

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification.

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

Rulemaking 13-11-007

ORDER INSTITUTING RULEMAKING TO CONTINUE THE DEVELOPMENT OF RATES AND INFRASTRUCTURE FOR VEHICLE ELECTRIFICATION AND CLOSING RULEMAKING 13-11-007

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ORDER INSTITUTING RULEMAKING TO CONTINUE THE DEVELOPMENT OF RATES AND INFRASTRUCTURE FOR VEHICLE ELECTRIFICATION AND CLOSING RULEMAKING 13-11-007

Summary

This rulemaking continues the implementation and administration of transportation electrification programs, tariffs and policies at the Commission. As a successor docket to Rulemaking (R.) 13-11-007, this proceeding seeks to develop a comprehensive framework to guide the Commission's role in the electrification of California's transportation sector.

This rulemaking describes the Commission's historical work to support clean transportation, which began in 2009, and has increased significantly over the past several years. This rulemaking identifies the most prominent outstanding issues that need to be addressed to ensure the investments and programs the Commission is authorizing to accelerate transportation electrification are aligned with other state efforts. It directs the investor-owned utilities under the Commission's jurisdiction to propose new rates that support the electrification of transportation. Finally, this rulemaking authorizes the Commission's Energy Division to develop a report outlining transportation electrification program investments moving forward, in addition to continuing the Commission's focus on advancing vehicle-grid integration.

With the issuance of today's rulemaking, R.13-11-007 is closed.

1. Background

The Commission opened its first rulemaking related to alternative-fueled vehicles in 2009. Since then, the Commission has been increasing its efforts in response to directives from the Governor's office and the California Legislature. The Commission has the authority over the cost and design of the

investor-owned utilities' (IOUs) Transportation Electrification (TE) investment programs, the rates the IOUs establish to provide electricity as a transportation fuel, and other IOU expenditures associated with their TE programs such as marketing, outreach, and education initiatives.

In 2012, California's Governor, Jerry Brown, issued an executive order that included the goal of having 1.5 million zero-emission vehicles (ZEV)¹ on the state's roads by 2025. In response to the adoption of these targets, the Commission launched R.13-11-007 in 2013. R.13-11-007 was intended to identify and address issues related to investor-owned utility investments supporting the infrastructure necessary to meet the state's ZEV targets.

In December 2014, the Commission issued Decision (D.) 14-12-079, which among other things, expanded the electric utilities' potential role in ownership of electric vehicle charging infrastructure. D.14-12-079 removed the requirement that the utilities demonstrate a "market failure" or "underserved market" as part of any request for authority to own plug-in electric vehicle (PEV) charging infrastructure.² Instead, D.14-12-079 allowed for consideration of utility proposals on a case-specific basis and reaffirmed the use of a balancing test that weighs the benefits of utility ownership of charging infrastructure against potential competitive limitation. Three IOU applications were considered according to this guidance and the Commission authorized the first IOU

¹ The Alternative-Fueled Vehicle rulemaking was launched prior to the state's prioritization of transportation electrification and included consideration of other fuels including natural and renewable natural gas. Since 2009, legislation and executive orders have established a priority on plug-in electric and hydrogen fuel cell vehicles that are not sources of emissions when in operation, also known as ZEVs.

² D.14-12-079 at 2 to 12.

charging infrastructure pilot programs in D.16-01-023,³ D.16-01-045, and D.16-12-065.

In 2015, the Governor signed Senate Bill (SB) 350 (de Leon, Chapter 547, Statutes of 2015) which enacted Pub. Util. Code §740.12⁴ and requires the Commission, in consultation with the California Energy Commission (CEC) and the California Air Resources Board (CARB), to direct the IOUs to file applications for programs to support widespread TE.⁵

On September 14, 2016, an Assigned Commissioner's Ruling⁶ (2016 ACR) set forth guidance for what SB 350 TE applications should contain and a process for TE planning going forward. Six IOUs filed initial applications pursuant to SB 350 which were modified and approved in D.18-01-024, D.18-05-040 and

³ Southern California Edison Company (SCE) has submitted two filings with the Commission to increase the size of its infrastructure program authorized in D.16-01-023: a Petition for Modification of D.16-01-023 that would authorize it to spend an additional \$22 million on the program as authorized in the decision, and Application (A.) 18-06-015 that would expand its infrastructure pilot program into a five-year program with a budget of \$760.1 million.

⁴ All subsequent section references refer to the Public Utilities Code unless otherwise specified.

⁵ SB 350 was codified as Chapter 547 of the Statutes of 2015, and § 237.5 defining transportation electrification, and § 740.12 describing the importance of transportation electrification in meeting the state's greenhouse gas emission reduction and air quality targets. Transportation Electrification is defined in § 237.5 as "the use of electricity from external sources of electrical power, including the electrical grid, for all or part of vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and greenhouse gases and the related programs and charging and propulsion infrastructure investments to enable and encourage this use of electricity."

⁶ The 2016 ACR is available at <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M167/K099/167099725.PDF> was ratified by D.16-11-005.

D.18-09-034. Two IOUs filed additional applications pursuant to SB 350 which are currently pending before the Commission.⁷

In October 2017, Sections 740.13 and 740.14 were added to the Public Utilities Code pursuant to Assembly Bills (AB) 1082 and 1083 (Burke),⁸ which authorize the utilities to propose pilot programs to install TE infrastructure at school facilities and at state parks and state beaches. In January 2018,⁹ an ACR established guidelines for what the utilities should include in any applications for programs proposed pursuant to AB 1082 and 1083. Four utilities – Liberty Utilities (CalPeco), Pacific Gas and Electric Company (PG&E), SCE, and San Diego Gas & Electric (SDG&E) – submitted applications on the statutory deadline of July 30, 2018, which are currently under Commission review.

