

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider
Alternative-Fueled Vehicle Programs,
Tariffs, and Policies

R._____

ORDER INSTITUTING RULEMAKING

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ORDER INSTITUTING RULEMAKING TO CONSIDER ALTERNATIVE-FUELED VEHICLE PROGRAMS, TARIFFS AND POLICIES

1. Summary

The Commission opens this rulemaking to address issues relating to the expanding use of alternative-fueled vehicles (AFV) in California. In particular, the Commission is continuing the work it started in Rulemaking (R.) 09-08-009, support California Executive Order B-16-2012, which set a target of 1.5 million zero-emission vehicles (ZEVs) on the roads in California by 2025.¹ The Governor's Office has also developed a "ZEV Action Plan" for state agencies to support the ZEV target, and this Commission was identified as the lead agency on several action items.²

Consistent with the ZEV Action Plan and California's policies on alternative-fueled vehicles, and to support the Commission's achievement of its action items, this proceeding may broadly consider all issues related to alternative-fueled vehicle adoption. The proceeding will primarily focus on specific ongoing issues such as financing options, appropriate rate design and development of new policies related to AFVs.

The proceeding will have two tracks. The first track will evaluate the potential and value of vehicle-grid integration, including the use of vehicle batteries for demand response or energy storage. The second track will focus on the development of new AFV tariffs in each of the investor-owned utility service

¹ California Executive Order B-16-2012, issued on March 23, 2012, <http://gov.ca.gov/news.php?id=17463>.

² Governor's Interagency Working Group on Zero-Emission Vehicles, 2013 ZEV Action Plan (ZEV Action Plan), February 2013, http://opr.ca.gov/docs/Governor%27s_Office_ZEV_Action_Plan_%2802-13%29.pdf.

territories. Specifically, this may include new rate designs for plug-in electric and natural gas vehicles, including light-duty and medium/heavy-duty vehicles, and policies for residential, multi-family, workplace and fleet plug-in electric vehicles (PEVs). Throughout these tracks, this proceeding will also explore how financing opportunities can unlock long-term value in PEVs or reduce upfront costs as a means of accelerating PEV adoption and infrastructure deployment, including medium- and heavy-duty vehicle infrastructure.

Lastly, this proceeding will address outstanding issues from the previous AFV rulemaking, R.09-08-009, including development and deployment of a submetering protocol and cost allocation related to distribution system upgrades under Electric Rules 15 and 16.

Like many markets involving new technology, we recognize that the PEV market is rapidly evolving. The issues listed in this preliminary scoping memo are identified as critical issues for a mid-stream assessment at this stage in the market development for PEVs. We anticipate that new issues will arise during this proceeding and remain open to addressing these issues at a later time as we go forward. At this juncture, we invite comments on specific questions below addressing the issues in Tracks 1 and 2 as well as the priorities, structure and schedule for this proceeding.

2. Background

2.1. State and Federal Policy

Alternative-fueled vehicles are an important component in the State's broader strategy to reduce greenhouse gas (GHG) emissions and achieve air quality targets. During the past 10 years, the state has adopted near- and long-term GHG emission reduction targets. In 2005, Governor Schwarzenegger signed Executive Order S-3-2005, which set targets to reduce GHG emissions to

1990 levels by 2020 and 80% below 1990 levels by 2050.³ In 2006, the Legislature passed Assembly Bill 32, adopting the Governor's 2020 target in statute. In 2012, Governor Brown signed Executive Order B-16-2012, which set a target to reduce transportation sector GHG emissions 80% below 1990 levels by 2050.⁴

Alternative-fueled vehicles (AFVs) reduces emissions. The California Air Resources Board (CARB) 2008 Climate Change Scoping Plan (Scoping Plan), recognized zero-emission vehicles and low-emission vehicles as playing an "important role" in helping the state meet both its 2020 and 2050 emissions targets.⁵ CARB set a target for meeting 19% of the state's 2020 emission reduction target from light-duty and medium/heavy-duty vehicles.⁶

California Executive Order B-16-2012 recognized several other benefits from alternative-fueled vehicles. Among other things, it recognized zero-emission vehicles (ZEVs) adoption as being critical to achieving the state's GHG emission goals, meeting local air quality standards, stimulating economic development and improving quality of life for Californians. The Executive Order set a long-term goal of getting 1.5 million ZEVs on the California roads by 2025. It also specifically directed the Commission to work with other state agencies to support ZEV adoption as a means of reducing transportation emissions by 80% from 1990 levels by 2050.

³ California Executive Order S-3-05, issued June 1, 2005, <http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm>.

⁴ California Executive Order B-16-2012, issued on March 23, 2012, <http://gov.ca.gov/news.php?id=17463>.

⁵ CARB, Climate Change Scoping Plan (2008 Scoping Plan), December 2008, at 39-40.

⁶ 2008 Scoping Plan at 17.

To support the achievement of these goals, the Office of the Governor convened a workshop in September 2012 to gather stakeholder input on the activities needed to reach the targets set in the Executive Order. In February 2013, the Governor's Office of Planning and Research released its ZEV Action Plan. The plan outlined action items related to four categories: completing needed infrastructure and planning, expanding consumer awareness and demand, transform fleets, increasing jobs and investment by the private sector in ZEV.

