

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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

Rulemaking 18-12-006
(Filed December 13, 2018)

**REPLY COMMENTS OF THE VEHICLE-GRID INTEGRATION COUNCIL ON THE
TRANSPORTATION ELECTRIFICATION FRAMEWORK (SECTIONS 7 AND 8)**

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In accordance with Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the Vehicle-Grid Integration Council (“VGIC”) hereby submits these comments on the *Administrative Law Judge’s Ruling Adding Staff Proposal for a Draft Transportation Electrification Framework to the Record and Inviting Party Comments* (“Ruling”) issued by Administrative Law Judge (“ALJ”) Patrick Doherty on February 3, 2020. Pursuant to *Email Granting Request for Extension of Time to Submit Comments on Sections 7 and 8 of the Transportation Electrification Framework* issued by ALJ Sasha Goldberg on July 2, 2020, VGIC timely files these reply comments on Section 8 of the Draft Transportation Electrification Framework (“Draft TEF”) on August 7, 2020.

I. INTRODUCTION.

VGIC is a 501(c)6 membership-based advocacy group committed to advancing the role of electric vehicles (“EVs”) and vehicle-grid integration (“VGI”) through policy development, education, outreach, and research. VGIC supports the transition to decarbonized transportation and electric sectors by ensuring the value from EV deployments and flexible EV charging and discharging is recognized and compensated in support of achieving a more reliable, affordable, and efficient electric grid.

II. REPLY COMMENTS ON DRAFT TEF SECTION 8: TECHNOLOGY AND STANDARDS.

A. Several parties agree with VGIC’s position to not require all ratepayer funded EVSE meet ISO 15118

In opening comments, several parties stated that it is premature to set a specific mandated communication protocol for all investor-owned utility (“IOU”) EV supply equipment (“EVSE”).

¹ VGIC reiterates that the Draft TEF’s proposed requirement that all IOU EVSE meet a specific communication protocol is in conflict with the Commission’s near-term objective to “enhance market coordination of IOU investments” and “bolster market confidence and encourage third-party investment in transportation electrification (“TE”).² VGIC believes the Commission should instead focus on authorizing rates and market structures that foster an open marketplace for VGI services and lead us toward the goals set forth in SB 350. As California continues its transition to a high-EV transportation and electricity system, customers must be able to elect the VGI service that best fits their needs, and the availability of a diverse array of communication protocols is needed to support this customer choice.

In opening comments, Peninsula Clean Energy (“PCE”) recommended EV-based VGI be addressed in IOU TE Plans (“TEP”) due to the proliferation of L1 charging in multi-unit dwellings. VGIC supports PCE’s recommendation to “evaluate opportunities to further develop EV-based VGI, including data sharing and data standardization between OEM and LSEs.”³

¹ See, for example, ChargePoint, Inc. Comments on Draft TEF (Sections 7 and 8) at 7, EVBOX at 3, EVgo at 2, Natural Resources Defense Council et al. at 2, Southern California Edison at 4, San Diego Gas & Electric at 6, Pacific Gas & Electric at 5, and Tesla at 4.

² *Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification (“DRIVE OIR”)* at 9. <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M252/K025/252025566.PDF>

³ Opening Comments of PCE on Sections 7 & 8 of the Draft TEF at 3.

VGIC believes that further development of EV-based VGI opportunities is important to continue to expand the diverse toolkit of VGI pathways, thereby making available different pathways that may be best fit for a given VGI use case. As detailed in previous comments on the TEF, VGIC recommends the Commission explore potential pathways of data collection that engage relevant market participants. If these data collection pathways are pursued, the Commission should also consider compensation mechanisms for the data collection and transmission services provided.⁴

In opening comments, Southern California Edison (“SCE”) detailed how IEEE 2030.5 may be a lower-cost approach. While VGIC believes that IEEE 2030.5 may be the best fit protocol for some VGI use cases, we oppose designating a specific communication standard for all IOU EVSE, whether that standard is ISO 15118, IEEE 2030.5, or another protocol. As stated in opening comments, VGIC recommends the Commission instead explore levers to promote VGI strategies through the TEF and beyond that are based on incentivizing the adoption and use of VGI functionalities and use cases, such as the 320 identified in the VGI Working Group Final Report as “able to provide value now.”⁵ Notably, ISO 15118 is not yet complete for bi-directional applications. Requiring ISO 15118 would therefore prevent V2G applications from *providing value now*.

B. VGIC agrees with SCE’s forecasting approach that differentiates “base case, load-only EVs” from “VGI-enabled EVs”; however VGIC recommends including V1G in the latter category

In opening comments, SCE describes two types of EVs: vehicle-to-grid (“V2G”) EVs and load-only EVs. SCE lists factors that inform its hourly EV load forecast, including customer

⁴ Comments of VGIC on TEF Sections 3.4 and 11.3 (May 11, 2020) at 16.