In January 2018, Governor Jerry Brown signed Executive Order B-48-18 setting a state goal of 5 million ZEVs on California roads by 2030, and 250,000 public charging stations operating by 2025, including 10,000 direct current fast charging (DCFC) stations.¹⁰

⁷ SDG&E filed its application for TE proposals regarding medium and heavy-duty electric vehicles in January 2018 (A.18-01-012). PG&E filed its application for its electric vehicle charger incentive and education programs to support low and moderate customers in July 2018 (A.18-07-021).

⁸ AB 1082 and 1083 (Burke) were enrolled as Chapters 637 and 638 of the Statutes of 2017. They authorize the utilities to propose, no later than July 30, 2018, pilot programs to install electric vehicle charging infrastructure at school facilities and at state parks and beaches. The legislation directs the CPUC to review and issue a decision on the applications proposed by the utilities by December 31, 2018.

⁹ The January 24, 2018, ACR is available at <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M206/K663/206663987.PDF>.

¹⁰ DCFC is defined as a charging station that rapidly charges a car battery by connecting it directly to a higher power, direct current source (*see* D.18-05-040 at 6).

Finally, two additional pieces of legislation related to TE were enacted in 2018. First, SB 1000 (Lara)¹¹ directed the Commission to consider “in an existing proceeding” rate design issues: Electric Vehicle (EV)-specific tariffs, submetering, and other grid integration technologies. By adding these issues into the preliminarily scope of this new proceeding, the Commission would address the legislative mandate to consider those issues as it moves forward with its existing and ongoing TE proceedings.

Second, AB 2127 (Ting)¹² requires the Commission to support the CEC’s development of a statewide assessment of the ZEV charging infrastructure needed to support the state’s vehicle adoption and greenhouse gas (GHG) emission reduction goals. Through this Rulemaking, the Commission will also address requirements in AB 2127.

The Commission works with other state agencies, including the CEC, CARB, and the Governor’s Office of Business Development (GO-Biz), in fulfilling the tasks adopted in the statewide ZEV Action Plan. Our new Rulemaking focuses on better alignment of internal and external state agency resource

¹¹ SB 1000 (Lara) was codified as Chapter 368, Statutes of 2018, on September 14, 2018. It directs the CPUC to, within an existing proceeding, consider policies to encourage the development and deployment of grid-integration technologies, including submetering; develop new EV-specific tariffs for medium- and heavy-duty fleets, including transit fleets; and encourage charging to occur at times and locations where there is excess grid capacity.

¹² AB 2127 was enrolled as Chapter 365 of the Statutes of 2018 and added Section 25229 to the Public Resources Code and requires the CEC to prepare and biannually update, in collaboration with CARB and the CPUC, a statewide assessment of the ZEV charging infrastructure currently installed and the amount still necessary to support the adoption of at least 5 million ZEVs by 2030.

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2127

planning processes while also addressing key questions about the role of utility transportation electrification investments in meeting the state's ZEV adoption targets and GHG emission reduction goals.

The Commission also strives to support competition and equity by encouraging the IOUs to contract with a diverse supplier base, by considering the economic impact of the IOUs' TE investments on disadvantaged communities and/or low-income individuals, and by seeking to minimize the cost and adverse economic impacts related to the IOUs' TE programs authorized under the Commission's jurisdiction.¹³

2. Purpose of Proceeding

Since the launch of R.13-11-007 the IOUs have proposed more than \$2 billion in TE programs, and to date, the Commission has authorized more than \$1 billion in spending.¹⁴ Currently, evaluation of TE proposals is conducted on a case-by-case basis, using both the balancing test¹⁵ and the 2016 ACR on SB 350 as general guidance. Identifying and approving early investments has been essential to support ZEV market growth and to stay on a path to meet California's GHG emissions reduction goals. Although there have been some prior efforts to streamline the Commission's review process for certain applications,¹⁶ the ongoing submission of one-off program applications has

¹³ CPUC Strategic Directive SD-10 adopted June 23, 2016.

¹⁴ Details of the utilities' approved TE programs and their respective implementation status are included in Appendix A.

¹⁵ D.14-12-079 at 5: This decision reaffirms the balancing test applied in D.11-07-029, that the benefits of utility ownership of PEV charging infrastructure must be balanced against the competitive limitation that may result from that ownership.

¹⁶ The September 2016 ACR, for example, created a streamlined process for the IOUs to propose "priority review projects," with a combined budget of no more than \$20 million per utility, and

Footnote continued on next page

prevented the Commission and the utilities from focusing on critical issues that were raised in 2013, such as identifying the most appropriate rate structures to manage the additional load from ZEV charging and the potential to create value from managed ZEV charging. This new rulemaking seeks to provide more structure by resolving key outstanding issues identified in R.13-11-007, and others that have since been identified, and by providing guidance to the utilities on parameters for new transportation electrification programs.

Specifically, with more than two years of utility investment experience and lessons learned, we seek to establish a common and comprehensive framework for IOU investments in TE in California, aligned with the goals of SB 350. This Transportation Electrification Framework (TEF) will help guide the next chapter of policies and programs supporting California's ZEV infrastructure, which has developed significantly in the five years since R.13-11-007 was initiated.

As of the date of issuance of today's rulemaking, the Commission has pending before it \$1 billion in utility requests for additional TE investments across eight open dockets. These proceedings will continue to be considered under current guidance. The Commission will continue to consider new applications as directed by the legislature or as submitted via application. Any new applications filed after December 1, 2018 may be considered under the parameters of an initial TEF, if not solely under existing statutory and regulatory guidance. However, this will be determined with stakeholder input as needed, if new applications are filed before an initial TEF is completed.