CARB's 2013 Update to the Scoping Plan further emphasized the role of ZEVs in meeting the 2032 federal standards for local air quality and the 2050 climate goals.⁷ CARB stated that California's transportation sector must change to one dominated by ZEVs powered by electricity and hydrogen in order to achieve the targets. The CARB Scoping Plan recommends that the State continue to support ZEVs through regulation, vehicle incentives, investments in vehicle charging infrastructure, and policies and planning efforts to ensure that value is returned to customers and that ZEVs integrate effectively into the electricity grid, communities, and daily lives. Given the long time frames necessary to realize the benefits of ZEVs, CARB identified the need to start planning and implementing as soon as possible to put the State on the trajectory to meet the goals.⁸

⁷ http://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdf

⁸ CARB, Climate Change Scoping Plan First Update Discussion Draft, October 2013, at 86-91.

2.2. Previous Commission Action on AFVs

In 2009, the Commission began an AFV proceeding in response to the re-introduction of electric vehicles and natural gas vehicles by automakers. The rulemaking sought to consider tariffs, infrastructure and policies needed for California investor owned utilities (IOUs)⁹ to prepare their systems to support customer adoption of plug-in hybrid vehicles (PHEVs), PEVs, and other forms of AFVs.¹⁰

That proceeding was organized into four phases. During Phase 1, the Commission explored whether charging service providers should be treated as utilities, subjecting them to Commission oversight of their rates, energy procurement, and other policies. The Commission specifically examined the definition of a utility to determine if the resale of electricity as a transportation fuel makes an entity a utility. After seeking input from parties, the Commission ruled that a resale of electricity in and of itself does not make an entity a utility.¹¹ This conclusion from D.10-07-044 was codified in statute in 2011.¹²

Having established which entities were subject to Commission regulation, Phase 2 of R.09-08-009 sought to determine the utility regulations necessary to support electric vehicle adoption. Senate Bill (SB) 626 mandated that the

⁹ California Investor-Owned Utilities (IOUs)is use herein to refer to the 3 named respondents in Ordering Paragraph 2.

¹⁰ Rulemaking (R.) 09-08-009, Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Tariffs, Infrastructure and Policies to Support California's Greenhouse Gas Emissions Reduction Goals, August 24, 2009, at 2.

¹¹ Decision (D.) 10-07-044 at 18.

¹² Assembly Bill (AB) 631 (Statutes of 2011, chapter 480), modified in Public Utilities Code Section 216 (i), defining utility to exclude light duty plug-in electric vehicle charging stations.

Commission develop regulations related to electric vehicle charging infrastructure.¹³ The bill ordered the Commission to work with the CARB and the California Energy Commission (CEC) to “evaluate policies to develop infrastructure sufficient to overcome any barriers to the widespread deployment and use of plug-in hybrid and electric vehicles.”¹⁴ Commission staff developed two white papers to explore utility policies related to infrastructure and tariffs.¹⁵ In July 2011, the Commission released D.11-07-029, which addressed a range of PEV policy issues, including: a process to notify utilities of PEV charging locations; PEV rates; charging stations for residential and commercial customers; the utility ownership of PEV charging stations; the allocation of distribution upgrade costs under Electric Rules 15 and 16; submetering technologies; load and cost research; and education and outreach.

During Phase 3 of R.09-08-009, the Commission evaluated utility compliance activities required in response to D.11-07-029. During this phase, the Commission worked with IOUs and other parties to explore utility notification policies, submetering protocols, and load research. Related to this, the Commission has monitored utility education and outreach activities. Since 2011, utilities’ educational activities have included: maintaining electric vehicle (EV) websites informing customers about rate options, financial and environmental benefits, charging equipment, and customer service contact information;

¹³ SB 626, enacted in 2009, http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0601-0650/sb_626_bill_20091011_chaptered.html. Cite as (statutes of 2009, chapter 355).

¹⁴ California Public Utilities Code Section 740.2.

¹⁵ Light Duty Electric Vehicle Electrification in California: Opportunities and Barriers http://www.cpuc.ca.gov/PUC/energy/ev_comments.htm, and The Utility Role in Supporting PEV Charging <http://docs.cpuc.ca.gov/EFILE/RULINGS/122657.PDF>.

sponsoring or attending public events and exhibitions on EVs and energy; engagements with cities, infrastructure providers, automotive dealers, and interest groups; and completing residential service assessments and rate analysis.¹⁶

In Phase 4 of R.09-08-009, the Commission issued D.13-06-014, which extended the common treatment of PEV charging costs in excess of the Rules 15 and 16 allowances to June 30, 2016. The Commission was cautious in considering the extension of this cost allocation policy, given that costs from increasing loads from PEV charging technology and adoption “clustering” could negatively affect individual PEV customers and the promotion of PEV adoption. D.13-06-014 also charged Energy Division with revising the methodology for the IOUs’ research on the load and cost impacts of PEV charging.

Also in Phase 4 of R.09-08-009, the Commission will address comments on a staff proposal for submetering pilot programs.¹⁷ This decision is outstanding and follow-up is addressed below in the preliminary scope of this Order Instituting Rulemaking (OIR).

While R.09-08-009 did not preclude addressing issues related to natural gas vehicles, the proceeding focused on PEVs, and policy related to natural gas vehicles (NGVs) did not change. Specifically, the IOUs are not prohibited from

¹⁶ Low Carbon Fuel Standard Supplement to the Annual Compliance Report for Regulated Parties for Electricity, http://www.arb.ca.gov/fuels/lcfs/workgroups/elect/lcfs_rp_electricity_supplemental-information.pdf.

