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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

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 24, 2009)

RESPONSE AND OPENING COMMENTS OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT TO THE 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

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Dated: October 5, 2009

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I. INTRODUCTION

Pursuant to the August 24, 2009 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 issued by the California Public Utilities Commission (CPUC or Commission), the Sacramento Municipal Utility District ("SMUD") hereby respectfully submits its opening comments and responses to the questions posed in Section 5.1 of the OIR.

SMUD has long been a strong promoter of electrification of the transportation sector and has been an active participant in the California Air Resources Board's ("ARB") Low Carbon Fuel Standard ("LCFS") rulemaking. SMUD appreciates the CPUC's efforts to integrate LCFS policies with design issues for a prospective cap and trade market as they affect the electricity sector.

While transportation fuels customers will certainly pay higher prices to reduce the carbon intensity of transportation fuel supplies, electricity sector customers will also pay increased costs. At a minimum, load serving entities ("LSEs) should hold LCFS credits for the benefit of their ratepayers to compensate for the increased costs associated with carbon emissions internalized by the electricity sector to fuel PHEVs and BEVs. Beyond that, additional apportionment or allocation of allowances to LSEs are appropriate to fund needed distribution infrastructure improvements and incentives to change the purchasing decisions of customers from traditional vehicles to EVs. SMUD believes that competition and innovation in the commercial and public infrastructure market should be encouraged through a flexible range of financial incentives, including the potential for third-party providers to charge fees, although again LCFS credits should be held by LSEs. Time-of-use ("TOU") rates are an indispensible element in any rate design for both commercial and residential customers to capture the full benefits of electric transportation. Accurate metering of transportation loads will eventually be necessary to realize these benefits.

SMUD has prepared the following detailed responses to selected scoping questions presented in the OIR.

II. SMUD RESPONSES TO SELECTED QUESTIONS FROM THE OIR

RESIDENTIAL CHARGING INFRASTRUCTURE AND POLICY

1. What types of residential metering arrangements are appropriate for PHEVs and BEVs and why? Should the Commission require a particular metering arrangement, or should it allow more flexibility in metering arrangements by investor-owned utilities? If so, why?

The Commission should allow a significant degree of initial flexibility for residential metering arrangements for PHEV's and BEV's until advanced metering technology solutions for

electric vehicles reaches a higher maturity level. This will allow utilities and technology companies to fully develop electric vehicle metering approaches in a fashion that protects customers from costly concepts that are deployed too early, prove inadequate and must be recalled. However, SMUD believes that the Commission should recognize the need to move over time toward direct (separate from the remaining house load) metering for most electric transportation load – a move that is necessary to realize the benefits of electric transportation in support of state goals for GHG reduction. This includes direct support for AB-32 and the LCFS credit markets that have yet to come into existence. Direct metering by the utility will be necessary to provide LCFS credit fungibility consistent with other GHG credit trading systems that are already in existence. The utility rollout of advanced meters will also facilitate incentive pricing options to motivate customers to charge off-peak to reduce electricity system operational and environmental impacts.

The Commission should also recognize that there are likely to be exceptions to the general principle that all electric transportation-related load should be directly metered, where following the principle will not be in the best financial interest of the customer. A current example may be Neighborhood Electric Vehicle users, who are driving BEVs but do not use enough energy on a vehicle life-cycle basis to recoup the cost of the associated direct meter, if one were to be required. Under all situations, the financial interests of the customer must be factored into the decision so as to not raise customer costs if commensurate benefits cannot be achieved.

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3. What kinds of equipment and electrical improvements will typically be needed to support residential charging for PHEVs and BEVs, e.g., EVSE's, metering, electrical system upgrades? Who should pay for residential equipment and improvements required to support PHEVs and BEVs, and why?

In addition to the EVSE and other customer side of the meter equipment, a substantial amount of residential charging is likely to require significant grid upgrades, including but not limited to replacing and or increasing the capacity of distribution lines, transformers, and substation equipment. When a proposed third-party charging infrastructure installation results in the need for immediate infrastructure upgrades to accommodate the expected added load, the standard principle that the new load should pay for the needed upgrades should be followed, at the utility's discretion. Nevertheless, there should be leeway for the utility to roll in some of these costs as an incentive to facilitate the electric vehicle market, and to reflect potential benefits to the system. Impacts that result not from an individual installation but over time from a concentration of independent charging installations should in general be rate-based for fairness – as the last independent installation triggering an upgrade should not be required to pay the full cost, nor should previous installations be retroactively assessed for this cost. The cost of upgrades will be offset by the benefits of more efficient utilization of distribution assets.

