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 22, 2013)

RESPONSE OF SAN DIEGO GAS & ELECTRIC COMPANY (U902M) TO THE ORDER INSTITUTING RULEMAKING ASSIGNED COMMISSIONER'S SCOPING MEMO AND RULING OF JULY 16, 2014 TO CONSIDER ALTERNATIVE-FUELED VEHICLE PROGRAMS, TARIFFS, AND POLICIES

Steven D. Patrick

Attorney for
SAN DIEGO GAS AND ELECTRIC COMPANY
555 West 5th Street, 14th Floor
Los Angeles, CA 90013
Telephone: (213) 244-2954
Facsimile: (213) 629-9620
SDPatrick@semprautilities.com

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I. INTRODUCTION

In accordance with Rule 6.3 of the California Public Utility Commission's ("Commission" or "CPUC") Rules of Practice and Procedure, San Diego Gas & Electric Company ("SDG&E") hereby submits its comments in response to the Scoping Memo issued in the above captioned Rulemaking ("AFV OIR").

SDG&E appreciates the Scoping Memo's focus on seeking ways to accelerate the adoption of Plug-in Electric Vehicles ("PEVs"), continuing the effort started in Rulemaking 09-08-009 to address critical issues that affect the adoption rates of Alternative-Fueled Vehicles ("AFV") in California. The Commission raises a number of relevant and timely questions in the Scoping Memo. With collaborative input from all stakeholders focused on increasing the number of PEVs in California, SDG&E is optimistic that the decisions flowing from this OIR proceeding will support the increased rate of adoption of PEVs in California necessary to meet the goals of the Governor's Zero Emission Vehicle ("ZEV") Action Plan to provide infrastructure support of 1 million ZEVs by 2020, and putting 1.5 million ZEVs on California roads by 2025[1].

[1] California Executive Order B-16-2012.

SDG&E supports the Commission in carrying out its role in addressing the ZEV Action Plan and goals. SDG&E suggests the Commission exercise its oversight role and use the utilities it regulates to accelerate the growth in the rate of adoption of PEVs. SDG&E fully supports: (a) the Commission's focus of this proceeding as a "mid-stream assessment of the utility role in the market"; and (b) that the Commission does not intend for this Rulemaking to delay the gathering of practical experiences that can be gained in the market today through pilot programs.

Utilities have played and will continue to play a critical role in supporting the growth of PEVs, especially in California. SDG&E will continue to do its part to accelerate the growth of electric transportation by ensuring the safe, reliable and efficient integration of electric transportation loads with the grid. SDG&E submits that this is best accomplished by working with all stakeholders to support the market through technology development and deployment, electricity pricing design, innovation and education. SDG&E welcomes the continuing discussion concerning PEV adoption.

II. POLICY ISSUES

A. Phase One Policy Development

While the proposed scope of this phase of the AFV OIR is properly forward-looking, SDG&E believes the Rulemaking will benefit by reflecting on what has been learned since 2009 when the Commission opened the first AFV OIR, R.09-08-009 ("1st AFV OIR" or "2011 AFV OIR"). In the 1st AFV OIR, the Commission set out to make relevant and timely decisions in 2010[2] and 2011[3] without the benefit of much actual market experience or data in areas such as vehicle preferences, customer usage patterns for charging, consumer charging technology preferences, use of home and non-home charging preferences and customer response to rates. For example, SDG&E's multi-year PEV Pricing and Technology Study (Study), incorporating a temporary experimental PEV rate approved by the Commission, provided an early view of PEV

[2] See D.10-07-044 re CPUC jurisdiction over electric vehicle charging services.
[3] See D.11.07-029 re utility notification of electric vehicles, rate design for electric vehicles, submetering protocols for electric vehicle load, load research and cost tracking for electric vehicles, utility education and outreach for electric vehicles, etc.

customer's charging response to time-varying rates for PEV home charging. The study produced relevant data that helped inform state electricity pricing policy early on by exploring the degree to which pricing and technology influence PEV charging decisions, well before the rate of PEV adoption increased in SDG&E's service territory.[4]

SDG&E is encouraged by the Commission's recognition of the need to continue to gather data from pilot programs to inform CPUC policy as it re-examines the role of the utility in this market space:

> While this proceeding is designed as a mid-stream assessment of the utility role in the market, we recognize that RD&D projects and pilot programs can continue innovation already achieved to date. For this reason, we do not intend to foreclose proposals in parallel applications for particular pilot programs or RD&D projects parties may find timely and worthwhile while this proceeding is pending.[5]

As shown in SDG&E's rate experiment described above, SDG&E believes discovering, understanding and appreciating actual customer PEV adoption preferences and PEV customer charging behavior are critical to the success of increasing PEV adoption rates.