¹⁷ Proposed Decision Modifying the Requirements for the Development of Plug-In Electric Vehicle submetering Protocol <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M077/K434/7743450.PDF>

owning and operating compressed natural gas (CNG) infrastructure to service their own fleets, and they are allowed to make this infrastructure available to the public. However, a 1995 Commission decision ordered the utilities to divest their CNG assets on customer-owned property, limiting the ability of their public-access fueling stations to actively compete with non-regulated private sector providers.¹⁸

Finally, the Commission has also provided ad hoc guidance regarding demand charges for fleet vehicles. Specifically, in 2012, through Resolution E-4514, the Commission addressed rate issues for bus operators on a temporary basis. In order to demonstrate and develop the market for zero-emissions electric buses, the Commission expanded for three years the eligibility of a time-of-use (TOU) general service tariff to government agencies that operate zero-emissions buses in Southern California Edison's (SCE) territory. With this temporary extension, the Commission eliminated the demand charge while retaining TOU rates to encourage the bus demonstrations, while not unduly providing an advantage to any particular electric transit battery technology and energy storage strategy. A long-term solution is needed to resolve issues related to the elements of tariffs applicable to the operations of electric transit fleets throughout the state.

2.3. Developments in the AFV Market

In addition to fulfilling the state's mandates, this proceeding will address recent developments in the AFV market, particularly the EV market. When the Commission started R.09-08-009, only one light duty PEV, the Tesla Roadster,

¹⁸ D.95-11-035 at 88.

was available to consumers in the United States.¹⁹ Since that time, pursuant to the AB 118 Program, CARB introduced incentive funding for the Clean Vehicle Rebate Project (CVRP). Today, 23 light duty ZEVs and PHEVs are eligible for CVRP incentives.²⁰ Automakers continue to introduce new models and financing options. In 2012, the CVRP helped reduce the cost of 11,219 PEVs sold in California.²¹ Fleet operators with medium- and heavy-duty vehicles have acquired over 375 electric vehicles to evaluate how these vehicles can reduce fleet operating costs.²² CEC funding from the AB 118 program has also provided an additional \$24.8 million, which is being used to deploy 7,613 electric vehicle supply equipment devices. Current vehicle offerings are aimed at diverse customer segments – from luxury sedans to commercial trucks and others. Despite this progress, EVs remain more expensive than their gas-power counterparts and upfront vehicle costs continue to be a barrier to EV adoption.

New technologies present opportunities and challenges for PEVs. New, light-duty PEV models and charging station equipment are capable of reaching higher voltage levels. At higher levels, vehicles can recharge batteries faster, but pose more significant potential grid infrastructure impacts. Smart grid technologies increase the data exchange between the utility, charging stations,

¹⁹ U.S. Department of Energy Alternative Fuels Data Center, <http://www.afdc.energy.gov/vehicles/search/light/autos>.

²⁰ Clean Vehicle Rebate Project, <http://energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project/cvrp-eligible-vehicles>.

²¹ Clean Vehicle Rebate Project, http://energycenter.org/index.php/incentive-programs/self-generation-incentive-program/sgip-documents/doc_download/1221-cvrp-current-data-set.

²² September 17, 2013 e-mail communication with Tom Brotherton, CALStart.

vehicles and drivers, which present an opportunity to use charging to serve grid needs. New Commission policies in the areas of smart grid and storage technologies, as well as new California Independent Service Operator (CAISO) products, open opportunities for business models that harness these technologies to improve grid efficiency and reduce customer costs.

For medium- and heavy-duty vehicles, manufacturers are currently developing new technologies that may provide commercially viable solutions to reduce emissions from trucking, commercial boats, locomotives, medium duty vehicles, and other vehicle sectors. In the near term, the use cases for electric transport in these sectors are limited, particularly without commercially viable batteries which demonstrate sufficient energy density and longevity. Currently, hydrogen fuel cell hybrid EVs are being evaluated and demonstrated in transit bus applications and heavy duty freight applications that are substantially funded through government incentives. While battery and fuel cell technologies are being researched, developed and continue to improve, efforts are needed to support the external energy sources and infrastructure needed to ensure greater use of low- and zero-emissions transport. These may include overhead (catenary) electrical lines, ground-based segmented electrical systems, wireless induction charging, shore power,²³ and hydrogen and natural gas fueling infrastructure.

Compressed or liquefied NGV provide a lower-emission and commercial alternative to conventional transit buses, waste hauling, and medium/heavy duty trucks. Natural gas refueling stations in many circumstances are

²³ Shore power may take forms including cold ironing for berthed ships, truck stop electrification, or aircraft ground power units.

economically viable and continue to proliferate. However, it is important to ensure that the fuel supply and end-users can access this infrastructure. The use of renewable biomethane may meet State goals to manage agricultural wastes and high global warming potential gases. Achievement of these objectives is contingent upon the ability for fuel suppliers to access pipeline infrastructure. NGV end-users experience a similar market barrier if they do not have a home refueling appliance or access to public fueling stations. Access to private fleet refueling infrastructure, including those of the gas IOUs, may enable greater use of these vehicles.

3. Preliminary Scoping Memo

The scope of this OIR is to adopt:

1. Policies, guidelines and implementation strategies to facilitate utility participation in vehicle-grid integration. The need for and adoption of rule changes, new rules, pilot programs and Research, Development and Demonstration (RD&D) projects and financing alternatives will be considered.
2. New Alternative-fueled Vehicles (AFV) tariffs, new and existing rate structures and design for residential, workplace and medium/heavy-duty vehicle rates. As appropriate, we will consider unique or innovative financing strategies for AFV costs.
3. As appropriate, submetering protocols to facilitate the use of customer-owned meters for utility billing of AFV electric load and protocols and/or tariffs addressing common treatment of distribution upgrade costs beyond allowances allowed by Rules 15 and 16.