4. What policies should the Commission adopt to encourage competition and innovation in the market for residential infrastructure development for PHEV and BEVs?

Competition and innovation should be encouraged as much as possible provided that these principles do not subject customers to unfair costs through unregulated direct sales of electricity. To support early market adoption, LSEs should be allowed to encourage development of EV infrastructure through financing, special facilities charges, rebate mechanisms or a flexible range of financial incentives or pilot programs similar to other utility operations such as innovative energy efficiency technologies.

COMMERCIAL AND PUBLIC CHARGING INFRASTRUCTURE AND POLICY

13. What policies should the Commission adopt to facilitate competition and innovation in the commercial and public infrastructure market?

Competition and innovation should be encouraged as much as possible within general bounds of neutrality to non-participating customers, provided that customers are not subjected to unfair costs through unregulated direct sales of electricity. To support early market adoption electric utilities should be allowed to encourage development of EV infrastructure through financing, special facilities charges, rebate mechanisms or a flexible range of financial incentives or pilot programs similar to other utility operations such as innovative energy efficiency technologies. Generally, greater flexibility and innovative business models are appropriate in the commercial sphere than in the residential market.

For example, utilities should be encouraged to implement TOU rates with off-peak credits for vehicle charging to provide both an incentive to charge vehicles at times most appropriate for the electricity system as well as to send a clear signal that electric transportation can be a viable, cost-effective option for consumers.

Third party providers should be able to make a return through charging fees. SMUD Rules and Regulations do not allow for sub-metering and resale of electricity on a kWh basis except in specifically defined circumstances.

14. What issues need to be addressed related to the relationship between regulated electricity utilities and third-party electric vehicle service providers that are proposing and/or implementing charging services at residential, commercial and public locations?

In general, third-party electric vehicle service providers should not be allowed to add a margin to the electricity they purchase from regulated electric utilities and resell that electricity at a profit to electric transportation customers. Doing so would effectively make these entities

public utilities or electric service providers, with concomitant regulation and oversight by the Commission. Innovation in business models for the provision of electric vehicle services should be encouraged where it makes sense, but these business models should not include the direct resale of electricity with a markup.

In addition, third party electric vehicle service providers must be required to disclose the specific location of any planned charging infrastructure installed in a utility service area, at least 3 months prior to installation. The electric utility requires this information in order to properly plan for infrastructure upgrades that may be necessary to maintain reliability standards for the electricity grid when the charging infrastructure is in full use. When a proposed third-party charging infrastructure installation results in the need for infrastructure upgrades to accommodate the expected added load, the standard principle that the new load should pay for the caused upgrades should be followed. The electric utility should have the discretion to install network upgrades at their own cost, to provide an incentive to electric vehicle infrastructure development or to incorporate in more general planned network upgrades, and to reflect any value associated with more efficient utilization of distribution assets.

The Commission should also consider carefully the relationship between the third-party electric vehicle service providers and their customers, which will also in general be electric utility customers. Customers of third-party electric vehicle service providers should be provided with clear information about the amount and cost of electricity that they are using for electric transportation – lack of this information provides a disincentive to consumers to engage in efficiency in electric transportation. Some third-party electric vehicle service business models may not easily provide that information to customers, and electric utilities may end up being the pathway for that customer information. In such cases, electric utilities should be compensated

for the task of providing that information to customers, if the cost is not already recovered in normal charges. In addition, customers of third-party electric vehicle service providers should be provided with the same time-of-use rate structure and demand response opportunities that are provided to electric transportation customers of the electric utility. To the extent that there is a customer obligation or opportunity to be on a particular rate structure and be available for specific demand response requirements, third-party electric service providers should pass-through these requirements and options to their customers or provide them with equivalent opportunities and obligations.

Finally, and perhaps most importantly, the relationship between electric utilities and third-party electric vehicle service providers should include a clear understanding and agreement about the creation, measurement, and ownership of any LCFS credits, or any other similar environmental attributes. It is SMUD's position that the electric utility should retain ownership of any LCFS credits, since it is the electric utility that will be subject to carbon compliance for the energy generated and used. However, if other ownership structures are contemplated, the value of these LCFS credits should be part of the economic transaction between the utility, the third-party provider, and where appropriate, the customer.