⁵ See VGI WG Final Report, filed in R.18-12-006 on June 30, 2020 at 8. <https://gridworks.org/wp-content/uploads/2020/07/VGI-Working-Group-Final-Report-6.30.20.pdf>

EV charging behavior, future flexible charging programs, TOU rate structure, and duration of charging. SCE then states, “V2G EVs can be used for shifting customer hourly demand and as a storage system.”⁶

VGIC believes added nuance around the various types of EVs is needed to frame VGI capabilities more accurately and represent the full spectrum of opportunities to leverage EV technology. There is a key distinction between forecasted “**base case**” **EV load** that assumes baseline customer charging behavior, potentially including a level of responsiveness to TOU rate structures, and **VGI resources** that can be provided, procured, and/or incentivized in addition to base case charging. V1G opportunities – or flexible charging – should be viewed as an additional layer of capabilities that merits separate consideration as a resource in utility planning processes, rather than being viewed only as additional load.

Another important, though rather straightforward, factor that should be acknowledged is that V1G resources do not require V2G capabilities. While EVs *can* provide both V1G flexibility and V2G bi-directionality, they could also provide *only* V1G flexibility. For example, a customer may elect a flexible charging solution in response to a dynamic VGI rate, such as SDG&E Power Your Drive VGI Pilot rate, however the customer does not need to have V2G-capable technologies to capture V1G value streams. As such, VGIC reiterates and further clarifies its opening comments that grid-connected EVs *generally* fall into three classifications: [1] base case load-only EVs, [2] V1G resources (flexible, but not bi-directional), [3] V2G resources (flexible and bi-directional). Base-case load-only EVs should be treated as load modifiers, as they are in

⁶ SCE Opening Comments on Safety, Technology, and Standards at 7.

SCE’s described process. V1G and V2G resources, however, should be treated as resources in planning and procurement processes, as they can provide flexible grid support.

SCE also states, “it is unknown when (or if) other EV manufacturers will produce light-duty vehicles [“LDV”] capable of V2G in the future.”⁷ As the unified voice of automotive original equipment manufacturers (“OEMs”) engaged in VGI issues, VGIC can positively attest that auto OEMs do intend to produce V2G-capable light-duty vehicles. In our comments on the V2G Alternating Current (“AC”) Interconnection Subgroup Report, VGIC confirmed that some OEMs have product plans that include full V2G services within a five year time horizon. In those same comments we also highlighted the importance of regulatory certainty and well-defined interconnection pathways, which are needed to signal to OEMs that they should continue their product plans for V2G LDV.⁸ In an effort to keep Energy Division staff updated on the progress of ongoing standards development work, VGIC is attaching a brief update on work underway at SAE to address updates to standards supporting VGI preparedness.

C. VGIC agrees with the Joint Comments of Enel X and Nuvve, and disagrees with SDG&E’s comments on Rule 15/16 exemption and right-sized infrastructure

VGIC strongly supports the recommendation made in the Joint Comments and attached policy brief submitted by Enel X North America, Inc. (“Enel X”) and Nuvve Corporation (“Nuvve”) for a standardized, tariff-based process for how customers, site hosts, and developers can apply to interconnect new EV charging load.⁹ VGIC agrees that customers should be able to elect an eligible behind-the-meter load management technology to avoid primary and/or

⁷ *Id.* at 6.

⁸ Comments of VGIC on Vehicle-to-Grid Alternating Current Interconnection Subgroup Report (January 6, 2020) at 3.

⁹ Joint Comments of Enel X North America, Inc. and Nuvve Corporation on Draft TEF Pertaining to Safety, Technology, and Standards at 2.

secondary upgrades, and receive commensurate benefits for doing so. In contrast, SDG&E stated the following in their opening comments:

“for safety reasons, infrastructure must be sized according to the maximum possible load behind the meter for the electric service in question. Installing chargers with the potential to exceed the rating of a customer panel or transformer poses a safety risk even with load management software to limit maximum load, since software can fail or be overridden.”

¹⁰

VGIC understands and appreciates the significance of ensuring safety and maintaining reliability. However, it is not clear that using valid load management software in compliance with what SDG&E refers to as “applicable safety codes” would pose safety risks.¹¹ As mentioned by Enel X and Nuvve, several other jurisdictions have safely implemented this load management solution approach.¹² VGIC believes there is no fundamental reason why California should not adopt a similar approach, which could achieve the same level of safety performance that SDG&E is seeking. One clear example of this is in Hawaii where customers can choose a load management option. The mechanics of the Hawaii Electric Company (“HECO”) Rules that allow this are captured in the attachment to Enel X and Nuvve’s opening comments referenced above.

An analogous concept also exists in transmission planning, where physical transmission capacity exceeds the rated capacity and system operators keep transmission line loading levels below these rated values even if they could physically exceed them. The transmission backbone of the electric grid maintains this paradigm at voltages that are orders of magnitude greater without negative safety or reliability implications. SDG&E’s claim that “software can fail or be

¹⁰ SDG&E Opening Comments on the TEF: Safety (Section 7) and Technology and Standards (Section 8) at 3.