\$4 million per project, that were smaller-scale and non-controversial. The Commission reviewed those priority review programs on an expedited schedule and issued D.18-01-024 just over one year after the applications were filed.

2.1. Establish a Transportation Electrification Framework

The TEF should be aligned with and build upon existing statutory guidance, enable flexible engagement as the TE industry develops, and should address the following near-term objectives:

- a. **Strategic Integration of TE Load:** Electric load from TE is likely to grow nearly tenfold between 2017 and 2030.¹⁷ At the same time, the CPUC has adopted a GHG emissions planning target of 42 million metric tons by 2030 for the electric sector, and California has a goal of utilizing 100 percent carbon-free energy by 2045.¹⁸ Achieving these environmental goals will be more expensive and challenging without harnessing managed charging potential of electric vehicles, optimally siting charging facilities, and planning distribution grid investments to accommodate new, localized loads.
- b. **Enhancing Market Coordination of IOU Investments:** A more unified and focused IOU investment strategy can bolster market confidence and encourage third-party investment in transportation electrification, while also better managing market and ratepayer expectations regarding the scale of future IOU investment. The current strategy, which includes case-by-case evaluation of program proposals without a chance for full consideration of prior program results can lead to slower, less certain, and less consistent outcomes.
- c. **Enabling Third-Party, Private Sector Investment:** The cost of electrifying California's transportation sector will be significant and cannot be borne by IOU ratepayers alone. The IOUs have attracted some partnerships through their infrastructure

¹⁷ The CEC's 2017 Revised Integrated Energy Resource Plan mid-demand case forecast suggests electric load from transportation statewide will increase from 89GWh in 2017 to 888GWh in 2030. California Energy Demand 2018-2030 Revised Forecast at 44, available at <https://efiling.energy.ca.gov/getdocument.aspx?tn=223244> and accessed October 1, 2018.

¹⁸ SB 100 set a target of 100 percent carbon-free electricity by 2045. It was enrolled as state law as Chapter 312 of the Statutes of 2018 on September 10, 2018.

investment programs, and efforts to leverage private sector dollars should continue. However, clearer guidance on IOU investment targets will also provide guidance to the market about expectations for private sector investments to meet the state's ZEV goals. Furthermore, the Commission should continue to explore opportunities for third parties to develop and deploy grid-integration technologies through programs such as the Demand Response Auction Mechanism (DRAM)¹⁹ or other Demand Response options that may be available.

- d. **Supporting State TE Program and Policy Cohesiveness:** Addressing cross-cutting issues on a case-by-case basis across various investment programs and proposals is time intensive. Key issues that could be addressed more cohesively include rate design, consumer education, improving access to TE in disadvantaged and low- and moderate-income communities, and vehicle-grid integration policy development. Similar treatment of these issues across all transportation electrification programs can help to ensure that lessons learned are being appropriately aggregated and incorporated in new program proposals.
- e. **Ensuring Accountability:** The Commission has authorized significant transportation electrification expenditures, warranting a more rigorous review of program results. As the IOUs develop more programs, it becomes necessary to show how the programs are integrated and additive and rely on pilot program results to help insure prudent expenditure of ratepayer funding.

2.2. Energy Division Staff Proposal

In order to focus the discussion, we direct Energy Division to prepare a staff proposal inclusive of a draft TEF that will be served on the parties no later

¹⁹ In D.14-12-024 and D.16-06-029, the Commission directed the IOUs to design and implement DRAM pilot programs to allow distributed energy resources (DER), including demand-side DER, such as behind-the-meter storage and smart EV charging stations, to compete to provide aggregated supply capacity into the wholesale energy market. The pilot program is currently under evaluation by Energy Division. The Commission may review the findings in Energy Division's evaluation report and consider next steps in DRAM policy in the currently open Demand Response proceeding A.17-01-012.

than ten months after the issuance of this rulemaking. To address the multiple objectives outlined above, the staff proposal may consider the following issues:

- a. **TE Targets:** The State's goals for ZEV adoption and GHG reductions have been well-articulated through legislation and by the Governor's office. However, the Commission has not explicitly identified the role of IOU TE investments and programs in meeting these goals. Performance-based targets can provide the IOUs with appropriate direction to accelerate widespread TE while also maximizing vehicle-grid integration and GHG emissions reductions. Performance-based targets could include shifting a certain percentage of ZEV charging load to off-peak hours or ensuring ZEV charging can be done at a cost lower than fueling with conventional transportation fuels. Such targets should be informed by findings from the Integrated Resource Plan (IRP), Distributed Resources Plan, and other relevant Commission proceedings. Targets should also be aligned with and supported by the grid integration planning processes at other state agencies including the CEC's Integrated Energy Policy Report and charging station assessment and investment plan ordered under AB 2127, CARB's Scoping Plan, and statewide implementation of Charge Ahead California to ensure access to TE is improving for all Californians, including those in disadvantaged and low-and moderate-income communities
- b. **Cost-Effectiveness:** To date, IOUs have procured ZEV equipment and services through competitive solicitations as a cost containment measure. The competitive processes were intended to identify the best cost ZEV supply equipment and encourage the development of economies of scale through larger procurements that the IOUs are able to conduct on a program-wide basis. However, as the Commission gains experience with these programs and the market develops, understanding whether these economies of scale have emerged, and the direct impact of each ratepayer dollar invested in ZEV infrastructure, as it relates to charging station utilization, ZEV adoption, reducing GHG emissions or improving air quality, may be important factors in future investment decisions. Evaluation

of the cost-effectiveness of utility-driven large-scale procurements should be compared to the potential for a more open marketplace to encourage competition that could drive down prices for all market participants.