LEGAL ISSUES RELATED TO THE OWNERSHIP AND OPERATION OF CHARGING INFRASTRUCTURE

15. Under what circumstances are third-party electric vehicle service providers public utilities and/or electrical corporations pursuant to Pub. Util. Code § 216 and Pub. Util. Code § 218? What implications do Pub. Util. Code § 216 and Pub. Util. Code § 218 have on the competitiveness of the third-party electric vehicle service provider market? If the Commission has jurisdiction over third-party electric vehicle service providers, what is the appropriate level of regulatory oversight?

In its white paper on light-duty vehicle electrification published earlier this year, the CPUC's Planning and Policy Division acknowledged the potential for legal issues relating to

third-party electric vehicle charging service providers, and potential barriers to entry in this market.[1] One such barrier is the prohibition under current law to entities other than IOUs to providing retail electricity.[2] Other potential barriers are the strict provisions of the Public Utilities Code subjecting private companies to CPUC jurisdiction as a "public utility", "electrical corporation", or "electric service provider".[3] Thus, even if third-party electric vehicle charging service providers seek to provide electric service to the public for the limited purposes of charging electric vehicles, they would likely be subject to CPUC regulation.

Similarly, the California Constitution authorizes municipalities, including municipal utility districts, to establish public works to furnish, among other things, light, power, and heat.[4] SMUD's authority under the Municipal Utility District Act enables it to acquire, construct, own, operate, control, or use works for supplying the inhabitants of its service territory with light and power and to do all things necessary and convenient to the full exercise of the powers.[5] Moreover, in *Grason Electric Company v. Sacramento Municipal Utility District* (9th Cir. 1985) 770 F.2d 833 ("*Grason*"), the federal appellate court cited to the California Constitution in support of its analysis that concluded that SMUD is authorized to displace competition in the provision of electric service.[6] Likewise, this Commission has held that publicly-owned utilities have, incident to their power to "establish and operate" public utility systems, the exclusive

[1] Commission Staff White Paper, *Light-Duty Vehicle Electrification in California: Potential Barriers and Opportunities*, Commission Policy and Planning Division (May 22, 2009).
[2] AB-1X.
[3] Pub. Util. Code, § 216, subds. (a) and (b) (E.g., Section 216(a) provides in pertinent part: "'Public utility' includes every … electrical corporation … where the service is performed for, or the commodity is delivered to, the public or any portion thereof."); *see also* § 218, subd. (a) and § 218.3, subd. (a).
[4] *See* Cal. Const., art. XI, § 9. California state court decisions hold that SMUD is a municipal corporation pursuant to the California Constitution. *See Sacramento Municipal Utility District v. Pacific Gas and Electric Company* (1946) 72 Cal.App.2d 638, 653 ("*SMUD v. PG&E*").
[5] Municipal Utility District Act, Pub. Util. Code § 12801.
[6] *Grason Electric Company v. Sacramento Municipal Utility District* (9th Cir. 1985) 770 F.2d 833, 837 ("*Grason*").

power to regulate their rates and charges for services.[7] SMUD believes that the State Constitution and statutes show a clearly articulated and affirmatively expressed state policy to displace competition with regulation in the area of electrical power and light.[8] Consequently, SMUD contends that it has exclusive jurisdiction over third-party electric vehicle service providers within its service territory.

While SMUD maintains that there is no "commercial space" within its service territory for private firms, including third-party electric vehicle charging service providers, to sell electricity at retail to PHEVs or BEVs, SMUD shares the Commission's interest in exploring the appropriate level of oversight to encourage innovation in the charging infrastructure market to complement its role of providing exclusive electric utility service.

ELECTRICAL SYSTEM IMPACTS

20. What are the potential electrical distribution system impacts associated with geographically concentrated PHEV and BEV charging in the near-term? How will utilities anticipate these impacts and make capital investments needed to ensure service network reliability? How should the utility capital investments be paid for and recovered?