In the current phase of this AFV OIR, the Commission should place emphasis on encouraging pilot programs, especially those that shed light on the cost to provide charging services, customer response to innovative rates and pricing design, charging decisions, as well as vehicle preferences, taking into account regional differences in the state.

B. Current Program Issues: Pilot Activities and Market Acceleration Proposals

Ensuring that utility infrastructure is and will continue to be available to meet the AFV energy needs of SDG&E's customers in a manner that provides benefits to all customers is an immediate priority. Pilots related to pricing, technology and business model options should be

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[4] SDG&E EV TOU Pricing and Technology Study, Advice Letter 2157-E (U 902-E), filed March 26, 2010 and approved by the CPUC, June 24, 2010, Resolution E-4334. Final report: http://www.sdge.com/sites/default/files/documents/1681437983/SDGE%20EV%20%20Pricing%20%26%20Tech%20Study.pdf?nid=10666

[5] R.13-11-007, OIR, pages 14-15. A continuation of the previous OIR (R.09-08-009), in support of California Executive Order B-16-2012, which set a target of 1.5 million zero-emission vehicles ("ZEVs") in California by 2025, there is a renewed focus on vehicle grid integration.

encouraged. To that end, utilities should be allowed to actively participate in all aspects of transportation electrification, including owning and operating grid-integrated charging facilities. Commission oversight will help ensure that competition is not unfair and that there is adequate availability of grid-integrated charging infrastructure for all customers. Specifically, utility leadership in the deployment of grid-integrated charging is an appropriate and necessary role – it is incumbent upon the utility and the Commission to ensure that all customers are protected from costs that can be avoided through measures that have the potential to optimize grid utilization, such as solutions within the VGI framework. SDG&E is encouraged by the Commission's desire to explore further the role the utility can play in offering innovative products and services to provide an excellent customer experience to its PEV customers.

III. DISCUSSION

SDG&E offers the Commission feedback on Questions 1 through 5 set forth in the Scoping Memo. SDG&E submits that Questions 6 through 13 are intended by the Scoping Memo to be answered at a later date so that the Commission, parties and stakeholders will have received the benefit of developing the facts and discussing the issues presented by these Questions in the October Workshop set out in the Scoping Memo. SDG&E intends to fully participate in this Workshop.

A. Statement of Issues – Phase 1 Scope

1) Should the Commission adopt the proposed AFV Guiding Principles? What modifications, if any, are appropriate?

The following guiding principles are proposed by the Commission to apply to all the activities within scope of this proceeding:

- **Promote the deployment of safe and reliable AFV (focusing in this phase on PEV) electric grid infrastructure designed to meet transportation and energy service needs while maximizing ratepayer benefits and minimizing costs to all utility customers.**
- **Target near-term solutions that complement the use of preferred energy resources and utilize the electric grid efficiently.**

- **Incorporate and enhance policies from other, related Commission proceedings to promote efficient program implementation and use of ratepayer funding.**
- **Enable and incorporate the full range of values from VGI in a new program as part of the Commission's overall AFV efforts while remaining technology neutral and allowing for business model innovation.**

Yes. SDG&E supports the development and use of the proposed AFV Guiding Principles. SDG&E recommends the following language changes (additions in italics; deletions are strikethroughs):

- To the first AFV Guiding Principle for alignment with the underlying principles of VGI as well as the second Principle:

  Promote the deployment of safe and reliable AFV grid infrastructure designed to meet transportation and energy service needs while maximizing ratepayer benefits and minimizing costs to all utility customers *through the efficient integration of electric transportation loads with the grid.*

- To the third AFV Guiding Principle SDG&E recommends replacing the word "efficient" with the word "effective" to denote a more robust results focus.
- To the fourth AFV Guiding Principle SDG&E recommends the following language changes:

  Enable and incorporate the full range of values *to the benefit of all customers* from *multiple* VGI *solutions* ~~*in a new program*~~ as part of the Commission's overall AFV efforts *to accelerate the adoption of AFVs* while remaining technology *and business model* neutral ~~and allowing for business model innovation~~

2) **Should the Commission consider an increased role for the utilities in PEV infrastructure deployment and, if so, what should that role be? If the Commission should consider utility ownership of PEV charging infrastructure, how should the Commission evaluate "underserved markets" or a "market failure" pursuant to D.11-07-029? What else should the Commission consider when evaluating an increased role for utilities in PEV infrastructure deployment?**

The Commission included language in the 2011 AFV OIR decision regarding utility ownership of Electric Vehicle Service Equipment ("EVSE") that allowed possible modification at a later date as PEV data and information became available as customers purchased and used PEVs. As noted above, the Commission at the time of that decision recognized that it did not have the

benefit of robust market information and prudently provided for the possibility of such modifications. Therein the Commission used but did not define the terms, "markets," "market failure" and "underserved markets."

SDG&E submits that defining these terms with precision at this stage of PEV customer adoption has no useful purpose. PEV adoption by SDG&E's customers has increased since D.11-07-029 was issued, but viewing and trying to understand PEV adoption as a "market" is premature and could at best be considered in a formative stage of development, both in terms of consumer demand for PEVs, and the production volumes of PEVs entering the market. Perhaps the threshold condition that the 2011 AFV rulemaking put in place should be re-examined for its relevance, in light of what can be properly considered the state's definition of "market" provided by Governor Brown's ZEV Action Plan: the goal of deploying infrastructure to support 1 million ZEVs by 2020, and the adoption of 1.5 million ZEVs in the California market by 2025.

Market Failure

SDG&E submits that determining if the "market" is failing should be measured in terms of whether California is on an infrastructure deployment and PEV adoption trajectory sufficient to reach the Governor's goal for California. Given the current trajectory of infrastructure deployment (specifically, charging facilities), and PEV adoption in California, the Governor's goal will not be met. From this perspective, the "market" could be defined as failing. More can be done to accelerate the deployment of infrastructure support by allowing utilities to participate in the deployment, which in turn would drive consumer adoption of PEVs to improve this trajectory immediately to meet California's goal.

Using this definition of "market," perhaps it is more constructive and relevant to re-position the Commission's approach to be more proactive, and explore ways to prevent the market failure of not meeting the Governor's goals, instead of debating, abstractly, if and when utility participation in the market should take place, especially in a narrow area of the market such as EVSE ownership. Said another way, if any idea from any entity has merit and potentially can accelerate infrastructure deployment and PEV adoption, it should be considered

and implemented if it helps move the needle of PEV adoption. An indication of "market failure" in this context would be if the PEV adoption trajectory does not improve, and instead the momentum of the market flattens and customer retention falls (i.e., the number of PEV customers retaining or reacquiring a PEV decrease). Should the Commission wait until it has determined these events have actually occurred and the market is failing, the Commission's allowing utility intervention at that point in time, such as utility ownership of EVSE, will quite likely not revive that market – utility participation will be too late and ineffective.

Conversely, the Commission could proactively look for signs of one or more early indicators of "market failure", to signal an increasing need for utility participation to help accelerate the market. For example, signs that market failure is occurring can be:

- Volume of production and demand for PEVs is flattening or declining;
- Stability of the EVSP industry, and charging-equipment manufacturer industry – measured in terms of growth in the volume of competitors, profitability, regional availability of suppliers is flattening or declining;
- Rate of production of and demand for EVSE is flattening or declining;
- Rate of growth and innovation of EVSE makes and models is flattening or declining;
- Cost of the EVSE equipment and installation increases;
- Availability of grid-integrated charging services (as outlined in the VGI white paper) fails to materialize or does so too slowly.

Underserved Markets

"Underserved markets" could simply be defined as areas where EVSE availability (or lack of) does not meet the needs of current and future EV customers. In this context, there are some customers (such as those living in multi-unit dwellings [MuDs]) who do not and cannot realistically expect to enjoy the benefits of PEVs due to the lack of access to home charging, thus inhibiting the adoption of PEVs by those who live MuDs. Since home or residence charging is and is likely to remain, the most dominant, convenient and preferred location for PEV charging, there is no question that solutions are needed to serve the needs of customers living in MuDs.