The scope of this proceeding broadly includes all issues related to alternative-fueled vehicles adoption. With this scope in mind, we preliminarily determine the category, need for hearing and other elements of the preliminary scoping memo (Rule 7.1(d).)

3.1. Category

We preliminarily determine the category is quasi-legislative. We make this determination given that our primary focus is to adopt policies, guidelines and implementation strategies for AFVs. This determination closely matches our definition of quasi-legislative proceedings:

“Quasi-legislative” proceedings are proceedings that establish policy or rules (including generic ratemaking policy or rules) affecting a class of regulated entities, including those proceedings in which the commission investigates rates or practices for an entire regulated industry or class of entities within the industry. (Rule 1.3(d).)

While the adopted results may affect electric utility costs and individual company rates, this is not a proceeding in which we specifically set rates, or establish a mechanism that in turn sets rates, as stated in our definition of a rate setting proceeding. (Rule 1.3(e).) Therefore, we preliminarily determine the category is quasi-legislative.

This preliminary determination is not appealable, but shall be confirmed or changed by assigned Commissioner’s ruling. The assigned Commissioner’s determination as to category is subject to appeal. (Rules 7.3 and 7.6.)

3.2. Need for Hearing

We anticipate many of these issues can be addressed in workshops, by filed comments and briefs, or by receipt into evidence of served proposed testimony without cross-examination. Therefore, we preliminarily determine that a hearing will not be needed. (Rule 7.1(d).) The assigned Commissioner’s Scoping Memo and Ruling, after considering the comments and recommendations of parties, will ultimately determine the need for hearing. (Rule 7.3(a).)

3.3. Issues

We preliminarily identify the following issues.

This preliminary scoping memo sets forth two initial policy-focused tracks.²⁴ The first track will evaluate the potential and value of vehicle-grid integration (VGI), including the use of vehicle batteries for demand response and energy storage. The second track will focus on the development of new AFV tariffs in each of the three largest IOU service territories. Specifically, this may include new rate designs for plug-in electric and natural gas vehicles, including light-duty and medium/heavy-duty vehicles, and policies for residential, multi-family, workplace and fleet PEV charging.

These tracks are interrelated and may run concurrently. Findings from the VGI track may, in particular, inform the outcome of the rate design initiative. Both tracks will also be informed by Commission consideration of financing strategies that, for example, allow users to realize the immediate benefits of PEVs while staggering the upfront costs out during the life of these benefits.

In addition, this proceeding will address outstanding issues from the previous AFV rulemaking, R.09-08-009, including development and deployment of a submetering protocol and cost allocation related to distribution system upgrades under Electric Rules 15 and 16.

Finally, we recognize that the AFV market is rapidly evolving. While this proceeding is designed as a mid-stream assessment of the utility role in this 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

²⁴ The Assigned Commissioner or Administrative Law Judge (ALJ) can amend this scope by issuing a revised scoping memo.

foreclose proposals in parallel applications for particular pilot programs or RD&D projects parties may find timely and worthwhile while this proceeding is pending. In addition, the assigned Commissioner and Administrative Law Judges (ALJs) may amend the scope of this proceeding as events warrant.

3.4. Vehicle-Grid Integration - Track 1: Scope, Procedural Structure and Schedule

Track 1 of this proceeding will examine VGI. We will evaluate utility activities that can support VGI initiatives and seek to establish rules that allow utilities, PEV drivers, and the grid to capture safely and reliably the benefits of PEV battery storage for the managed charging, and for providing demand response ancillary services to the grid and power markets. The ZEV Action Plan includes VGI as an action item to help reduce the negative impacts of peak-time charging and an opportunity to integrate renewables into the grid.²⁵ Among other things, the ZEV Action Plan designates the CPUC to consider the demand impacts of PEVs and the potential benefits of controlled charging. VGI includes strategic PEV battery charging or discharging, which allows the PEV battery to serve as a form of grid storage and demand response.

A car charging unit can, by varying charging rate or charging time, enable electrical vehicles to provide several benefits to the grid, including:

- o Responding to ramping needs
- o Providing load to absorb renewable energy during times of over-generation.
- o Avoiding local distribution impacts by minimizing charging when the local system is overloaded.

²⁵ ZEV Action Plan at 13 and 17.

- o Providing wholesale ancillary services to help harmonize the transmission system.

The ZEV Action Plan also recognizes the storage potential for vehicle batteries after they are no longer considered useful for transportation. Developing a method to use these batteries as grid storage after they are removed from the vehicle would “unlock” this future value to vehicle owners, increasing the total value of electric vehicle ownership. The ZEV Action Plan directed the Commission to explore utility actions that could enable vehicle battery second-life use.

Several pilot programs are planned or underway to test different VGI approaches. SCE is currently testing how controlled charging can be used in a workplace setting.²⁶ Pacific Gas & Electric (PG&E) is evaluating how vehicles can provide demand response.²⁷ The Department of Defense is testing how its PEV fleets can provide bi-directional power flow as ancillary services to the CAISO markets at two of its facilities within SCE’s service territory.²⁸ In order to understand the value that these projects can provide, a number of policy barriers need to be addressed. The role of the utility in procuring and enabling these services will need to be determined. How vehicles provide these grid services – whether through the utility or through third-party aggregation – needs to be explored. The fact that vehicles, unlike stationary storage, can move off the grid and primarily use their storage functionality for transportation purposes adds

²⁶ SCE Advice Letter 2746-E, <https://www.sce.com/NR/sc3/tm2/pdf/2746-E.pdf>.