- c. **Infrastructure Ownership:** The IOUs are currently testing a variety of ownership models to identify if utility investment is necessary to overcome various barriers to ZEV adoption, including whether utility ownership of charging infrastructure facilitates program participation. However, while in-front-of-the-meter ownership has been found reasonable in Commission decisions, it is unclear if there is a benefit to ratepayers for utility ownership of charging infrastructure on customer property. Staff should propose guidelines for the appropriateness of utility ownership of TE infrastructure.
- d. **Cost Recovery:** Various cost recovery models for IOU investments in TE infrastructure currently exist. For example, infrastructure that is owned and operated by the IOU has been allowed capitalized treatment while ratepayer-funded rebates for infrastructure owned by the EV customer has often been expensed and the utility has not been allowed to earn a rate of return on the program costs. Clear guidelines on what investments can be capitalized vs. treated as expensed costs would provide more certainty and predictability to stakeholders, utilities and the market more broadly. Furthermore, the costs of currently approved TE programs are largely recovered through the distribution rates of all utility customers, regardless of which customers can participate in the programs and how much of the customer-side infrastructure may be owned and operated by the utilities. As more customers choose to take service from providers other than the incumbent utility (e.g., as customers of Community Choice Aggregators), the Commission should consider how to equitably allocate costs and benefits of clean transportation programs funded by ratepayers.
- e. **Marketing, Education and Outreach (ME&O):** ME&O related to TE is spread out across no less than three different ratepayer

funded initiatives. First, each IOU has been authorized to invest in ME&O associated with specific applications and programs.²⁰ These IOU-specific ME&O programs inform customers about existing TE investment programs, including qualification criteria, application processes, and the status of program implementation. Second, ZEV awareness is included as part of the 5-year Strategic Plan for the Energy Upgrade California (EUC) campaign, which is administered as a statewide energy efficiency marketing program. While TE is not considered energy efficiency, per se, the EUC campaign is envisaged to provide customer marketing and education on demand-side energy programs generally. Third, the Commission is a contributing member of VELOZ, a non-profit organization made up of automotive, utility, businesses, state agency leaders and environmental justice, public health, and industry advocates. VELOZ was launched in 2017 to provide broad, brand-neutral public education and outreach on the benefits associated with ZEV adoption for individual drivers and the state as a whole. Each of the IOUs are also contributors to VELOZ. Given these disparate efforts, in order to maximize impact of ME&O, mitigate customer confusion, and ensure that outreach is being conducted to all customers including those who are low-income and/or reside in disadvantaged communities, the Energy Division staff shall propose an ME&O coordination framework, with particular attention to programs that recover costs through utility rates.

²⁰ SCE was authorized to develop an ME&O program associated with its Charge Ready program and associated Demand Response pilot program authorized in D.16-01-023; SDG&E was authorized to develop an ME&O program associated with Power Your Drive and its associated vehicle-grid integration rate in D.16-01-045; PG&E was authorized to develop an ME&O program associated with its EV Charge Network Program in D.16-12-065; all three large utilities were authorized to conduct ME&O to encourage and inform customer participation in their SB 350 programs authorized in D.18-01-024 and D.18-05-040; the three small IOUs were authorized to conduct some ME&O associated with their programs authorized in D.18-09-034.

2.3. Outstanding Issues Remaining from R.13-11-007

When R.13-11-007 was originally opened, the Commission identified a number of key issues that have not been fully resolved, including:

1. "To evaluate the potential and value of vehicle-grid integration (VGI), including the use of vehicle batteries for demand response and energy storage."²¹
2. To develop "new [alternative-fueled vehicle] tariffs in each of the three largest IOU service territories," which "may include new rate designs for plug-in electric and natural gas vehicles, including light-duty and medium/heavy duty vehicles."²²
3. To "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."²³
4. To allow for more input to be provided to determine whether to mitigate current demand charge levels and if so, how to do so.²⁴
5. To develop the policy and regulatory framework for developing VGI pilot programs, examine the appropriate criteria for evaluating their scalability, and gather data to conduct future cost-benefit analyses.

While progress was made in each of the areas scoped into R.13-11-007, outstanding activities remain, as described below.

²¹ R.13-11-007 at 2.

²² R.13-11-007 at 14.

²³ R.13-11-007 at 14.

²⁴ R.13-11-007 at 15 to 16.

2.3.1. Electric Rules 15 and 16 Exemption and Load Research

In July 2011, D.11-07-029 directed the IOUs to track and report ZEV charging behavior and the service and distribution system upgrade costs related to new ZEV load in joint, annual Load Research Reports. These reports are filed with Commission Energy Division staff. The decision also granted an exemption to Electric Rules 15 and 16 by directing the IOUs to treat the cost of upgrades necessary to accommodate residential ZEV load as common costs to be recovered from all ratepayers, rather than charging the full cost of the upgrade to the incremental residential customer that triggered the need for an upgrade by adding ZEV load.

This “Common Treatment for Excess Plug-In Electric Vehicle Charging Costs” was extended in D.13-06-014 and again in D.16-06-011.²⁵

The utilities began filing the required Load Research Reports in 2012-2013 and in October 2018 requested an extension to file what was expected to be the final Load Research Report. On October 18, 2018, the Commission’s Executive Director approved a three-month extension and the 2017-2018 Load Research Report is now expected to be filed on March 31, 2019.²⁶

This Rulemaking will consider whether Load Research Reports include all relevant data and whether or how to direct the IOUs to continue filing Load Research Reports.

²⁵ D.16-06-011 extended the Load Research Report requirements through December 2018 and the Common Treatment for Excess Plug-In Electric Vehicles Costs through June 30, 2019.

²⁶ The Executive Director’s letter authorizing the three-month extension was served on the service lists for R.13-11-007 and R.09-08-009.