For SDG&E, this means 50% of its residential customers today are not served with charging infrastructure and this gap must be addressed quickly and efficiently. The Commission should consider and implement solutions for serving this market immediately. Certain solutions are underway today, but it will take significantly more resources to effectively serve the MuD segment of the residential market.

The Commission should also consider a broader perspective in defining "underserved markets" as one that is defined by customer perception; that is, as long as potential customers or customer segments in a region perceive that there is insufficient charging equipment support for charging PEVs, they will be substantially discouraged from acquiring PEVs. Thus, in this context, customer perception defines "underserved markets" for which the remedy is more access to PEV charging.

Vehicle-Grid Integration

One other area of interest not explored during the 2011 AFV OIR proceeding was the potential benefits of and need for effective and efficient grid-integrated PEV charging. The current AFV OIR introduces this concept, referred to as Vehicle-Grid Integration ("VGI") and also indicated that EVSE ownership elements of the 2011 decision should be revisited. Had VGI opportunities been identified in the early phase of the 2011 AFV OIR proceeding, as stated in the White Paper, then these and other potential aspects of PEV interactions with the grid could have been explored. Such aspects include the potential role for utility ownership of EVSE as well as how a utility could help promote competitive market development. In light of the potential benefits of grid-integrated vehicle charging to all customers the Commission should recognize that utilities can and should play a leading, but not exclusive, role to better ensure the Governor's goals are met. The utilities have the proprietary information on real time and planned grid conditions, and are in a strong position to assist PEV customers secure the most value from the flexibility of PEV loads to the benefit of all customers and society as a whole. Multiple VGI-type solutions should be identified and allowed to be explored to address grid operational efficiencies.

As with all customer loads, the utility currently owns and operates infrastructure that supports PEV and EVSE deployment and use. The 2011 AFV OIR decision more narrowly prohibits EVSE ownership by the utility, not "PEV charging infrastructure" as worded in the question. Also, as part of the 2011 AFV OIR decision, the Commission declined to require that load management technology be defined as part of EVSE (section 11.1 pages 71-72), thereby limiting the definition of EVSE[6]. Today, some types of EVSE include load management functionality, and some do not, relying on technology external to and separate from the EVSE to achieve those functions. This complexity also suggests that this ruling as written may no longer be relevant, or at least difficult to interpret in light of ongoing actual EVSE development and deployment. More importantly, since the time of the 2011 AFV OIR decision, much has been learned about the flexibility of PEV loads, the charging infrastructure requirements to serve EVSE, and possible innovative solutions to better integrate these loads with the utility grid. However, little progress has been made actually developing and deploying the efficient integration of PEV loads with the grid using improved vehicle-grid integration. This fact alone suggests that this prohibition should at least be made more flexible to allow utilities to test new VGI-type solutions.

SDG&E suggests the Commission view the utility role as not one where the only possible utility intervention is prescriptively driven by the utility's proof of "market failure" or the existence of "underserved markets," especially since there is no adopted Commission definition or elements of proof of either condition. Instead, the foundation for the utility role to increase the adoption rates of PEVs should be in terms of "ratepayer interest" and should be in line with Public Utilities Code Section 740.8 amended on July 21, 2005, effective on January 1, 2006,

[6] Operational Definition of EVSE: "The conductors, including the ungrounded, grounded, and equipment grounding conductors, the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatuses installed specifically for the purpose of delivering energy from the premises wiring to the electric vehicle" (source: Society of Automotive Engineers (SAE) J1772 paragraph 3.12 and National Electrical Code article 625.2). SAE J1772 adds: "Charging cords with National Electrical Manufacturer's Association (NEMA) 5-15P and NEMA 5-20P attachment plugs are considered EVSEs."

which redefined "ratepayer interest" by including environmentally and socially responsible service. Section 740.8 currently reads as follows:

> As used in Section 740.3, "interests" of ratepayers, short- or long-term, mean direct benefits that are specific to ratepayers in the form of safer, more reliable, or less costly gas or electrical service, consistent with Section 451, *and activities that benefit ratepayers and that promote energy efficiency, reduction of health and environmental impacts from air pollution, and greenhouse gas emissions related to electricity and natural gas production and use, and increased use of alternative fuels* (emphasis added).