²⁷ PG&E Advice Letter 4077-E, http://www.pge.com/tariffs/tm2/pdf/ELEC_4077-E-B.pdf.

²⁸ CPUC Resolution E-4595, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M071/K731/71731238.PDF>.

complexity to quantifying their value to the electric grid. Additional pilot studies may be necessary to fully understand the scope and benefits of VGI projects.

The Commission's Energy Division examined the VGI regulatory barriers in a Staff White Paper "Vehicle-Grid Integration," which is attached as Appendix A. We will address the Staff White Paper at an initial workshop to be held on November 21, 2013 as set forth in the schedule below. An agenda for the day-long workshop will be distributed prior to the workshop. Following the workshop, we will invite the Parties to Comment on the White Paper and the Workshop Presentations and to offer additional insights and. The notice of the workshop will issue separately from this decision and will also appear in the Daily Calendar. Parties are directed to file and serve Comments and Replies addressing the White Paper and all other VGI Workshop 1 Issues on the dates set forth in the Notice of Workshop when it is issued by Energy Division Staff.

The Commission has several existing proceedings that are developing demand response and storage-related rules. The storage procurement proceeding (R.10-12-007), the Rule 24 proceeding (R.07-01-041), the demand response proceeding (R.13-09-011), the smart grid proceeding (R.08-12-009) and the Resource Adequacy proceeding (R.11-10-023) will all affect storage in general, and customer-side-of-the-meter storage in particular. This proceeding will coordinate with those proceedings on electric transportation's role to avoid duplicating efforts.

The Commission anticipates continued collaborative work with the CAISO, CARB and CEC to help develop our policies and programs. In particular, we look forward to reviewing the results as they are forthcoming

from each entity that is conducting vehicle load research to help the Commission better understand the opportunities for VGI.

3.5. AFV Rate Design Policy - Track 2: Scope Procedural Structure and Schedule

Track 2 of this proceeding will consider new IOU tariffs for PEVs and NGVs. Regarding PEV rates, the ZEV Action Plan asked the Commission to explore a range of issues. To support consumer demand, the ZEV Action Plan asked the Commission to evaluate the need to revise PEV tariffs in order to “incentivize off-peak charging, increase customer understanding, and maximize consumer savings.”²⁹ Voluntary green tariffs were recognized as a possible way to allow PEV drivers to charge their vehicles with clean energy.³⁰ The plan also asked the Commission to explore how electric rates can be used to support the adoption of EVs in fleets, public transit and the freight sectors.³¹

D.11-07-029 anticipated the need for a fuller review of PEV rates in the near future:

We find that the Commission should revisit the suitability of the utilities’ Electric Vehicle residential rate schedules in 2013-2014. By then the Commission will have a better understanding of customer charging behavior and more Electric Vehicle load profile data to inform future rate design. The load research studies that we direct the utilities to undertake in Section 9 will provide insight into utility costs associated with Electric Vehicle infrastructure and service.³²

²⁹ ZEV Action Plan at 16.

³⁰ ZEV Action Plan at 17.

³¹ ZEV Action Plan at 13.

³² D.11-07-029 at 19-20.

Also in D.11-07-029, the Commission committed to continue examination of the current status of NGVs, in recognition of the fact that such vehicles play an important role in the Commission's overall goal of reducing GHG emissions. The Commission understands that the need may exist to reconsider policy to enhance NGV market development. However, R.09-08-009 did not address these issues.

In this new phase, the Commission will explore new AFV tariffs as part of this proceeding, employing the results of existing research and the opportunities presented by new technologies. This proceeding will consider the primary mechanisms the utilities have for recovering costs from customers, including: volumetric rates, demand charges, and upgrade cost assessments. The use of these tools will be explored in three rate contexts: residential rates, workplace rates, and medium- and heavy-duty vehicles.

1. *Residential PEV Rates.* Residential PEV rates were explored as part of the prior electric vehicle proceeding. In examining residential rates, the Commission found the existing PEV rates are sufficient for the "early market." Demand charges were considered for the residential charging, but the Commission opted not to require them. Using new data on charging behavior and opportunities from smart grid technologies, the Commission will explore how residential rates can support the Commission's adoption goals.
2. *Workplace PEV Charging Rates.* The workplace is an important location for vehicle charging. While workplace charging could fall during peak hours, incentivizing smart charging can help move charging to the morning hours before the afternoon peak, minimize the need for distribution upgrades, and avoid demand charges.
3. *Medium/Heavy-duty Vehicle Rates.* Medium and heavy-duty vehicles face unique rate challenges. Transit agencies using battery electric buses have raised concerns about the application

of demand charges and high operational costs incurred as a result of charging electric vehicles. Demand charges allow for cost recovery of infrastructure maintenance or upgrades related to commercial and industrial loads. However, demand charges in these use cases may discourage transportation electrification if loads cannot be shifted to off-peak periods or to periods with low load factors. Similarly, the high development and operational costs of new electrical infrastructure pose a market barrier to the electrification of freight and transit. Use of compressed natural gas may provide an alternative, low emission option for medium and heavy-duty vehicles