The ongoing cost tracking conducted through the Load Research Reports to date, however, does not suggest a need to continue the Common Treatment for Excess Plug-In Electric Vehicle allowances authorized in 2011. Unless determined otherwise in this proceeding, the exemption to Rule 15 and Rule 16 will not be renewed past its current expiration date of June 30, 2019.

2.3.2. Rate Design

Most of the IOUs offer EV-specific rates to their residential customers,²⁷ and in 2018, the Commission approved five new rates specific to electric vehicle charging, including three rates applicable to commercial customers adopting electric vehicles in Southern California Edison's service territory. As of the issuance of this Order Instituting Rulemaking (OIR), however, no policy decisions have identified any standardized method of addressing the unique bill impacts associated with adding electric vehicle charging load or load mitigation strategies that could better integrate new electric vehicle energy demand with a customer site's existing load. For example, many commercial customers may face high demand charges when adding electric vehicles to their property electric load, or when operating fast charging stations that operate at higher power levels.

Additionally, in June 2018, the Commission hosted a ZEV Rates Forum to discuss appropriate rate designs to encourage ZEV adoption, and ensure rates are affordable for both ZEV drivers and other ratepayers. During the forum, there was consensus that no one rate design will suit all TE applications at this time, and that demand charges are a barrier to deployment of public DCFC

²⁷ Details of the California IOUs' currently-available EV rates are included as Appendix B of this Rulemaking.

stations and certain medium-and heavy-duty chargers, especially electric bus transit. Further, there is still a difference in cost for fueling an electric vehicle at home for residents of multi-unit dwellings compared to those living in single-family homes.

This rulemaking continues our efforts to address common barriers for charging infrastructure deployment related to ZEV charging rates by directing the IOUs to submit a joint proposal, building on recently approved rates and those currently under consideration, proposing solutions to demand charges in commercial rates used by (i) sites hosting DCFC for light-duty vehicles; (ii) transit agencies deploying electric busses; and (iii) other commercial customers charging ZEV fleets. The joint proposal should also address electric rate options for hydrogen fueling stations. Hydrogen may be used in transportation end-uses. The rate designs should still be based on marginal cost, reflect cost-causation principles, and generally avoid cross-subsidies.²⁸

This joint proposal can also address ZEV charging rates for other commercial customers, if the joint IOUs identify common barriers and reasonable proposals for alignment among their rates.

The joint proposal should identify mechanisms such as stronger cost-based time-of-use (TOU) rates that reduce the cost of using off-peak electricity as a transportation fuel well below the cost of conventional fuels such as diesel and

²⁸ The Commission adopted 10 principles of rate design to guide the development of an optimal residential retail rate design and incorporated these principles into recent decisions including D.15-07-001, D.17-01-006, and D.17-08-030. Although the principles were adopted to define optimal residential rate designs, they are also applicable and should be followed for designing new commercial rates.

petroleum.²⁹ The proposal should also ensure ZEV rates align with other demand response and load management programs to facilitate and encourage customers to participate in all existing applicable efforts to better integrate ZEV charging load onto the grid. This includes the IOUs' and third-party demand response programs, energy efficiency programs operated by third-party aggregators, and the Low Carbon Fuel Standard (LCFS) incentive mechanisms that encourage ZEV charging at off-peak periods when the grid has an overall lower carbon intensity.³⁰

The due date for the joint rates proposals will be determined in the Assigned Commissioner's Scoping Ruling.

2.3.3. Submetering

Various IOU pilot programs are currently investigating the feasibility of using submeters to separately meter the electricity consumed for ZEV charging.³¹ Submeters can be applied to a customer's existing meter or, as is more common

²⁹ § 740.12(1)(H) states that "deploying electric vehicle charging infrastructure should facilitate increased sales of electric vehicles by making charging easily accessible and should provide the opportunity to access electricity as a fuel that is cleaner and less costly than gasoline or other fossil fuels in public and private locations."

³⁰ CARB's LCFS regulation, as modified on September 27, 2018 and effective on January 1, 2019, encourages charging during designated periods of high renewable generation, so long as the customer is enrolled on a TOU rate. The joint IOU rates should ensure rate structures are similar across service territories and provide low-cost charging opportunities at periods of peak renewable generation to encourage the integration of renewables and ensure participation in LCFS is as simple as possible. More information on the LCFS is available at <https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

³¹ PG&E, SCE, and SDG&E were directed in D.11-07-029 and D.13-11-002 to develop rules to incorporate customer-owned submeters into their billing and metering system(s) for ZEVs. The utilities were authorized in Resolution E-4651 to each implement a two-phase pilot program and hire a third-party evaluator to review the results of the pilot programs. The final evaluation of the two-phase pilot programs is still underway as of the date of the issuance of this Rulemaking.

for ZEVs, can be embedded in the ZEV charger itself. ZEVs are also capable of metering electricity consumption by utilizing the vehicle's on-board telematics. Installing a submeter rather than a whole separate utility service drop for an ZEV charger could potentially reduce the cost of the infrastructure needed to support charging.

As of the date of issuance of this rulemaking, the results of the two submetering pilots have not been fully compiled and evaluated by the Commission, the utilities, or other interested stakeholders. Given the cost associated with installing a separated meter (currently a requirement for separate ZEV billing options), and the utilities' ongoing preference for metering ZEV load separate from other customer loads, it makes sense to continue evaluating submetering. The current submetering pilots' evaluation process and any potential policy developments related to the pilots and their outcomes will be scoped into this new rulemaking.

2.3.4. Vehicle Grid Integration

The guidance provided in the 2016 ACR directed the utilities to address how they would comply with the International Organization for Standardization and International Electrotechnical Commission's 15118 Vehicle-to-Grid Communications Protocol in the TE infrastructure they were proposing to install, or explain what alternative approaches they proposed to meet VGI policy objectives.