¹¹ *Ibid.*

¹² Joint Comments of Enel X North America, Inc. and Nuvve Corporation on Draft TEF Pertaining to Safety, Technology, and Standards Attachment at 1.

overridden” is just as applicable in that case as it is to distribution connected facilities, and yet it is standard practice within the industry.

VGIC also notes that the IOUs have a financial incentive to maximize distribution system upgrades related to TE as a source of new capital investments. However, this may not always be in the best interest of customers, including both EV customers and other customers who end up paying for these upgrades. While in some cases there may be legitimate safety and reliability concerns that require certain upgrades, it is important for the Commission to differentiate between those legitimate concerns and others that may stem from an outdated mode of distribution planning that excludes load management options as a means to safely reduce costs for EV customers and ratepayers. VGIC notes that the approach taken in Hawaii stemmed in part from the Hawaii Public Utilities Commission’s efforts to reform utility incentive structures to reduce overall system costs and maximize ratepayer benefits.

VGIC therefore urges the Commission to direct IOUs to develop a tariff that enables customer choice of load management solutions to ensure site capacity, as measured at the Point of Common Coupling, stays within certain limits and reduces the magnitude of necessary distribution system upgrades.

Additional considerations for implementing tariff-based solutions that promote VGI capabilities through load management

The method for implementing a tariff-based solution as VGIC and others have described in opening comments could include a few possible approaches, which we have detailed below. The first two approaches are applicable under a scenario where the Rule 15/16 exemption for

residential customers continues as is, while the third would be applicable under a future scenario where there is no longer an exemption (or to commercial customers that do not receive an exemption). Note that VGIC does not support removal of the Rule 15/16 exemption at this time but recognizes that this could be a possibility in the future. VGIC believes these could be applicable to both EVSE equipment with active load management, as well as EVs with equivalent capabilities.

1. ***Upfront rebate:*** EVSE and/or EV customers that include a valid load-management approach may be eligible for an upfront rebate that is commensurate with the cost of the distribution system upgrades avoided through the load management system. For example, if the installation of a new charging port normally required \$14,000 in make-ready equipment, but the load management system allowed the make-ready equipment costs to be reduced by 20%, then the rebate would be \$2,800. This rebate could be treated as a utility operating expense and would reflect the avoided overnight capital costs, which benefits all customers.
2. ***Retail rate discount:*** In lieu of an upfront payment, another option would be to apply a retail rate discount to all charging costs at locations where a load-management system has reduced the size of distribution system upgrades. For example, assuming the above scenario with \$2,800 in avoided costs, a discount of \$0.14/kWh could be applied (assumes 2000 kWh/yr in charging load, and 10-year EVSE life). For both this retail rate discount option, as well the rebate option above, a revenue sharing scheme could also be considered, whereby a greater share of the avoided distribution system costs are passed along to all ratepayers, rather than to solely the EVSE or EV provider.

3. ***Interconnection study options:*** Finally, if at some point in the future the Rule 15/16 exemption is no longer in effect, customers should have the option to elect interconnection either with or without load-management. Under this approach, if an interconnection study is performed, it should by default include a sensitivity analysis where a load management option is assumed, and any interconnection costs identified in the study would be reduced accordingly. The interconnection customer would then have a choice of which option to pursue, so long as they employ a qualified load-management system that achieves reduced charging loads equal to (or less than) the study.

While VGIC supports these options, we also recognize that there must be certain restrictions and qualifications in place for determining a valid load-management approach. This is necessary to preserve safety and reliability of the distribution grid. We recommend that qualifications for minimum capabilities apply to any active load-management approach in order to be eligible for the options described above. For example, load management solutions could be required to meet an applicable set of technical codes and standards for safety and reliability.

Finally, VGIC points out that the load-management approaches described in this section are consistent with several of the recommendations including in the VGI Working Group report, including recommendations 2.04, 2.17, and 2.18 all of which had strong or good agreement among participating stakeholders.

III. SUMMARY OF RECOMMENDATIONS.

In responding to opening comments on Section 8, VGIC proposes several recommendations, which can be summarized as follows:

- VGIC agrees with several parties that it is premature to mandate a specific communication protocol. Instead, the Commission should focus on creating rates, programs, and incentives to promote VGI functionalities.
- EVs *generally* fall into three classifications: [1] base-case load-only EVs, [2] V1G resources (flexible, but not bi-directional), and [3] V2G resources (flexible and bi-directional). Base-case load-only EVs should be treated as load modifiers. V1G and V2G resources should be treated as resources in IOU planning and procurement processes.
- Auto OEMs do intend to produce LDV capable of V2G, but need regulatory certainty to support V2G product development. See Attachment A for an update on VGI standard development at SAE.
- VGIC agrees with parties recommending a tariff-based solution to promote load management solutions. VGIC provides several considerations for implementing these tariff-based solutions, including rebates, retail rate discounts, and pathways within the interconnection process.

IV. **CONCLUSION.**

VGIC appreciates the opportunity to submit these reply comments on the Technology and Standards sections of the Draft TEF. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,



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