

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)

**OFFICE OF RATEPAYER ADVOCATES
COMMENTS ON ORDER INSTITUTING RULEMAKING
ON ALTERNATIVE-FUELED VEHICLES**

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I. INTRODUCTION

The Office of Ratepayer Advocates (ORA) submits its comments on the Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies (OIR or Rulemaking). ORA supports the two-track approach included in the Rulemaking as proposed by Energy Division's (ED) White Paper.¹ ORA's comments include recommendations on Track 1 to evaluate the potential and value of vehicle-grid integration (VGI); and, Track 2, to develop a new Alternative-Fueled Vehicles (AFV) tariffs. ORA's comments also address rate design issues and financing of AFV related expenses.

II. DISCUSSION

A. Vehicle Grid Integration (VGI) (Track 1)

Consistent with the State's goal of having 1.5 million Zero Emission Vehicles (ZEV) in California by 2025 to reduce Greenhouse Gas (GHG) levels, and to help reduce the negative impacts of peak-time charging, ORA supports the OIR's goal to "evaluate the utility activities that can support VGI initiatives...to capture safely and reliably the

¹ *Vehicle-Grid Integration: A Vision for Zero-Emission Transportation Interconnected throughout California Electricity System*, by Adam Langton and Noel Crisostomo, dated October 2013.

benefits of PEV battery storage.”² However, the Commission’s VGI goals is more appropriately considered in the longer term, especially due to the result of lower than expected plug-in electric vehicles (PEV) market penetration.

The Commission first should evaluate the data from the current pilot programs, as well as from the utilities’ existing pilot load research before adopting state-wide VGI rules and tariffs for PEVs. ORA also recommends additional pilot studies (as discussed in response to question 1 below) and customer surveys to understand the scope and benefits of VGI projects and the level of customer (PEV owner) interest before implementing any VGI-related changes to the current PEV program.

ORA supports the Commission’s assessment of the value of VGI services, as identified in the OIR, for the longer term. However, certain VGI services—such as peak shifting and price arbitrage—likely will have diminished value over a longer time period due to the large number of PEVs that the California Energy Commission (CEC) predicts in its report cited by the White Paper. This effect will be due to the large megawatts (MWs) of PEV capacity becoming available, which will “flatten the curve” and reduce the price differential between the on-peak and off-peak periods. The Commission should take this impact into account when cost-benefit analyses of VGI values (for example peak shifting, price arbitrage) are conducted.

B. Development of new AFV tariffs (Track 2)

As noted in Decision (D.)11-07-029, the design of electric rates for PEV battery charging is a critical element of achieving the Commission’s PEV market expansion objectives. Several of these objectives require that the bulk of PEV charging take place off peak. This requires, in turn, that most PEV charging be subject to marginal cost-based time-of-use (TOU) rates. Off-peak charging, with properly designed TOU rates:

- Ensures the lowest possible vehicle operating costs to the PEV owner;

² AFV OIR, p.15.

- Minimizes the impact of PEV loads on the grid;
- Promotes efficient use of the grid; and
- Maximizes the environmental benefits of vehicle electrification, including GHG reduction.

Rates for off-peak PEV charging should be kept as low as possible, to encourage optimal charging, consistent with the Commission’s residential rate design principles³, including the principle that customers should pay for the costs they cause. ORA provides specific rate design recommendations for the Commission’s consideration in comments below.

While ORA supports reducing barriers to PEV ownership, ORA generally opposes utility financing of PEV-related facilities. Such financing may not be needed to grow the PEV market, and could increase costs and risks borne by nonparticipating ratepayers. ORA also discusses financing and the public interest in greater detail in these comments.

ORA responds to several, but not all, of the OIR questions. ORA reserves the right to respond to the other questions in reply, as more information becomes available in other parties’ comments.