In each of these three categories, the Commission will look to incorporate opportunities for financing, through tariff design, AFV-related costs. In addition and as further described above, this proceeding will consider results from the evaluation of the value of VGI. Furthermore, in designing new AFV tariffs, the Commission should consider the progress and results of submetering pilots, adopted in R.09-08-009 and the common treatment of distribution cost upgrades, as defined in D.13-06-014. Also, new load research data is now available or being collected that provides insight into customer charging behavior.³³ The

³³ San Diego Gas & Electric (SDG&E) is in the final year of a rate design study that tested how EV owners responded to varying price ratios between TOU periods. (First Year Evaluation for San Diego Gas & Electric's Electric Vehicle Pilot, <http://www.sdge.com/sites/default/files/regulatory/Attachment%204-SDG%26E%20ELECTRIC%20VEHICLE%20REPORT.pdf>.) The EV Project, a Department of Energy investment in PEVs and charging infrastructure in 21 cities throughout the United States, continues to collect data on charging from participant households in Los Angeles, San Diego, and San Francisco. (Idaho National Laboratory EV Project, <http://avt.inel.gov/evproject.shtml>.) CARB is beginning a longitudinal study of driving and charging behavior of California households with different types of hybrids and battery-electric vehicles. (CARB Annual Research Plan Fiscal Year 2012-2013 at 18, http://www.arb.ca.gov/research/apr/plan/fy12-13/2012-13_arb_annual_research_plan.pdf).

Commission will use these research studies to help inform our approach to rate design.

3.6. Financing

PEVs provide long-term savings to users and numerous benefits to the environment, but these benefits can only be realized by taking on higher upfront costs for new vehicle technologies and infrastructure. Financing strategies may allow users to realize the immediate benefits of PEVs while staggering the upfront costs over the life of these benefits and may assist in infrastructure deployment to support the continued adoption of PEVs.

The ZEV Action Plan recognized the benefits that financing could have on PEV adoption, suggesting that the state explore opportunities to use battery second-life financing and property secured loans as opportunities to reduce the upfront cost of vehicles. In February 2013, the Governor's Office hosted a stakeholder workshop to generate ideas for using financing to help accelerate PEV adoption.

In the course of the two tracks described above, this proceeding will explore how financing opportunities can unlock long-term values in PEVs or reduce upfront costs as a means of accelerating PEV adoption and infrastructure deployment, including medium- and heavy-duty vehicle infrastructure. Financing opportunities could occur at different levels of the PEV value chain, including battery companies, automakers, charge companies, infrastructure manufacturers, fleet operators and PEV drivers. Specifically, we will explore what role, if any, the utility can play in helping facilitate PEV-related financing and investment strategies.

3.7. Safety Concerns

Section 451 of the Public Utilities Code provides, in part, as follows:³⁴

Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

Pursuant to Public Utilities Code §451, we seek comment from the parties and direct the respondent utilities to specifically identify and describe safety concerns related to the expansion of AFV use, including, but not limited to interconnection, metering, distribution system impacts and vehicle-grid integration.

3.8. Outstanding Issues From R.09-08-009

At least two issues remain outstanding from the previous AFV proceeding, R.09-08-009. These are: (i) development of a submetering protocol, and (ii) the common treatment of distribution cost upgrades.

3.8.1. Submetering Protocol

In R.09-08-009, the Commission explored the development of a submetering protocol to facilitate the use of customer-owned meters for utility billing. Specifically, the Commission is considering a Proposed Decision (PD) pending which would adopt the Energy Division's proposal for the utilities to implement submetering pilots and sets a deadline for the utilities to submit a submetering protocol report by September 30, 2015. Should the Commission adopt the PD in R.09-08-009, we will monitor progress on the submetering pilots

³⁴ All future section references are to the Public Utilities Code unless otherwise indicated.

and incorporate findings as needed into new AFV tariff design in this proceeding.

3.8.2. Common Treatment of Distribution Upgrade Costs

In D.13-06-014, the Commission extended through June 30, 2016, the “common facility treatment” for residential PEV charging-related distribution costs in excess of the Rules 15 and 16 allowances, a cost allocation policy referred to as the Common Treatment for Excess Plug-in Electric Vehicles Charging Costs. This policy was initially adopted by Commission decision D.11-07-029 which directed that all utility distribution system upgrade costs should be treated as common facility. D.13-06-014 also directed the IOUs to perform certain electric vehicle-related load research to help parties and the Commission understand the distribution upgrade costs.

As part of the tariff considerations in the instant proceeding, the Commission may consider the need for a permanent policy for distribution costs related to PEVs that exceed the allowance allowed by Rules 15 and 16.

4. Schedule

The preliminary schedule for this proceeding is set forth below, and includes provisions for comments on this OIR, a prehearing conference (PHC), and the scheduling of workshops to begin our work. The assigned ALJ or Commissioner may change the schedule as necessary to provide full and fair development of the record.

5. Comments on the OIR

We request comments from the parties on the scope, procedural structure, schedule as well as on the specific questions set forth as follows:

5.1. Vehicle-Grid Integration

The Energy Division Staff White Paper proposes four use case scenarios that the Commission should prioritize as it develops VGI policy. The paper also identifies four key regulatory issues that should be addressed in this proceeding. Parties are requested to provide initial responses to the following questions:

1. Is the VGI framework proposed in the White Paper a reasonable way to organize VGI activities and scenarios?
2. Do you agree with Energy Division's prioritization of the VGI scenarios?
3. Does the White Paper capture all the utility regulatory barriers to VGI?
4. How should we address any potential safety and reliability concerns associated with VGI?

