordered in D.11-07-029, California Public Utilities Commission, December 28, 2012, pp. 20, 28-29, 44.

[8] "First Year Evaluation for San Diego Gas and Electric's Electric Vehicle Pilot", p. 15.

However, the utilities also noted in the joint load research report that "the behavior of the early adopters of PEVs during this time period may not be representative of the average customer."[9] In other words, while the utilities' analysis appears to indicate that off-peak and super off-peak prices can be effective, more research on whether and how PEV customers respond to rate design could be useful to the Commission and stakeholders. Ongoing research should provide more information on the impacts of PEV charging on distribution facilities, as well as overall electricity system demand. This information will help the Commission address issues of the cost of distribution facility upgrades to accommodate PEVs, the effect of separate PEV charging rates compared to whole-house TOU rates on user behavior, and the likely future impacts of PEVs on system loads. Fortunately, as a result of the results generated in the utilities' first load research report, the Commission ordered the utilities to continue to produce load research reports at the end of each year through the end of 2016, stating, "We find that additional load research is justified to inform our policy related to upgrade costs and other PEV matters. The Commission recognizes the value of the early PEV load research and seeks recommendations from parties for additional information in future load research reports to improve the usefulness in informing policymaking."[10] This ongoing research will allow the Commission to develop policies that properly capture costs of PEV-related costs, provide cost-effective rate designs and equitable treatment of customers as more information becomes available.

The added costs and impacts of metering and billing for residences with separate residential and PEV metering, or PEV submetering, should be analyzed to determine whether the additional rate flexibility results in benefits to ratepayers exceeding the annualized initial and ongoing costs. This should include the utility administrative and material costs of developing and implementing incentive rates and any separate metering or load control capability.

It would also be helpful to know what rate design or metering arrangement characteristics, within the appropriate level of incentive, encourage adoption of PEVs.

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[9] *Id.,* p. 3.

[10] D.13-06-014, p. 16.

Customers may value alternative approaches differently from utility or regulator personnel expectations. If rates are set to appropriately cover costs, they should be as attractive as possible to encourage car buyers to consider PEVs and promote state objectives.

If the Commission authorizes a separate rate for residential PEVs whose energy use is captured on a submeter, a first approximation for the appropriate super off-peak rate should start with the fact that customer access costs for a submeter are not equal to those of the property's customer access costs. For example, the submeter would not need a separate service line and meter and the Commission has found that the submeter, itself, is the responsibility of the PEV customer. TURN recommends that the Commission use the value of those customer-related costs items that would be redundant to collect for PEV customers to reduce the cost of off-peak power to create a super off-peak rate for PEV owners.

Specifically, when allocating costs to the residential PEV class, they should be revenue neutral to the residential class as a whole with the residential class's load shape, with the exception that certain customer costs are not required for most electric vehicle applications (service lines and transformers). Thus, on-peak and mid-peak rates should be designed equal to corresponding TOU residential rates. The off-peak period should be first set equal to the residential class rate. A super-off-peak rate should be designed, first by carving it out of the total off-peak period and assigning higher costs to the remaining off-peak hours on a revenue neutral basis. The super-off-peak rate could be reduced further by applying any customer cost reductions relative to the class as a whole to reduce that rate. Notwithstanding the proposed design above and potential reductions from customer costs, there is another independent constraint that must be applied to keep other ratepayers from being harmed. The super-off-peak rate should have a floor equal to charges that cannot be discounted under commission policy (e.g., public purpose, nuclear decommissioning, DWR bond) plus $5-$10/MWh to cover fixed margin (essentially insurance for providing a fixed rate in the face of variable gas prices and market conditions), although it could be higher than this amount.

The bottom line with any residential charging rate is that, in order to receive any rate concession, the resident must agree to utility charging control during on-peak periods, with the charger cycled off during the critical-peak period. Utilities already have experience with load-controlling technology through air conditioning and water heater load management. Alternatively, the customer could forego the rate concession and pay the full residential off-peak pricing for any charging that occurs during those times.

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

To provide an incentive rate for daytime, workplace charging, that load would have to provide some benefit to the system that is unavailable with other customer loads. Since charging load is independent of business loads, demand from PEV charging can be more flexible than the demand of business loads. This opens the possibility of demand response programs for workplace PEV charging circuits.

The CPUC's October 2013 white paper, "Vehicle-Grid Integration," presents the expected changes in the mix of diurnal electricity supply, with the expansion of photovoltaic generation.[11] This suggests an opportunity for daytime charging that does not contribute to system peak loads, but provides benefits to the system. As renewable resources such as wind and photovoltaics become larger contributors to the supply system, unexpected reductions in output may become a challenge for system load balancing. With proper control, charging could be used to mitigate generation ramping issues. PEV charging circuit control could reduce load on short notice to balance resource fluctuations, which would help integrate renewable energy into the supply system. If the PEV charging were handled by an aggregator, the utility could either offer charging control or provide periodic price signals, allowing the aggregators to either control charging[12] or pay a premium for peak and critical peak demand if charging occurs during those periods.