Installation of PHEV and BEV charging equipment could require immediate distribution system upgrades to accommodate the new load and have a more drawn out impact as the additional load affects transformer life. The first step in anticipating these impacts is electric utility knowledge of any planned third-party infrastructure installations. The electric utility will use vehicle charging location information to develop assessments of immediate impacts and use a predictive model to assess lifetime impacts on grid infrastructure. When a proposed third-party charging

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[7] *See*, *Order Instituting Rulemaking Regarding the Implementation of the Suspension of Direct Access Pursuant to Assembly Bill 1X and Decision 01-09-060*, 2002 Cal. PUC LEXIS 989, *29-*30, D.03-07-028 ("The publicly owned utilities are given exclusive power to establish the rates and charges paid by their customers for services provided by these utilities") (*citing*, *Durant v. City of Beverly Hills* (1940) 39 Cal. App. 2d 133, 137 and *American Microsystems, Inc. v. City of Santa Clara* (1980) 137 Cal.App.3d 1037, 1042).

[8] *Grason*, 770 F.2d at 838. *Grason Electric Company v. Sacramento Municipal Utility District* (9th Cir. 1985) 770 F.2d 833 ("*Grason*")

infrastructure installation results in the need for immediate infrastructure upgrades to accommodate the expected added load, the standard principle that the new load should pay for the caused upgrades should be followed, at the utilities discretion. Impacts that result only from a concentration of independent charging installations should in general be rate-based for fairness – as the last independent installation triggering an upgrade need should not be required to pay the full cost, nor should previous installations be retroactively assessed for this cost. The cost of upgrades will be offset by the benefits of more efficient utilization of distribution assets.

21. What commercial and public infrastructure options are most likely to be deployed, e.g., Level 1 charging facilities, Level 2 charging facilities, "service station" model DC charging facilities, and/or battery swap stations? Should the Commission adopt policies to favor certain charging options taking into consideration cost-effectiveness, grid benefits, ability to meet PHEV and BEV driver charging demand, and ability to reduce BEV driver "range anxiety"?

Currently, commercial charging, excluding fleet applications, is usually deployed as a service to employees who commute to work. Since current technology requires approximately four hours to recharge most BEVs, workplace charging should focus on Level 2 charging infrastructure. The Commission should consider time-of-use rates that promote morning recharging at Level 2 charging facilities because when the four hour recharge time is combined with normal daytime commute hours, workplace recharging can be accomplished by mid-day, or at least prior to peak power usage. In addition, workplace charging could also have benefits in future vehicle-to-grid or vehicle-to-home energy use scenarios by potentially having more stored energy on-board the vehicle when it got home each night for power transfer to the grid during critical summer peak hours.

Generally, “public” charging takes many shapes and is hard to categorize. The range of public charging can vary from street-side charging for dense urban areas, to “public” parking garages that really serve as workplace parking facilities, all the way to businesses that provide

free charging to employees in publicly accessible retail parking lots. It is important to note that for normal work schedules, street-side parking for dense urban areas can serve as both "residential" type home charging locations during the night-time as well as workplace charging during the daytime. The Commission should consider the wide variability of "public" charging options when developing policies with regard to charging levels.

Another issue for "public" charging is technology maturity for DC fast charging and battery technology. Depending on the pace of technology, DC fast charging with larger battery packs may be viable approach for all public applications. Urban dwellers could fill up their vehicles at DC fast charging service centers similarly to how gasoline is distributed now. The fast charging service centers could also support workplace charging needs in the vicinity of any given workplace and would significantly reduce the phenomena of "range anxiety." Thus, the Commission should consider policies that enable this service niche.

Given the issues of "public" charging and the technology maturity of DC fast charging, a phased approach would probably provide the best benefits. In the near term, the Commission should deal with Level 2 charging to meet both residential and workplace applications, particularly in urban area setting. However, as the practicality of DC fast charging and battery energy storage performance improve, DC fast charging may be a more effective solution in the future. A mixture of all types will be required to meet the range anxiety of the general public.

TARIFF-RELATED

24. Should the Commission authorize a default time variant electric vehicle rate applicable to all residential electric vehicle tariff customers? What changes, if any, to the rate protection provisions of AB-1X are needed to authorize a default time variant electric vehicle rate applicable to residential customers?

SMUD advises caution in developing a separate default time-variant rate for EV customers. EV customers should be treated like any other customers with regard to time- variant

rates – their rates should be structured to reflect time-variant costs, and these are mostly driven by system generation costs rather than individual customer impacts. However, EV customers should be offered an optional time-variant rate that provides additional incentive to charge off-peak. AB-1X does not apply to POUs.

There is some concern that third-party electric service providers will not be motivated to send TOU pricing signals to customers since they are providing a service based upon convenience and because their for-profit charging rates may be much higher than the LSE's TOU rates. This could have the effect of negating LSE TOU incentives to charge off-peak.