5.2. Alternative Fuel Vehicle Rate Design Policy

1. What is the utility experience to date regarding customer election to use PEV-specific tariffs?
2. What issues need to be considered when designing PEV rates for residential charging?
3. Should the Commission consider new rate tariffs for workplaces providing PEV charging?
4. How can residential and workplace PEV rates incentivize smart charging and allow controlled charging?
5. How should the Commission address demand charges for medium - and heavy-duty plug-in electric vehicles?
6. What changes, if any, are needed to tariffs related to compressed natural gas vehicles?
7. What other issues related to alternative fuel vehicle rates should the Commission address?

5.3. Financing

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

5.4. General

1. What changes to the Commission's Rules or new Rules are needed to facilitate the goals outlined in this OIR?

Comments on this OIR may be filed and served within 14 days of the date this OIR is issued. Comments shall state any objections to the preliminary scoping memo regarding category, need for hearing, issues to be considered, or schedule. (Rule 6.2.) Reply comments may be filed and served, and shall be filed and served within seven days of the filing date of comments. Comments recommending changes should be as specific as possible.

Any comments recommending changes to the proposed schedule must be consistent with the proposed category, including a deadline for resolving the proceeding within 18 months of the date the Scoping Memo and Ruling is issued. All comments which contain factual assertions must be verified. Unverified factual assertions will be given only the weight of argument. (Rule 6.2; Pub. Util. Code § 1701.5(a).)

6. Prehearing Conference

The assigned Commissioner or ALJ shall set a PHC for 45 to 60 days from today, or as soon as practicable. The ruling setting the PHC may also set a date for PHC statements. (Rule 7.2.) We invite respondents and parties to advise the Commission at the PHC regarding the most efficient way to proceed. Taking the recommendations of parties into account, the assigned Commissioner or ALJ may make the necessary determinations regarding the scope and schedule of this proceeding.

7. Preliminary Adopted Schedule

The preliminary adopted schedule is summarized below. It may be supplemented or changed by the assigned Commissioner or ALJ as necessary to

promote efficient and equitable development of the record, and we expect that schedule modifications will occur.

Adopted Schedule

Line No.	Item	Date
1	Proposed OIR distributed	November 4, 2013
2.	Notice of VGI Workshop distributed	November 4, 2013
3	OIR Issues	November 14, 2013 (expected)
4	VGI and Financing Workshop 1: Energy Division Whitepaper (Comments/Replies deadlines to be determined)	November 21, 2013
5	Request for Process Office for inclusion on service list	7 days from date of OIR issued
6	Comments on OIR	14 days from date OIR issued
7	Reply Comments on OIR	7 days from filing of comments

8. Respondents

Respondents for this proceeding shall be Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company.

9. Parties, Service of OIR, Creation of Service List, and Subscription Service

We will serve this OIR on the service lists (appearances, state service list, and information-only category) in the following proceedings:

- a. R.09-08-009, the Alternative Fueled Vehicle Proceeding
- b. R.10-05-006, the Long Term Procurement Plan Proceeding
- c. R.12-03-014, the Long Term Procurement Plan proceeding
- d. R.10-05-004, the Distributed generation rulemaking
- e. R.08-08-009, the Renewables Portfolio Standard Proceeding
- f. R.10-12-007, the Storage Proceeding

- g. R.08-12-009, the Smart Grid Deployment Plan Proceeding
- h. SDG&E General Rate Case (A.10-12-005)
- i. R.11-10-023, the Resource Adequacy Proceeding
- j. R. 13-09-011, the Demand Response Proceeding

Such service of the OIR does not confer party status in this proceeding upon any person or entity, and does not result in that person or entity being placed on the service list for this proceeding.

The Commission will create an official service list for this proceeding, which will be available at http://www.cpuc.ca.gov/published/service_lists. We anticipate that the official service list will be posted before the first filing deadline in this proceeding. Before serving documents at any time during this proceeding, parties shall ensure they are using the most up-to-date official service list by checking the Commission's website prior to each service date.

The respondents are parties to this rulemaking. All persons seeking to be added to the service list, including respondents, shall inform the Commission's Process Office of the below noted information no later than 20 days after the issuance date of this rulemaking via electronic mail (Process_Office@cpuc.ca.gov) or by postal mail (Process Office, California Public Utilities Commission, 505 Van Ness Avenue, San Francisco, California 94102):

- Name and party represented, if any;
- Address;
- Telephone Number;
- E-mail address;
- Request for Party, State Service, or Information Only status; and
- Specify the docket number of this rulemaking in the subject line of the e-mail or letter.

Upon receipt of your information, the Process Office will place your name on the official service list posted on the Commission's website as soon as practicable.

In addition, interested persons may be added to the official service list after this 20-day period by filing comments pursuant to Rule 1.4(a)(2) or by motion pursuant to Rules 1.4(a)(3) or 1.4(a)(4), and 1.4(b).

While all electric and natural gas utilities may be bound by the outcome of this proceeding, only those who notify us that they wish to be on the service list will be accorded service by others until a final decision is issued.

If you want to participate in the Rulemaking or simply to monitor it, follow the procedures set forth below. To ensure you receive all documents, send your request within 20 days after the OIR is published. The Commission's Process Office will update the official service list on the Commission's website as necessary.