III. ORA RESPONSES OIR QUESTIONS – VEHICLE GRID INTEGRATION (TRACK 1)

1. Is the VGI framework proposed in the White Paper a reasonable way to organize VGI activities and scenarios?

Yes, the VGI framework and scenarios as proposed by ED is reasonable. But, before any changes to rules and tariffs are adopted, the utilities should research the data on the pilot programs and customer surveys, and provide the following information:

- Pattern and level of charging PEVs at home and outside the home;
- The customer level of interest in having available a fully charged battery when they need to use the vehicle for its primary purpose of transportation;

³ R.12-06-013, *Administrative Law Judge’s Ruling Requesting Residential Rate Design Proposals*, Attachment A, dated March 19, 2013.

- The PEV owner's willingness to risk his or her PEV battery life to frequent charging and discharging, resulting in a higher rate of battery degradation;
- Cost-benefit ratios of V1G⁴ and V2G⁵ services, including impact of the cost of the change in battery life cycle;
- Impact on vehicle manufacturer warranties;
- Willingness of vehicle manufacturers to produce vehicles capable of V2G services, as well as consideration of the increased cost of PEVs due to additional V2G capability.

Furthermore, Energy Division is correct that PEV capacity cannot be treated the same as that of stationary energy storage resources. There are several reasons for this, including the location, availability, state of charge, size, and the primary purpose of the PEV batteries (i.e., for transportation).

As compared to a stationary battery, the PEV battery only can be utilized for V1G services when it is connected and being charged from the grid. Based on the data included in the White Paper, the V1G function would only be available for about two hours a day, and mostly in the middle of the night, when many of the V1G type services are less likely to be needed. In addition, it is not clear whether the PEVs currently being manufactured, or whether the charging equipment as currently designed, will allow signals from the utility or other entities to vary the charging levels (V1G). This type of issue not only applies to V1G with one resource and one actor⁶ (Use Case #1) but also applies to V1G with more than one actor (Use Cases #2 and #3).⁷

⁴ V1G refers to the unidirectional flow of power enabling EVs to charge from the grid.

⁵ V2G refers to the bidirectional flow of power enabling EVs to charge from the grid and to discharge back to the grid refers to the bidirectional flow of power enabling EVs to charge from the grid and to discharge back to the grid.

⁶ The White Paper defines “actors” as those who claim ownership or control of parts of the PEV value chain and may have different objectives and be affected by each other’s actions in vehicle-grid integration. Each actor may claim control or management of (1) the vehicle, (2) the charging station, and (3) the facility.

⁷ Use Cases are defined in more detail in the ED White Paper, Use Case 1: Unidirectional Power Flow (V1G) with an One Resource and Unified Actor Objectives; Use Case 2: V1G with Aggregated

In addition to the above issues, under the Use Case #4 (V2G scenario), the battery availability for two-way grid services also is affected by the owner's willingness to allow discharge of the battery just before it is needed for its main purpose (i.e., transportation).

2. Do you agree with Energy Division's prioritization of the VGI scenarios?

Yes, ORA supports the prioritization of use-cases proposed by ED. The focus should be on the scenarios that are more readily achievable and less costly to implement. Therefore, as stated in the White Paper, V1G should be given a higher priority than V2G. V1G will be more readily available and less complicated to implement. While at this time, neither the PEV batteries nor the Electric Vehicle Supply Equipment (EVSEs) are capable of reliably supplying V2G power to the grid.

V2G is not only more physically complicated, it is also administratively complicated to implement. V2G may not be acceptable to many PEV owners, because the owners' primary purpose for purchasing the vehicle is to provide safe and reliable transportation, not to provide VGI services. In addition, many PEV drivers are aware of the impact on the life cycle of the vehicle batteries of frequent charging and discharging. PEV owners may only participate in V2G programs if the monetary incentives for their participation exceed the additional costs, inconvenience, and risks they would have to incur.