The CEC and Commission held a joint staff workshop in December 2016 to discuss the importance of VGI and the role of communication protocols in enabling VGI. During the workshop, participating experts and stakeholders did not reach a clear consensus about which, if any, protocol is necessary to enable VGI to scale in the market. At the conclusion of the workshop, Commission staff

proposed developing a working group to evaluate the technical details of existing communication protocols and assess which, if any, might be appropriate for the Commission to require to be used in ratepayer-supported infrastructure. The formation of the working group was later formalized in an April 13, 2017 Scoping Ruling of the Assigned Commissioner and Administrative Law Judges in A.17-01-020 et al.³²

Energy Division staff worked with staff from the CEC, CARB, the California Independent System Operator (CAISO), and GO-Biz to convene a VGI Communication Protocol working group comprised of 130 stakeholders interested in the state's pursuit of bringing VGI to market economically and at scale. The group met from April through December 2017, and Energy Division staff documented all the discussion documents and deliverables, including a Staff Report on the working group's context and content, at www.cpuc.ca.gov/vgi.

The Energy Division Staff Report includes recommendations for hardware functionalities that should be required for any electric vehicle services equipment that is purchased through a utility program using ratepayer funding. The working group was unable, however, to reach agreement on whether it is prudent to require a single or combination of communication protocols to enable VGI at this juncture.

To date, no single industry-wide standard has been adopted to communicate VGI signals from the utility to the vehicle. It is critical to identify an open, widely available, and currently deployable communication pathway to

³² Section 2.4 of the April 13, 2017 Scoping Ruling in A.17-01-020 et al., available at <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M183/K956/183956801.PDF>.

send signals from and to the utilities and facilitate optimal vehicle-to-grid interaction. The wide variety of potential communication pathways and the protocols that could support them were evaluated in detail throughout the working group and are described in Section 4 of the Staff Report.

The Commission supports the further deployment and development of VGI communication pathways, to identify the criteria necessary to deploy high-level VGI use cases economically and at scale. The Commission and Energy Division staff will continue interagency coordination to develop an update to the statewide VGI Roadmap and to ensure the Commission's roadmap tasks are completed on schedule.³³

In comments to the Draft VGI Communication Protocol Working Group Energy Division Staff Report, several stakeholders including Siemens and the Joint Parties requested the working group process be continued using VGI technical consultants and an outside facilitator.³⁴ Through this rulemaking PG&E, SCE, and SDG&E are directed to work with Energy Division to develop a process for a new interagency, multi-stakeholder working group focused on

³³ The CEC's 2018 VGI Roadmap Update docket and documents associated with it are available at <https://www.energy.ca.gov/transportation/vehicle-grid-integration/>

³⁴ Siemens' comments on the draft VGI Communication Protocol Working Group Energy Division Staff Report at 6, available at <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457085>. The Joint Parties comments were filed by the California Electric Transportation Coalition and co-signed by American Honda Motor Co., Inc, the Electric Power Research Institute, Fiat Chrysler Automobiles, Ford Motor Company, Kitu Systems, Nissan North America, Inc., Pacific Gas and Electric Company, Plug-In America, San Diego Gas & Electric Company, Southern California Edison, Southern California Public Power Authority, and Toyota Motor North America. The Joint Parties' suggestion of hiring VGI technical consultants and project management assistance is at 30, available at <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457079>.

identifying the cost and benefits of VGI use cases in conjunction with implementation of the statewide VGI Roadmap. This may include the selection of a facilitator. The working group should include interested stakeholders, including representatives from the IOUs, as well as representative staff from the Commission Energy Division TE, IRP, DRP, Demand Response and DER teams, the CEC, CARB, CAISO, and GO-Biz. The working group should build on the efforts from the VGI Communication Protocol Working Group, the VGI Roadmap update effort, and other ongoing interagency efforts to identify, capture, and scale the value of VGI.

The outputs and deliverables from the VGI Communication Protocol Working Group should be used to inform this new working group's discussions, but issues that were already evaluated during the 2017 working group should not be considered within the scope of this new working group.

The scope of the working group should, at a minimum, cover:

- a. What VGI use cases can provide value now, and how can that value be captured?
- b. What policies need to be changed or adopted to allow additional use cases to be deployed in the future?
- c. How does the value of VGI use cases compare to other storage or DER?

PG&E, SCE, and SDG&E are directed to work with the Commission's Energy Division to develop a proposed work plan for the working group and kick-off the working group meetings no later than July 31, 2019.

3. Preliminary Scoping Memo

This rulemaking will be conducted in accordance with Article 6 of the Commission's Rules of Practice and Procedure, "Rulemaking." As required by Rule 7.1(d), this OIR includes a preliminary scoping memo as set forth below,

and preliminarily determines the category of this proceeding and the need for hearings.

3.1. Issues

While the above sections touch on the broad objectives that will shape the scope of this proceeding, and the work the Commission's Energy Division will be doing to support this proceeding, the precise issues to be addressed and the process for addressing those issues will be set forth in an Assigned Commissioner's Scoping Memo. The Assigned Commissioner's Scoping Memo will be issued after this proceeding's prehearing conference (PHC).

The scope of this proceeding broadly includes all issues related to transportation electrification. For clarity, however, the preliminary scope of issues for this proceeding include:

1. Develop policies, guidelines and implementation strategies to accelerate widespread adoption of transportation electrification.
2. Develop a common TEF for review of investor owned utility programs and investments.
 - a. What should be the parameters of an IOU TEF including investment targets, timelines, and schedules for new applications and program proposals, priority sectors for investment, and budget caps or limits?
 - b. Should a specific cost-effectiveness metric be adopted to evaluate IOU TE programs and investments?
 - c. What is the appropriate cost recovery mechanism for different types of IOU TE investments?
 - d. What is the appropriate ownership model for different types of IOU TE investments?
3. Provide guidance for investigating new rates related to electric vehicle charging.