The 2011 AFV OIR decision considers ratepayer interest only in terms of potential safety and customer cost reduction advantages (instead of growth of PEV adoption rates) and determines they are outweighed by the competitive limitations which, though unproven, may possibly result from EVSE ownership by investor-owned utilities. The Commission should encourage innovative ways to explore solutions to increase adoption of PEVs in California, especially those that benefit all customers, such as those to be anticipated pursuant to VGI-related programs.

3) **What education and outreach activities must the utilities provide to support further customer PEV adoption? What existing resources are available for these activities and what additional resources are needed?**

To be effective, SDG&E's education and outreach activities today must be targeted to all stakeholders that can influence PEV adoption as well as the deployment of charging infrastructure. Although the 2011 AFV OIR decision offers guiding principles for "customer" education and outreach, SDG&E interprets these guiding principles to be generalizable and targeted to all relevant stakeholders, not just "customers" as the guiding principle language suggests. In addition, in terms of customers, PEV customers should be defined in the broadest sense – current, as well as prospective PEV customers. SDG&E currently collaborates with such stakeholders; including the combining of resources as appropriate, to maximize the impact of its education and outreach efforts. For example, for many years SDG&E has teamed up with the Center for Sustainable Energy on Electric Vehicle Day – San Diego: a National Drive Electric Week event. This event has grown from 100 to 750 attendees in that time. When organizations

like these can combine their efforts to increase attention regarding the benefits of electric vehicles, SDG&E sees an increase in customer awareness of the value of PEVs, which could lead to increased PEV adoption. One case in point was from the 2013 Electric Vehicle Day event in San Diego, where one dealership stated, toward the end of the event, that the dealership was packed because people were going straight from the Electric Vehicle Day event to buy or lease a PEV. In its 2016 General Rate Case, SDG&E is requesting additional funding to continue such targeted education and outreach activities and collaborations with PEV stakeholders.

4) **How should the Commission mitigate the impact of demand charges, if at all, on entities pursuing transportation electrification?**

It is important to examine the impact of demand charges holistically in the total context of the entire commercial rate design because a change in one feature in a rate design will necessarily impact other features in terms of cost recovery. Rate designs are a function of rate design principles adjudicated by the Commission to determine how best to allow the utility to recover the cost of energy, generation, transmission, distribution, and other costs, as well as considering the blend of fixed and volumetric based solutions. As some commercial rates with demand charges are designed today, the behavioral response to a demand charge price signal would be to improve load factor (that is, avoid infrequent spikey-loads). For example, SDG&E's commercial AL-TOU rate (with coincident and non-coincident demand charges) benefits customers who are able to maximize their load factor (that is, flatter loads). In addition to traditional demand charges, the Commission could consider other price signals, such as dynamic signals that are linked to circuit and system peaks. Another option is to look at additional utility management of charging incorporated to mitigate impacts on demand from PEV charging by increasing grid utilization without increasing transmission and distribution capacity investments.

5) **How should the Commission identify and consider in this proceeding best practices achieved and lessons learned from current AFV pilot project results?**

SDG&E acknowledges that each IOU has regional PEV market differences: what may work in one region may or may not be as effective in another. As such, the Commission should encourage each IOU to propose pilot program solutions tailored to meet the unique needs of these regional differences. Currently, there is a healthy level of information sharing in terms of planned and implemented AFV pilot programs and projects among the IOUs, Publicly Owned Utilities, and related stakeholders through various organizations and forums, such as the California Electric Transportation Coalition, the California PEV Collaborative, and through the Electric Power Research Institute sponsored Plug-in events over the years. As each utility proposes its ideas to the Commission with PEV programmatic or project related solutions, such proposals should include a reference to AFV pilot project results of others, as appropriate, in an effort to demonstrate relevant applicability and improvements.

IV. CONCLUSION

SDG&E appreciates the opportunity to provide these comments and looks forward to further dialogue with the Commission and stakeholders.

Dated at Los Angeles, California, this 29th day of August, 2014.

Respectfully submitted,

By: /s/ *Steven D. Patrick*
Steven D. Patrick

Steven D. Patrick

Attorney for
SAN DIEGO GAS AND ELECTRIC COMPANY
555 West 5th Street, 14th Floor
Los Angeles, California 90013
Telephone: (213) 244-2954
Facsimile: (213) 629-9620
SDPatrick@semprautilities.com