3. Does the White Paper capture all the utility regulatory barriers to VGI?

The VGI framework identifies utility regulatory barriers issues. There are, however, likely to be barriers that have not been considered yet, or addressed in detail. One of the barriers that calls for additional analysis is the behavior of PEV owners and/or drivers, combined with the incentives required to encourage participation. If PEV owners are inadequately motivated to make their battery capacity available, many of the goals of VGI will not be achieved. Therefore, before the Commission adopts large-scale

Resources; Use Case 3: V1G with Fragmented Actor Objectives; Use Case 4: Bi-directional Power Flow (V2G).

programs, the data on customer behavior must be analyzed through conducting pilots and surveys of PEV owners/drivers.

Another barrier is the potential lack of technical standardization. Such standardization applies to charging stations, electric vehicles, energy service providers, utilities, and the California Independent System Operator (CAISO). Standardized communication protocols are important to allow the above entities to communicate with each other so that VGI services can operate seamlessly and in a cost-effective manner. Many of the technical standards applicable to VGI currently are being developed at the Federal level.⁸ Standards adopted in the AFV OIR proceeding should complement Federal standards to assure that California standards are consistent and do not frustrate the goal of increasing customer acceptance.

IV. ORA'S RESPONSES TO OIR QUESTIONS – ALTERNATE FUEL VEHICLE RATE DESIGN POLICY (Track 2)

ORA responds to questions 2 through 7 below.

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

A. ORA's Recommended Issues

ORA identifies the following major residential PEV rate design issues at this time:

- Off-peak and super-off-peak rates should be kept as low as possible, to encourage optimal charging, consistent with the Commission's residential rate design principles, including the principle that customers should pay for the costs they cause;⁹
- Rates should be designed to accommodate the differing needs of Level 1¹⁰ and Level 2 chargers;
- Utilities should offer at least 2 optional PEV-TOU rates including: (1) a TOU rate with a 10-hour overnight off-peak period to accommodate

⁸ California Vehicle-Grid Integration (VGI) Roadmap: Enabling vehicle-based grid services, p.17. <http://www.caiso.com/Documents/DraftVehicleGridIntegrationRoadmap.pdf>

⁹ Included in rate design principles adopted by R.12-06-013, discussed below.

¹⁰ Level 1 charging is defined as charging at 110 volts, 15 amps. Level 2 charging utilizes 220 volts.

- Level 1 charging, and (2) a TOU rate with a 5-to-6 hour “super-off-peak” period, reflecting the lowest marginal energy costs (generally, midnight to 5:00 A.M. or 6:00 A.M.), to accommodate the faster Level 2 recharging times;
- Utilities should be required to inform PEV owners of TOU rate and metering options and the pros and cons of such rates, vs. standard increasing block domestic rates;
- Utilities should be required to make single tier TOU rate option available to PEV owners on a nondiscriminatory basis, regardless of single- or dual meter status (at least temporarily);¹¹
- Utilities should be required to track known PEV installations along with distribution upgrades (both Rule 15/16, and other “upstream” circuit, line transformer, and substation upgrades) by local area (e.g., distribution planning area, census tract, or zip code, as appropriate). This would enable future statistical analysis of whether clustering of PEV ownership is causing abnormal distribution costs;
- As PEV ownership becomes more widespread, and it causes significant identifiable utility distribution infrastructure costs, whether the Commission should re-examine its current policies, including the application of Rules 15 and 16 to electrical upgrades at existing residences, which socializes PEV-related and other load-related infrastructure costs to all ratepayers.

B. The Commission Should Follow the Most Recent Residential Rate Design Principles Adopted in R.12-06-13

Since residential PEV rates are a subset of residential rates, rate design principles apply.¹² Setting aside low-income considerations (principle 1) for now,¹³ well-designed PEV-TOU rates should comply with the Commission’s most recently articulated rate design principles:

¹¹ ORA recognizes such a policy may lead to a revenue shortfall. Any shortfall should be manageable while the PEV market is relatively small. Such policy, if implemented, should be done on a trial basis, subject to future re-examination.

¹² R.12-06-013, *Administrative Law Judge’s Ruling Requesting Residential Rate Design Proposals*, Attachment A, March 19, 2013.