The motivation for third party providers to charge more for on-peak charging convenience will be influenced by the rate structure offerred to such providers. The greater the differential between on- and off-peak or critical peak pricing, the more incentive there is to encourage charging off-peak.

The Commission should also consider incorporating lockout timers or demand response capability on the charging locations to disable charging during critical peak periods. This policy must be balanced against measures to allay the range anxiety of the general public.

29. Should the electric vehicle rate structure be designed to align rates with the system costs and benefits of PHEVs and BEVs, and if so, how? Should the Commission assign additional costs and benefits attributable to PHEVs and BEVs to specified electric vehicle rate classes or socialize the costs and benefits attributable to PHEVs and BEVs to all customer classes? Should the PHEV and BEV rate classes bear existing rate component costs?

Customers in all rate classes are struggling to pay their bills during this stressed economy. While we want to encourage EVSE development, at this point in time, careful attention must be paid to any cost burden shared by other ratepayers. As a general principle, non-EV ratepayers should not be overly burdened by the encouragement of EVs. It is also

generally recognized that commercial rates should be designed to include all applicable costs assigned to a commercial EV class using their unique load characteristics.

Nevertheless, an array of financial incentives may be required to change the purchasing decisions of customers from traditional vehicles to EVs. Concerns over reliability, range anxiety, comfort, performance, and short and long-term affordability are balanced differently by each consumer. SMUD believes that for consumer habits to change toward EVs, specified electric vehicle rates must, at a minimum, allow EV owners to capture enough fuel cost savings to offset or pay back the premium charged for the EV. In addition, it would be preferable that electric vehicle rates demonstrate a strong price signal or cost spread in order for retail customers to first notice the lower cost of operating EVs, and further to compare favorably the cost of operating EVs with other factors in the purchasing decision. This is an issue that should be of central importance to this proceeding.

30. Should the electric vehicle rates reflect the marginal cost of service, particularly for off-peak electricity charging and, if so, how?

EV rates should reflect the marginal cost of service for whatever time period charging occurs (i.e. TOU rates). Price signals should also be consistent with prices signals for electric service for all customers.

31. Should rate incentives be created for electric vehicles to be paired with distributed generation incentive programs, such as the California Solar Initiative (CSI) and Self-Generation Incentive Program? Should rate incentives be created for electric vehicles to be paired with demand response programs? How should these incentive programs be incorporated into electric vehicle rate structures? Who should pay for such incentives?

The Commission should authorize research, including pilot programs if appropriate, to investigate the benefits and costs of pairing incentive programs. Unless the lifetimes of the California Solar Initiative and the Self-Generation Incentive Program are expected to be extended, it may not make sense to examine pairing with these programs, as there is not likely to

be significant electric vehicle penetration by the time these programs are due to expire. However, understanding the relationship between on-site generation and on-site vehicle charging overall, and the differential impacts of this combination on the overall grid, seems necessary. In such cases, it may be appropriate to vary rate structures to maximize on-site use of on-site generation and minimize import and export of electricity from the site. The Commission's goals of zero-energy homes and businesses will also be affected by increasing penetration of electric transportation.

Rate incentives that pair electric vehicles with demand response programs should continue to be a matter of investigation as part of the Smart Grid. Electric transportation represents a potential significant additional load, and there should be programs and incentives in place to avoid connecting this load to the grid during peak demand hours when the system is strained. Eventually, vehicle-to-grid options could become useful enough to expand the opportunity to pair demand response programs with electric transportation to allow distributed provision of ancillary services and resource adequacy services.

SMUD will consider all opportunities to leverage incentives and demand response programs, including pairing with EV rates. Because the benefit of these programs accrues to all customers, all customers should contribute to the costs.

LOW CARBON FUEL STANDARD

33. What recommendations, if any, should the Commission make to the California Air Resources Board regarding the treatment of electricity under the Low Carbon Fuel Standard?

In any pre-2015 cap and trade program, if an LCFS credit is not turned in for credit under LCFS program, it can be used by a regulated entity under the cap and trade program. SMUD believes that each LCFS credit should be issued as equivalent to one GHG allowance. The

ARB's pre-2015 cap and trade program should explicitly recognize that LCFS credits originating in the LCFS program are fully fungible in the cap and trade market. This approach will ensure that slack demand in the initial years of the LCFS market does not slow the efforts of electrification of the transportation market.