4. Consider policy related to the Low Carbon Fuel Standard program.
5. Provide direction on timing, venue and other regulatory process-related IOU TE programs and investments.
6. Promote coordinated consumer education on ZEVs and ZEV policy.
7. Improve access to TE for all customers, including those in disadvantaged and low-and moderate-income communities.
8. Encourage the development and adoption of vehicle-grid integration policy and technologies.
9. Address sub-metering and billing for ZEV electric load.
10. Consider the common treatment for excess ZEV charging costs pursuant to Electric Rules 15 and 16.
11. Consider safety issues with regards to IOU TE investments, including cyber-security concerns.
12. Address emerging issues in the TE space including longer vehicle range, ridesharing fleet electrification, electrified micro-mobility services (e.g., shared electric scooters and bicycles), and the potential impacts of autonomous vehicles on charging infrastructure and the grid.
13. Explore investments and policies undertaken by other federal, state, and regional government agencies, including the Federal Transit Administration, Caltrans, councils of governments, the California Strategic Growth Council and local governments in their transportation planning, to ensure that public dollars are being fully leveraged and utilized efficiently.

3.2. Categorization and *Ex Parte* Communications

The Commission's Rules of Practice and Procedure require that an order instituting rulemaking preliminarily determine the category of the proceeding. As a preliminary matter, we determine that this proceeding is quasi-legislative, because our consideration and approval of this matter would establish policy or rules affecting a class of regulated utilities. Accordingly, *ex parte*

communications are permitted without restriction or reporting requirement pursuant to Article 8 of the Rules.

3.3. Need for Hearing

The Commission’s Rules of Practice and Procedure require that an order instituting rulemaking preliminarily determine the need for hearing. We anticipate many of these issues can be addressed by filed comments or in public meetings or workshops. Therefore, we preliminarily determine that no hearings will be needed. (Rule 7.1(d).) The assigned Commissioner’s Scoping Memo and Ruling, after considering the comments and recommendations of parties, will make a final determination of the need for hearing. (Rule 7.3(a).)

4. Preliminary Schedule

The following schedule is subject to change by the assigned Commissioner or Administrative Law Judge after review of the comments. It may be supplemented or changed to promote efficient and equitable development of the record. It is anticipated that the proceeding will be resolved within 24 months of the date the Rulemaking is opened. (See § 1701.5.) The schedule is:

SCHEDULE

EVENT	DATE
Rulemaking Issuance	December 13, 2018 (expected)
Comments on Rulemaking	45 days from date of Rulemaking issued
Reply Comments on Rulemaking	15 days from filing of comments
PHC	90 days from Rulemaking issuance
Scoping Memo	30 days from PHC
IOU Joint EV Rates Proposal	To be determined by the Scoping Memo
Energy Division Staff TE Framework	No later than 10 months following

Proposal	Rulemaking issuance
VGI Working Group Kick-Off Meeting	No later than July 2019

A PHC will be held for the purposes of (1) taking appearances, (2) discussing schedule and process, and (3) informing the scoping memo. The time and place for the PHC will be noticed via ruling after the issuance of the OIR.

The schedule for the remainder of the proceeding will be adopted in the Assigned Commissioner's Scoping Memo.

If there are any workshops in this proceeding, notice of such workshops will be posted on the Commission's Daily Calendar to inform the public that a decision-maker or an advisor may be present at those meetings or workshops. Parties shall check the Daily Calendar regularly for such notices.

5. Respondents, Service List, Filing and Service of Documents, Subscription Service

5.1. Respondents

Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Liberty Utilities (CalPeco Electric) LLC, Bear Valley Electric Service (A Division of Golden State Water), and PacifiCorp d/b/a Pacific Power are named as respondents to this proceeding.

5.2. Service of OIR

This OIR shall be served on all respondents.

In addition, in the interest of broad notice, this OIR will be served on the official service lists for the following proceedings and state and local agencies:

- R.13-11-007
- A.18-01-012

- A.18-06-015
- A.18-07-020
- A.18-07-021
- A.18-07-022
- A.18-07-023
- A.18-07-025
- The California Air Resources Board
- The California Energy Commission
- The California Independent System Operator
- The Governor’s Office of Business Development
- The California Building Standards Commission
- The California Department of Food and Agriculture’s Division of Measurement Standards.

Service of the OIR does not confer party status or place any person who has received such service on the Official Service List for this proceeding, other than respondents. Instructions for obtaining party status or being placed on the official service list are given below.

5.3. Addition to Official Service List

Addition to the official service list is governed by Rule 1.9(f) of the Commission’s Rules of Practice and Procedure.

Respondents are parties to the proceeding (*see* Rule 1.4(d)) and will be immediately placed on the official service list.

Any person will be added to the “Information Only” category of the official service list upon request, for electronic service of all documents in the proceeding, and should do so promptly in order to ensure timely service of comments and other documents and correspondence in the proceeding. (*See*

Rule 1.9(f)). The request must be sent to the Process Office by e-mail (process_office@cpuc.ca.gov) or letter (Process Office, California Public Utilities Commission, 505 Van Ness Avenue, San Francisco, California 94102). Please include the Docket Number of this rulemaking in the request.

Persons who file responsive comments thereby become parties to the proceeding (*see* Rule 1.4(a)(2)) and will be added to the “Parties” category of the official service list upon such filing. *In order to assure service of comments and other documents and correspondence in advance of obtaining party status, persons should promptly request addition to the “Information Only” category as described above; they will be removed from that category upon obtaining party status.*

5.4. Filing and Service of Comments and Other Documents

Filing and service of comments and other documents in the proceeding are governed by rules contained in article 1 of the Commission’s Rules of Practice and Procedure. (*See* particularly Rule 1.5 through 1.10 and 1.13). If you have questions about the Commission’s filing and service procedures, contact the Docket Office (Docket_Office@cpuc.ca.gov) or check the Practitioner’s Page on our website at www.cpuc.ca.gov.