¹³ While ORA is sensitive to the needs of low-income customers, those needs are not now a primary focus of this proceeding. The Commission may want, in the future, to investigate how the PEV market can be made more accessible to low-income customers.

1. Low-income and medical baseline customers should have access to enough electricity to ensure basic needs (such as health and comfort) are met at an affordable cost;
2. Rates should be based on marginal cost;
3. Rates should be based on cost-causation principles;
4. Rates should encourage conservation and energy efficiency;
5. Rates should encourage reduction of both coincident and non-coincident peak demand;
6. Rates should be stable and understandable and provide customer choice;
7. Rates should generally avoid cross-subsidies, unless the cross-subsidies appropriately support explicit state policy goals;
8. Incentives should be explicit and transparent;
9. Rates should encourage economically efficient decision-making;
10. Transitions to new rate structures should emphasize customer education and outreach that enhances customer understanding and acceptance of new rates, and minimizes and appropriately considers the bill impacts associated with such transitions.

C. ORA's Recommended Rate Design Features for Residential PEV Charging

The Commission's PEV objectives require charging costs be kept as low as possible, consistent with the rate design principles. ORA recommends the Commission adopt the following:

- Off-peak and super-off-peak PEV-TOU rates that consist mainly of marginal energy costs and non-bypassable cost (NBC) rate components.
- Most marginal generation and distribution capacity costs should be collected in peak period or semi-peak period rates.
- Given [super] off-peak marginal energy costs of approximately five cents per kilowatt-hour (kWh) or less, NBCs generally around three cents per kWh, and distribution and overhead costs of about two cents per kWh,¹⁴

¹⁴ This amount is reasonable because loads occurring between 10:00 p.m. and 8 a.m. do not generally cause capacity-related costs on utility distribution systems. The Commission defines “overhead” as the full tariff rate, minus the marginal costs and the NBCs.

ideal [super] off-peak charging rates should generally not exceed 10 cents per kWh (roughly, the equivalent of 75 cents per gallon of gasoline).

- Keeping costs low for PEV owners requires that PEV-TOU rate design accommodate the needs of both Level 1 and Level 2 chargers.
 - Level 1 charging requires that the lowest-rate off-peak period extend a full 10 hours, for example, from 10:00 p.m. to 8:00 a.m.
 - Optimal Level 2 charging can be completed in a much shorter period. Utilities should offer a five to six hour post-midnight super-off-peak period, at an appropriately lower rate, to provide an incentive for Level 2 charging.
- Consistent with rate design principle 6 (customer choice), utilities should offer at least two PEV-TOU rate plans;
 - Level 1 PEV-TOU rates should have a peak-period, a semi-peak period, and a 10-hour off-peak period consisting of marginal energy costs, NBCs, and no more than two cents/kWh of distribution and overhead costs as described above.
 - Level 2 PEV-TOU rates should have a peak-period, a semi-peak period, and a five to six hour super-off-peak period consisting of marginal energy costs, NBCs, and no more than 2 cents/kWh of distribution and overhead costs as described above. The super-off-peak rate should be lower than the off-peak rate because the hours of midnight to 5:00 a.m. or 6:00 a.m. typically have the lowest marginal energy costs.
- The lower energy costs associated with post-midnight super-off-peak charging should provide an appropriate incentive for Level 1 customers to upgrade to Level 2 charging.
- PEV owners should be encouraged to explore rate options that do not feature inclining block rates (IBR). Rates that combine TOU and IBR are necessarily complex, and, as noted, many PEV owners on such rate plans would be forced onto higher rate tiers due to their PEV charging loads. Avoidance of IBR by PEV owners promotes both affordability and understandability.
- Accordingly, the Commission should consider requiring that the utilities offer non-IBR PEV-TOU rates as an option for PEV owners.
 - Ideally, non-IBR PEV-TOU rates could be offered on a single-meter ("whole house") basis to PEV owners with proof of PEV ownership.
 - While the PEV market remains small, and low-cost submetering or separate metering options are not generally available, the

Commission should consider temporarily requiring that the utilities offer their “best” non-IBR PEV-TOU rates on a non-discriminatory basis to both single- and dual-metered customers.