In 2015, transportation fuels will be brought under the cap, requiring a structural change to the way LCFS credits can be converted to allowance equivalencies. This change can be accommodated through allowance allocation, by re-allocating allowances from the transportation sector to the electricity sector, and specifically to the entity who provided the electricity fuel and associated infrastructure. Such a re-allocation will cover costs associated with infrastructure improvements as well as provide a needed incentive to accelerate the penetration of electric vehicles. If the entity owning the LCFS credit chooses to sell that credit back to the regulated entities under LCFS, rather than convert it to an allowance equivalency, no re-apportionment need be made.

34. If a utility generates and sells credits under the Low Carbon Fuel Standard regulation due to customers' use of electricity as a transportation fuel, what should the utilities do with the revenue from the credits?

The governing boards of local publicly owned electric utilities ("POUs") are the stewards of the resources used to generate LCFS credits and to reduce GHG emissions to meet AB 32 goals. Thus, POUs should be afforded the discretion to budget the value generated from the use of electricity as a transportation fuel in the most efficient way to help its customers comply with AB 32 targets. POUs would be expected to use these revenues in familiar ways, such as for infrastructure upgrades, investments in new renewables, or rate designs that encourage penetration of electric vehicles. If sufficient value exists, mostly likely the result of substantial

investments in non-GHG emitting resources, the governing boards may decide to return that value as a dividend to the customer.

PROGRAMS AND INCENTIVES

38. How could electric vehicle adoption impact other Commission policies and initiatives including the Renewable Portfolio Standard, the Long-Term Energy Efficiency Strategic Plan, energy efficiency goals, and zero net energy homes goals?

A significant increase in electric vehicle adoption will clearly have impacts on the Commission's and the State's other important energy policies and initiatives.

Widespread use of electric vehicles will require that more renewable energy be generated to meet the 33% Renewable Portfolio Standard target by 2020. On the other hand, the shape and structure of electric transportation load may allow for greater development of wind power by providing load that can roughly coincide with this intermittent and mostly off-peak generation, thereby reducing potential system impacts of incorporating the generation. In addition, the storage capabilities of idle electric vehicles in a fully developed smart-grid may be structured to help reduce the need for firming requirements and ancillary services derived from fossil resources.

Widespread adoption of electric vehicles will also have a significant impact on the Commission's net-zero energy new home and new building goals. The amount of self-generation necessary to make a home 'net-zero' if a majority of the home's transportation energy is also provided by home electricity is likely to be nearly double that needed with no vehicle charging on site. With significant penetration of electric vehicles, new single-family homes are likely to include charging infrastructure as part of construction and if designed to be net-zero would have to take into account the transportation energy now supplied by the home. The increased generation needed to make a home net-zero will require increased attention to adequate

roof space for photovoltaic generation, will imply a need for lower generation costs than otherwise to retain cost-effectiveness, and will point to additional energy efficiency measures being considered and incorporated to minimize the need for on-site generation.

With respect to commercial buildings, widespread penetration of electric vehicles will also tend to make the net-zero goal more difficult in most cases, although there is unlikely to be as significant an increase in load for most buildings because, with some exceptions, the charging energy required in a commercial setting is likely to be a much smaller proportionate increase than in a residential setting. In buildings where there is significant space for self-generation in relation to on-site load, such as parking structures and warehouses, the addition of significant charging infrastructure may be easily accommodated by the building while remaining net-zero.

With respect to long-term efficiency goals in general, the addition of significant load on the system from electric transportation will tend to increase the importance of achieving all cost-effective energy efficiency in order to preserve system reliability at lowest cost. In addition, the higher overall demand for electricity with the additional electric transportation load implies the need to access higher cost generation resources, making energy efficiency even more cost effective.

III. CONCLUSION

SMUD appreciates the opportunity to provide its responses to the Commission's questions regarding consideration of Alternative-Fueled Vehicle Tariffs, Infrastructure and

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Policies to Support California's Greenhouse Gas Emissions Reductions Goals..

October 5, 2009

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the **RESPONSE AND OPENING COMMENTS OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT TO THE 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** on October 5, 2009, on all known parties to the proceeding R.09-08-009 *[(last changed October 2, 2009) http://docs.cpuc.ca.gov/published/service_lists/R0908009_78506.htm]* via email to those whose e-mail address is available and by U.S. mail to those who do not have an e-mail address.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on October 5, 2009 at Sacramento, California.

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