The Commission should investigate how these supply changes will impact the marginal generation cost of energy and capacity during the mid-day hours. If the cost of

[11] VG Integration, p. 9.

[12] *Id.* at 23.

supplying additional load during those hours declines, the Commission could approve modifying rate designs to reflect the lower cost and any benefits from utility dispatching charging load, during GRC rate design deliberations.

In order to receive any rate concession for workplace charging, the company must agree to utility charging control or forego the concession and pay full on-peak and critical-peak pricing for any charging that occurs during those times.

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

Fleets charging or workplace charging, where significant charging load may be aggregated, appear to be the best venues for initial efforts at smart or controlled charging. TURN's response to question 3 addresses workplace charging issues. If the changing profile of electricity generation in California justifies reduced generation-level charges, the CPUC could use the changes to approve reduced rates for diurnal charging. Placing workplace PEV recharging circuits into the utility's demand response program could reduce the cost to the system and the rates charged for recharging during the work day. The rate design may include a guaranteed minimum number of hours per day of charging, in the absence of a system emergency.

As with residential PEV rates, TURN believes that the utility administrative costs of developing and implementing any load control capability and incentive rates for PEVs should be included in the costs recovered through the incentive rates. A program should only be undertaken if the costs of program development/implementation do not erase, or make de minimus, the potential customer savings from the program.

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

TURN does not have a comment on this issue at this time.

6. What changes, if any, are needed to tariffs related to compressed natural gas vehicles?

TURN does not have a comment on this issue at this time.

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

If the Commission determines that there are significant benefits to incentivizing customers to guide their PEV recharging behavior, it is important to explore the most

cost-effective options available to utilities or the CPUC to achieve customer behavior change. The best options may be specific tariff changes, or involve some other change the PEV owners value highly, making them cost-effective. Any study should be coordinated with other state agencies, such as CARB and the CEC, to get a broad an understanding of the impacts of alternative incentives on PEV ownership.

Another issue that the Commission should address in this rulemaking is the development of separate line and service extension allowances for PEV related upgrades. The current allowances are calculated according to average residential household load and tied to the expected revenue from that average load, based on residential rates. The allowances are intended to be revenue neutral for residential ratepayers so that ratepayers are not made worse off by providing these up-front subsidies to assist in expanding utility service to new homes. Applying the full residential line extension allowance to what amounts to a single appliance addition to a home bypasses the rationale for calculating the line and service extension allowances. This approach results in harm to ratepayers, who will likely not be repaid for the full allowance by the electric vehicle load in the future. The Commission has even stated that Rules 15 and 16 do not contemplate how to incorporate residential transportation load on the electric grid and that the State's policy to encourage the electrification of the transportation sector requires stretching the Commission's application of the rules.[13]

TURN, therefore, continues to recommend a separately calculated allowance for line and service extensions for PEVs until PEVs are ubiquitous enough to be included in the average load calculation for residential customers for the purposes of determining Rule 15 and 16 allowances. D.13-06-014 stated that separate tariff rules to govern PEV-related upgrades "is a matter better addressed when more data is available," and this OIR appears to be the perfect opportunity to explore the idea of separate tariff rules.

[13] D.11-07-029, p. 55.

C. 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?

The Commission should not direct the utilities to provide financing to customers to encourage PEV adoption and should, in fact, adopt a policy against such a practice. Financing auto purchases is the purview of banks, credit unions, financial companies, and automakers, themselves. Most people in the general public finance their car purchases; they do not pay cash. Therefore, the upfront cost is the cost of the down payment, which, admittedly is slightly higher with higher purchase prices, generally. However, to the extent that electric vehicles are more expensive upfront - and they are becoming less so every year[14] - this is generally financed through the buyer's bank. Current auto financing costs for buyers with good financial records are low by historical standards, with some options below 3% per year. Automakers use finance rates as incentives, in some cases offering zero percent loans for up to five years. It is not clear how much of an advantage utility financing could have, given that ratepaywsers should remain whole. Utilities do not appear to have a comparative advantage over existing financing institutions.

Furthermore, there is already state support for vehicle purchases - support that serves to reduce the upfront costs of PEV purchases substantially. As mentioned earlier, the Federal government offers a tax credit of between $2,500 and $7,500[15] and California provides a $2,500 rebate[16] on the purchase of new, qualified EVs. That incentive dwarfs the impact of a ½ percent reduction in the loan interest rate. Finally, automakers are stepping in to provide financing and leasing options to support EV consumption. Automakers are also offering other, more specialized options, such as battery-only leasing (combined with the purchase of the rest of the vehicles). For example, Renault and Daimler offer battery leases at a monthly rate of $100, often with replacement

[14] In fact, according to the International Energy Agency, battery costs - one of the major reasons for the price difference when compared with internal combustion cars - at the end of 2012 were 50% of what they were in 2008. "Global EV Outlook," International Energy Agency, April 2013, p. 17, available online as of December 12, 2013 at http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI_GEO_2013_FullReport.PDF.