- Utilities should be required to track known PEV installations along with distribution upgrades (both Rule 15 and 16 upgrades, as well as other “upstream” circuit and substation upgrades that are not covered by Rules 15 and 16) by local area (e.g., distribution planning area, census tract, or zip code, as appropriate). This will enable future statistical analysis of whether clustering of PEV ownership is causing abnormal distribution costs.
 - The utilities should be required to include a study of the impacts of residential PEV charging loads on distribution costs, in their 2017 or 2018 test year GRCs.
 - If residential PEV clustering is in fact shown to cause increased distribution costs, then the Commission should consider imposing a fixed monthly customer facility charge per kW of PEV charging demand, in lieu of possible charges under Rules 15 and 16, to address PEV-related distribution system upgrades.¹⁵ Such fixed monthly customer facility charges could defray the costs of service drop and line transformer upgrades, where such costs would otherwise be covered by allowances granted under Rules 15 and 16, and consequently borne by PEV owners and/or ratepayers generally¹⁶

¹⁵ Customer facility charges, in principle, could be applied to any residential customer requiring a service and/or transformer upgrade due to increased household load. Such a mechanism might be preferable to the rather haphazard effects of the existing Rules 15 and 16 as applied to load growth at existing residential premises. In most cases, the standard fixed residential allowances socialize the cost of upgrades to all customers; whereas, in a few cases, where allowances are insufficient, homeowners can be burdened with very large infrastructure upgrade costs. Such fixed monthly customer facility charges would be in addition to the higher afternoon distribution system costs built into energy rates. The latter would recover the costs of the distribution system in an appropriate cost-based time-dependent manner, whereas the former would recover the cost of new investments in the distribution system at or adjacent to the customer’s premise that may be required.

¹⁶ The issue of who should bear the costs of distribution upgrades at or near the Customer’s premise is less salient for nonresidential customers than for residential. For nonresidential customers, Rules 15 and 16 allowances are revenue justified both for new connections and service upgrades. In other words, nonresidential allowances are pegged to customers’ expected revenue from the new load. In contrast, residential customers are granted a fixed allowance, often exceeding \$2,000, for facility upgrades to serve new or increased load, regardless of the forecast usage. Residential allowances are not revenue-justified for upgrades of previously existing service connections at existing premises. As ORA has pointed out previously, installation of Level 2 charging can double the maximum demand (kW) of a residence, but may result in only a 25% increase in kWh usage. In this case, if \$2,000 were the correct revenue-justified allowance for a new house, the correct revenue-justified allowance for a service upgrade would be \$500

The level of such customer facilities charges should be based on size (maximum demand) of the service (so a level 2 charger with a large maximum demand would have a proportionally larger monthly customer facility charge than an Level 2 charger that has a lower maximum demand).¹⁷

In implementing the above recommendations, the Commission should aim for consistency in the PEV rate designs of the IOUs.

D. Nonresidential and Natural Gas AFV Rate Design Issues

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

Yes. The Commission should direct utilities to offer special, tailored PEV-TOU rates *without demand charges* to workplaces offering separately metered Level 2 (or better) charging, both for employee-owned vehicles and employer-owned fleets, on a three-year trial basis.^{18,19}

For example, where overnight charging is possible (e.g., for fleet vehicles), at least one rate option should include a five or six-hour “super-off-peak” period, with a rate comprised of only, the marginal energy cost, the applicable NBCs, and no more than 2 cents per kWh of distribution and overhead costs.

(rather than the \$2,000 granted under Rules 15 and 16). At a minimum, the Commission should correct this disparity, and require tariff changes to ensure that residential allowances for service upgrades are revenue justified.