9.1. Updating Information

Once you are on the official service list, you must ensure that the information you have provided is up-to-date. To change your postal address, telephone number, e-mail address, or the name of your representative, send the change to the Process Office by letter or e-mail, and send a copy to everyone on the official service list.

9.2. Serving and Filing Documents

When you serve a document, use the official service list published at the Commission's website as of the date of service. You must comply with Rules 1.9 and 1.10 when you serve a document to be filed with the Commission's Docket Office.

The Commission encourages electronic filing and e-mail service in this Rulemaking. You may find information about electronic filing at <http://www.cpuc.ca.gov/PUC/efiling>. E-mail service is governed by Rule 1.10. If you use e-mail service, you must also provide a paper copy to the assigned Commissioner and ALJ. The electronic copy should be in Microsoft Word or Excel formats to the extent possible. The paper copy should be double-sided. E-mail service of documents must occur no later than 5:00 p.m. on the date that service is scheduled to occur.

If you have questions about the Commission's filing and service procedures, contact the Docket Office

9.3. Subscription Service

This proceeding can also be monitored by subscribing in order to receive electronic copies of documents in this proceeding that are published on the Commission's website. There is no need to be on the service list in order to use the subscription service. Instructions for enrolling in the subscription service are available on the Commission's website at <http://subscribecpuc.cpuc.ca.gov/>.

10. Public Advisor

Any person or entity interested in participating in this Rulemaking who is unfamiliar with the Commission's procedures should contact the Commission's Public Advisor in San Francisco at (415) 703-2074 or (866) 849-8390 or e-mail public.advisor@cpuc.ca.gov; or in Los Angeles at (213) 576-7055 or (866) 849-8391, or e-mail public.advisor.la@cpuc.ca.gov. The TYY number is (866) 836-7825.

11. Intervenor Compensation

Any party that expects to claim intervenor compensation for its participation in this Rulemaking shall file its notice of intent to claim intervenor

compensation no later than 30 days after the first prehearing conference or pursuant to a date set forth in a later ruling which may be issued by the assigned Commissioner or assigned ALJ.

12. Ex Parte Communications

Pursuant to Rule 8.3, *ex parte* communications will be allowed in this quasi-legislative proceeding without restriction or reporting requirement.

Therefore **IT IS ORDERED** that:

1. The Commission hereby institutes this rulemaking to continue consideration of alternative-fuel vehicle tariffs, and policies to support California's greenhouse gas emissions reduction, clean air, safety and reliability goals.
2. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company are named as respondents and are parties to this proceeding pursuant to Rule 1.4(d) of the Commission's Rules of Practice and Procedure.
3. The preliminary scope is as stated in the body of this order.
5. The preliminary determination is that a hearing is not needed.
6. The assigned Commissioner or Administrative Law Judge may adjust the schedule identified herein and refine the scope of this proceeding as needed.
7. The Executive Director shall cause this Order Instituting Rulemaking to be served on all respondents; the service lists for the following commission proceedings: Rulemaking (R.) 09-08-009 (Alternative Fueled Vehicle Rulemaking), R.10-05-006 and R.12-03-014 (Long Term Procurement Plan Proceedings), R.10-05-004 (Distributed Generation Rulemaking), R.08-08-009 (Renewables Portfolio Standard Proceeding), R.10-12-007 (Storage Proceeding), R.08-12-009 (Smart Grid Deployment Plan Proceeding), Application 10-12-005

(SDG&E General Rate Case), R.11-10-023 (Resource Adequacy Proceeding) and R.13-09-011 (Demand Response Proceeding). All load serving entities as defined in Pub. Util. Code §380(j), as identified in Appendix A; and the California Energy Commission, the California Independent System Operator, and the California Air Resources Board, as identified in Appendix B.

8. An official service list for this proceeding shall be created by the Commission's process Office and posted on the Commission's website (www.cpuc.ca.gov.) as soon as practicable after the first prehearing conference. Parties may also obtain the official service list by contacting the Process Office at (415) 703-2021.

9. Interested persons shall follow the directions in Section 10 of this Order Instituting Rulemaking to become a party or be placed on the official service list.

10. The category of this rulemaking is preliminarily determined to be "quasi-legislative" as that term is defined in Rule 1.3(d) of the Commission's Rules of Practice and Procedure.

11. Parties shall file Responses and Opening Comments addressing the questions identified in this order, scope, schedule, and other procedural issues as described in the body of this order.

12. Parties served documents in this proceeding shall comply with Rule 1.10 of the Commission's Rules of Practice and Procedure regarding electronic mail (e-mail) service. Parties providing e-mail service shall also provide a paper copy to the assigned Commissioner and Administrative Law Judge.

13. A party that expects to request intervenor compensation for its participation in this rulemaking shall file its notice of intent to claim intervenor compensation no later than 30 days after the first prehearing conference or

pursuant to a date set forth in a later ruling which may be issued by the assigned Commissioner or Administrative Law Judge.

14. *Ex parte* communications in this rulemaking are allowed without restriction or reporting requirement pursuant to Rule 8.3(a) of the Commission's Rules of Practice and Procedure.

This Order is effective today.

Dated _____, at San Francisco, California.

R._____ ALJ/IM2/avs

APPENDIX A
(Staff White Paper “Vehicle-Grid Integration”)

APPENDIX B

Government Agencies

R._____ ALJ/IM2/avs

APPENDIX B

Melissa Jones
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

David Hawkins
Lead Industry Relations Representative
California Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630

James Goldstene
Executive Director
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

(END OF APPENDIX B)