[15] Qualified Plug-In Electric Drive Motor Vehicle Tax Credit, U.S. Department of Energy, available online as of December 12, 2013 at http://www.afdc.energy.gov/laws/law/US/409.

[16] Clean Vehicle Rebate Project, California Center for Sustainable Energy, available online as of December 12, 2013 at http://energycenter.org/clean-vehicle-rebate-project; *see also* AB 8, 2013.

guarantees.[17] If these are successful, they may come to California. It is not clear how utility provision of automobile financing would affect car buyers' choices and accelerate the adoption of PEVs, unnecessarily complicating utility program administration and options for consumers with no clear benefit.

Similarly, the Commission should not direct utilities to provide financing for charging systems for either PEV owners or third-party entities. For PEV owners, charger manufacturers have already implemented packages to lessen the upfront cost of charging infrastructure. See, for example, AeroVironment, who bundles the cost of the charger with its service plan and allows customers to finance the cost of the package within the auto financing agreement.[18] Having performed a program pilot since October 2012, AeroVironment now offers (since Febrary 2013) the financing program at Nissan and Mitsubishi dealerships.[19] At least one dealers participating in the Nissan pilot is saying that most of the EV-buying public is opting for the charging financing option.[20] AeroVironment also has partnerships with Ford,[21] BMW,[22] and Fiat,[23] so it is reasonable to expect that the financing program will be rolled out to a wider consumer base as AeroVironment expands its program. Not only is AeroVironment reducing transaction costs for residential consumers with charger financing, but it is also reducing them by providing single-visit installation and arranging any required permitting.

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[17] "Global EV Outlook," International Energy Agency, April 2013, p. 27, available online as of December 12, 2013 at http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI_GEO_2013_FullReport.PDF.

[18] "Financing for EV Charging Equipment Helps Sell Electric Cars," PluginCars, February 14, 2013, available online as of December 12, 2013 at http://www.plugincars.com/financing-ev-charging-equipment-helps-sell-electric-cars-126442.html

[19] *Id.*

[20] *Id.*

[21] "Ford Switches to AeroVironment for Chargers, Drops Best Buy,"May 10, 2013, availabl online as of December 12, 2013 at http://www.plugincars.com/best-buy-out-aerovironment-fords-charging-partner-127183.html.

[22] *Id.,* AeroVironment: Finance the Charger with the EV, February 7, 2013.

[23] "FIAT picks up AeroVironment to supply and Install Homer Charging Stations for the All-New, All-Electric Fiat 500e," AeroVironment Press Release, August 21, 2013, available online as of December 12, 2013 at http://investor.avinc.com/releases.cfm.

As for third-party charging installations, there are a number of developments that show utility involvement in financing is not necessary. The U.S. Department of Energy has already financed the installation of more than 3,000 charging stations nationwide through the EV Project,[24] with more than 1,000 of them installed in California.[25]

On the private side, ChargePoint, a network of independently owned charging stations, is responsible for the installation of almost 14,500 public charge stations, which are owned by 2,000 different owners.[26] ChargePoint announced a partnership with a finance company (i.e., Key Equipment Finance) on October 16, 2013 to launch a $100 million lease-to-own program that gives small and medium sized companies and munipalities the opportunity to install chargers with no upfont costs.[27] While ChargePoint charges charger owners a daily fee to recoup the cost, those owners generate revenue generally above the daily fee by charging EV owners to charge at their facility. Lieutenant Governor Gavin Newsom says of the program, "ChargePoint has found a way to overcome one of the biggest obstacles to mass EV adoption. This purchase program is a golden opportunity for all businesses as well as statae and local governments who want to attract and retain the best employees."[28] The CEO of Coalition for Green Capital and former FCC Chairman Reed Hunt added, "The magic of the Net+ Purchase program is that with very little capital, the electric vehicle industry will see rapid adoption. This is absolutely critical for expansion of the EV market."[29]

From these examples, it is clear that the Commission should not direct any utility financing of PEV chargers.

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[24] The EVProject, Overview, accessed December 10, 2013, available online as of December 12, 2013 at http://www.theevproject.com/overview.php

[25] Id., Blink Network, Blink Charging Stations map, accessed December 10, 2013. Available online as of Deeember 12, 2013 at http://www.blinknetwork.com/blinkMap.html, which is accessible through www.theevproject.com/charging-maps.php.

[26] Available online as of December 12, 2013 at http://www.chargepoint.com/home.php.

[27] "ChargePoint and Key Equipment Finance Launch New Financing Program to Spur Mass EV Adoption," ChargePoint (Press Release), October 16, 2013, available online as of December 12, 2013 at http://www.chargepoint.com/pr/news-press-releases-2013-1016.php.

[28] *Id.*

[29] *Id.*

D. General

TURN does not have comments on these issues at this time.

IV. CONCLUSION

TURN appreciates this opportunity to work with the Commission and other parties to further develop California's policies on alternative-fueled vehicles.

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Respectfully submitted,

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