¹⁷ Large demand would be 30 to 80 amps (6-19 kW), and a lower demand charger would be in the 15 amp range (3.6 kW)

¹⁸ This recommendation would apply, for a three-year trial period, to commercial facilities with separately metered PEV charging loads of 500 kW or less, and publicly-owned separately metered PEV charging facilities. Inclusion of demand charges in rates complicates the task of optimizing charging of vehicle fleets. Furthermore, well-designed TOU rates can adequately capture the time-dependence of costs for most loads, provided that the loads are not too large or too volatile. Commercial or industrial customers with maximum demands greater than 500 kW are considered “Large” and would continue to be subject to the applicable demand charges contained in their standard tariffs. Further, it is reasonable to require Level 2 (or higher) charging at workplace installations. Level 2 charging allows concentrating the charging in fewer hours, reducing the possibility of daytime charging encroaching upon the on-peak hours.

¹⁹ For example, Pacific Gas and Electric’s (PG&E) small commercial A-6 TOU rate, which has no demand charge, could be suitable, with modification, for workplace and fleet PEV charging.

Where daytime charging is needed, PEV-TOU rates should include separate lower rates for the morning hours and higher rates for the afternoon hours. Afternoon rates should reflect both the higher afternoon marginal energy costs and the incurrence of generation and distribution capacity costs during summer afternoon peak hours.²⁰

Utilities should consider setting the boundary between morning and afternoon rate periods as late as 1:00 p.m. or 2:00 p.m. This would facilitate early afternoon charging, when solar generation output is at a maximum. As the penetration of solar generation increases, this boundary should be reevaluated. Consistent with this rate design, if daytime charging is needed, it should be strongly encouraged in the morning or early afternoon.

Workplace and fleet charging facilities with daytime charging needs should be encouraged to install on-site solar PV generation to serve PEV charging and other loads. Workplace and fleet charging facilities should be strongly encouraged (if not required) to separately meter employee and fleet vehicle charging loads. Separately metered employee vehicle and fleet charging stations with loads of up to 500 kW should be exempt from demand charges for a three-year trial period.

Public agency fleet vehicles (e.g., electric buses) should be exempt from demand charges for a three-year trial period. Utilities should be required to report on the need, if any, for demand charges for commercial and public agency PEV charging, in their 2017 or 2018 GRC Phase 2 proceedings.²¹

²⁰ A proper allocation of generation and distribution capacity costs in TOU rates should result in afternoon peak-hour rates that are three to four times higher than they are in the off-peak hours generally applicable from 10 p.m. to 8 a.m., and even higher relative to a super-off-peak rate applying to a five or six hour window within the longer off-peak period.

²¹ Demand charges are typically assessed to recover generation and distribution capacity costs for larger nonresidential customers. However, such costs can also be recovered in peak-period TOU energy rates. Demand charges should not be confused with the fixed monthly customer facility charges that ORA proposes for residential customers requiring service upgrades due to new loads. Such fixed monthly facility charges are not needed for nonresidential customers because, unlike for residential customers, nonresidential Rule 15 and 16 allowances are revenue justified.

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

Well-designed PEV-TOU rates would work as stable and adequate incentive to encourage participation.

For both residential and nonresidential (e.g., fleet) charging, where overnight charging is feasible, the best consumer incentive for intelligent charging is an appropriately low marginal cost-based super-off-peak rate for the five to six hours with the lowest marginal energy cost typically beginning at midnight.

In nonresidential settings, if daytime charging is needed, daytime rates should be differentiated. Level 2 charging should be strongly encouraged so that charging can be completed before the afternoon peak period.

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

See the response to Question #3 above.

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

Both PG&E and Southern California Gas Company (SoCalGas) have existing tariffs for compressed natural gas (CNG) service. These tariffs cover compression on the customer's premises or on PG&E's premises, for Core and Non-core customers. ORA does not recommend any changes to these tariffs at this point. If any changes in the tariffs are required, these should be addressed in the context of the comprehensive cost allocation proceedings that take place in the PG&E Gas Transmission & Storage (GT&S) and the SoCalGas/SDG&E Triennial Cost Allocation Proceedings (TCAP).