In the event that evidentiary hearings are held, parties are directed to submit their prepared testimony, and any exhibits that are offered in evidence, as “supporting documents” using the Electronic Filing System on the Commission’s website at <http://www.cpuc.ca.gov/PUC/efiling>. All other exhibits that have been marked for identification shall be submitted by no later than three business days from the conclusion of evidentiary hearings, if applicable.

5.5. Subscription Service

Persons may monitor the proceeding by subscribing 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 official 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/>.

6. 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. The TTY number is (866) 836-7825.

7. Intervenor Compensation

Intervenor Compensation is permitted in this proceeding.

Any party that expects to claim intervenor compensation for its participation in this Rulemaking must file its notice of intent to claim intervenor compensation within 30 days of the filing of reply comments, except that notice may be filed within 30 days of a prehearing conference in the event that one is held. (See Rule 17.1(a)(2).) Intervenor compensation rules are governed by §§ 1801 et seq. of the Public Utilities Code. Parties new to participating in Commission proceedings may contact the Commission's Public Advisor.

8. Closure of Rulemaking 13-11-007

While many of the issues related to (1) the value of VGI, (2) new rate designs for PEVs, (3) submetering protocol and cost allocation related to distribution systems upgrades under Electric Rules 15 and 16, (4) how to mitigate current demand charge levels, and (5) the policy and framework for developing VGI pilot programs, are not yet complete, the work of the parties in R.13-11-007

substantially informs how these have been scoped into the successor transportation electrification rulemaking to R.13-11-007.

One item however, remains outstanding and is disposed of with the issuance of today's decision. Commission personnel, in coordination with the CEC, CARB, CAISO, and Go-Biz started a working group in 2017 to investigate whether the Commission should require a communication protocol for the electric vehicle supply equipment and associated infrastructure that IOUs support with ratepayer funding (VGI working group). The VGI working group met over the course of seven months, from April to December 2017. One of the objectives of the VGI working group was to gather data and document analysis to support California agency decision-making regarding what policies are needed to support VGI. The Commission's Energy Division compiled the results of the VGI working group into a Staff Report, a draft of which was served to parties on the instant service list for comment. The ruling appending the draft Staff Report specified that a finalized version of the Staff Report would be attached to a future ruling or decision for entry into the procedural record of R.13-11-007. Comments on the draft Staff Report were received on April 4, 2018. After reviewing comments, Energy Division staff finalized the Staff Report which is appended to today's decision. (See Appendix C). While the VGI policy objectives have been preliminarily scoped into the successor docket to R.13-11-007, the Staff Report is officially finalized and added to the procedural record of R.13-11-007.

The issues identified in the March 30, 2016 amended scoping memo in R.13-11-007 have been resolved or are identified as being transferred to the successor docket opened today, R.18-12-006. Accordingly, we hereby close R.13-11-007 for purposes of § 1701.5.

O R D E R

IT IS ORDERED that:

1. This Order Instituting Rulemaking is adopted pursuant to Senate Bills 350 and 1000, Assembly Bill 2127, and Rule 6.1 of the Commission's Rules of Practice and Procedure.
2. The preliminary categorization is quasi-legislative.
3. The preliminary determination is that hearings are not needed.
4. The preliminary scope of issues is as stated above in Section 4.3.
5. Opening Comments on the Rulemaking are due within 45 days of the date of issuance of today's Rulemaking. Reply comments are due within 15 days from the last day for opening comments.
6. The time and place for a prehearing conference in this proceeding will be noticed via ruling within 90 days of the date of issuance of today's Rulemaking. The schedule for the remainder of the proceeding will be adopted in the Assigned Commissioner's Scoping Memo.
7. Unless changed by the assigned Commissioner or Administrative Law Judge, the schedule stated in Section 4 of this order is adopted. It is the Commission's intent to resolve the full proceeding within 24 months of the date the rulemaking is issued.

8. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Liberty Utilities (CalPeco Electric) LLC, Bear Valley Electric Service (A Division of Golden State Water), and PacifiCorp d/b/a Pacific Power are respondents to this Order Instituting Rulemaking.

9. Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, Liberty Utilities (CalPeco Electric) LLC, Bear Valley Electric Service (A Division of Golden State Water), and PacifiCorp d/b/a Pacific Power shall, and any other person may, file comments responding to this Rulemaking within 45 days of the date of issuance of this Order Instituting Rulemaking.

10. The Executive Director will cause this Order Instituting Rulemaking to be served on all respondents and on the service lists for the following Commission proceedings: Rulemaking 13-11-007, Application (A.) 18-01-012, A.18-06-015, A.18-07-020, A.18-07-021, A.18-07-022, A.18-07-023, and A.18-07-025. In addition, the Executive Director will cause this Order Instituting Rulemaking to be served on the agencies listed in Appendix D.

11. Any party that expects to claim intervenor compensation for its participation in this Rulemaking must file its notice of intent to claim intervenor compensation within 30 days of the filing of reply comments, except that notice may be filed within 30 days of a prehearing conference in the event that one is held. (See Rule 17.1(a)(2).)

12. Rulemaking 13-11-007 is closed.

This order is effective today.

Dated December 13, 2018, at San Francisco, California.

MICHAEL PICKER

President

CARLA J. PETERMAN

LIANE M. RANDOLPH

MARTHA GUZMAN ACEVES

CLIFFORD RECHTSCHAFFEN

Commissioners