The Commission has jurisdiction over establishing the CNG rates to the end-user—there is a compressed rate and an uncompressed rate. The rates were heavily litigated in the last PG&E Biennial Cost Allocation Proceeding, and a method was adopted. To the extent a CNG provider is buying CNG from a utility such as PG&E and SoCalGas, the Commission has jurisdiction over the CNG transactions. If the CNG provider is a bundled customer of the utility, then the Commission can set all components of the CNG

rate. If the CNG provider is a customer of a Core Transport Aggregator (CTA), the Commission can set all components of the CNG rate except for the procurement rate (i.e., gas supply) which could be provided by a CTA.

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

The Commission should consider whether residential line extension allowances, designed for connections to *new* residences, are appropriate for PEV charging installations at *existing* residences. In addition to PEV owners charging at Level 2 or higher, residences with large loads requiring a service upgrade beyond 150 amps (or some other reasonable threshold) can cause abnormal distribution costs (beyond those typical for the residential class). In most cases, these costs are now covered by Rules 15 and 16 allowances, and are therefore socialized to all customers, including low income customers who have little likelihood of owning PEVs in the near future. However, the effect of Rules 15 and 16 on upgrades to existing residences is haphazard, in the sense that, while most residential customers requiring service upgrades will bear no costs, , in a few cases, homeowners can be assessed rather large costs for upgrades.

In place of the current allowances for upgrades at existing residences (which are neither cost-based nor revenue-based), those customers needing upgrades for PEV charging or other new loads could be assessed a fixed monthly charge per kW for new load to defray some part of the cost. Revenue from infrastructure charges could be used to hold down volumetric rates. Alternatively, they could be used to fund public PEV charging facilities.

V. FINANCING OF PEV-RELATED FACILITES

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

A. Utility Finance for Purchase of AFVs or Construction of PEV Charging Facilities Is Not In the Public Interest

No. Utilities should not provide financing for vehicles or PEV charging facilities on the customer side of the meter. There are four main policy reasons as to why it is not

in the public interest to have ratepayers in general finance construction of vehicles or charging facilities.

First, it would be inappropriate for the utilities to provide financing or even credit enhancements for financing of customer-owned PEVs or charging equipment absent a strong showing of net direct benefits to non-participating ratepayers for PEV. Utility financing entails both costs and risks to ratepayers that should be carefully evaluated. It has not yet been demonstrated that the benefits of utility financing outweigh the costs. At least some of the claimed benefits to ratepayers of VGI are speculative.²² The Commission should carefully gather and report evidence of benefits and costs from comparable programs, current EV programs (such as the TOU-electric bus program enabled by Resolution E-4514)²³ and current EV usage patterns before considering further expenditure of ratepayer dollars for PEV financing.

Second, there are multiple more appropriate sources of subsidies and financing in the PEV sector. The State has at least two major sources of subsidies/financing for the PEV sector on top of federal and private sector subsidy/financing. The State's funding alone includes \$100 million from NRG settlements, and these settlement funds are earmarked in the State's Draft Cap-and Trade investment plan for charging stations. It would seem highly inappropriate for the CPUC to spend additional ratepayers' dollars on an industry it does not regulate.

Third, utility financing would involve a wealth transfer from the majority of ratepayers to a minority who are wealthy enough to afford PEVs. The group purchasing PEVs will be small relative to the entire customer population regardless of the fact that subsidies and/or financing may be available. Meanwhile, one-third of ratepayers are

²² This is particularly true as VGI programs are necessarily dependent on individual consumer behavior, which is difficult to predict, much less ‘regulate’ according to grid needs. Further, the contribution of these grid benefits occurs on vastly minute, per-consumer levels that are not organized in a manner that would fulfill grid requirements.

²³ See p. 9 of the OIR.

eligible for CARE rates. And, utilities and ratepayers are already facing tremendously high costs/high rate pressure in the next few years with increasing revenue requirements resulting in around a 10 percent rate increase by next summer.²⁴ Adding to that burden in order to benefit a minority of wealthy ratepayers is inappropriate here.

Finally, utility financing of PEVs and/or PEV-related infrastructure involves favoring one GHG-reducing technology over others without any analysis of direct benefits to ratepayers as a whole. There is no strong evidence that policies to finance PEV adoption can reduce more GHGs than, say, policies to finance more renewable-fueled generation or policies to finance expanded public transportation options. Any of these alternatives could reduce overall costs to society, as well as achieve large-scale reductions in GHG emissions. Here, the CPUC is entering into an unfamiliar realm -- the transportation planning sector. The Commission should consider the broader question of what is the most cost-effective way of achieving GHG emissions reduction in the transportation sector, among other possible investments or ratepayer funds, before authorizing ratepayer financing.²⁵

²⁴ SCE, RROIR Phase 2, *Interim Residential Rate Design Proposal*, Exhibit No. SCE-1, Appendix B, “Forecast Changes in SCE’s revenue requirement October 2013 to Spring 2014,” p.B-1, shows a total bundled service revenue increase by 10.7% and system average rate change by 11.1%. SDG&E, RROIR Phase2 Interim Rate Changes, AB327_Supplemental Filing, Appendix B, “Statement Of Present And Proposed Rates” Table shows revenue increase between 2014 Summer and Sept 2013 to be 14.55% increase. If the Commission adopts the 2012 GRC Phase 2 decision for the allocation, residential would see a preferable outcome of 7.4% increase. But, the whole system is still seeing the 14.5% increase.

²⁵ Some indicators point to public transportation investments as the most cost-effective way to achieve GHG and societal gains. California Air Resources Board’s (CARB’s) draft cap-and trade investment plan reflects these findings: “This approach of integrating livable community infrastructure, maintenance, and operations of the [public] transportation system at the neighborhood scale will maximize GHG reductions from the transportation sector through combinations of strategies – rather than single purpose investments. This integrated approach achieves the most cost-effective results and support a range of community benefits – including public health, resource protection, affordable housing, equity, air quality, and safe routes to schools and other community services. It also would serve as a leverage to investments in rail modernization, interregional plans, and other funding mechanisms to encourage more sustainable growth and transportation infrastructure.” See: http://transfunding.org/concept_22_2751166370.pdf

B. ORA Supports Reduction of Barriers To PEV Ownership Where The Utility Appropriately Has A Role

Despite these concerns, ORA supports reduction of barriers to PEV ownership where the utility appropriately has a role. One such area is finding ways to reduce the cost of dedicated PEV metering or submetering. In most cases, the utility will own any second meter or submeter, and such equipment should be furnished at a small fixed monthly charge to the PEV owner.

A second possible barrier to PEV adoption is the cost of service connection and transformer upgrades that may be required for a Level 2 (or higher) charging installation. Under the “interim policy” adopted in D.11-07-029, such costs are socialized to all ratepayers,²⁶ whereas, under the “normal” application of Rules 15 and 16, in a few cases ratepayers would incur substantial costs for those items. As discussed above, the Commission should consider a small, monthly “customer facility charge” for these items in lieu of relying on Rules 15 and 16. This is equivalent to utility financing of these upfront costs at its own cost of capital, thereby removing these costs as a barrier to PEV adoption, without unfairly burdening ratepayers with costs caused by a small minority of relatively high income PEV owners. SED supports the Alternate Proposed Decision.

²⁶ But for the “interim policy” adopted in D.11-07-029 and extended in D.13-06-014, service connection and transformer upgrade costs would be covered through the Rules 15 and 16 line extension allowance process. In a few cases where expensive upgrades are required whose costs exceed the line extension allowances; PEV owners would incur substantial costs for those items. However, under the “interim policy,” normal allowance limits are waived and even high-cost PEV-related residential service upgrades are socialized to ratepayers.

Respectfully submitted,

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