

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

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

Rulemaking R.13-11-007
(Filed November 14, 2013)

**OPENING COMMENTS OF TESLA ON ASSIGNED COMMISSIONER'S RULING
SEEKING COMMENT ON VEHICLE-GRID INTEGRATION COMMUNICATION
PROTOCOL WORKING GROUP ENERGY DIVISION STAFF REPORT**

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In accord with Assigned Commissioner Carla Peterman’s Ruling (Ruling) issued on February 23, 2018, Tesla, Inc. (Tesla) submits these comments on the California Public Utilities Commission (Commission) Energy Division’s Staff Report on the Vehicle-Grid Integration (VGI) Communication Protocol Working Group (Staff Report) and recommendations for the Commission to consider when evaluating programs to install certain transportation electrification infrastructure in future proposals from the investor owned utilities (IOU).

I. INTRODUCTION

We recognize the significant amount of work undertaken by Commission staff in coordination with stakeholders and other California State Agency staff to evaluate the technical details of VGI communication protocols and assess which, if any, might be appropriate for the Commission to require to be used in ratepayer-supported infrastructure. As a participant in the working group, Tesla is supportive of Energy Division staff’s determination that based on stakeholder feedback and guidance, “it is not advisable to require the investor-owned utilities to only use a single protocol, or specific combination of protocols, for their infrastructure

investments at this time.”¹ Furthermore, we agree with several of the comments submitted previously by stakeholders including the joint utilities and automakers which highlight that the lack of a uniform communication protocol is not the key barrier to VGI.² The value of VGI benefits must be further understood in order to make a business case for VGI and determine the most appropriate VGI communication protocol(s) for individual electric vehicles (EV).

Finally, it is important to continue to evaluate VGI in the broader the context of enabling the widespread deployment of EVs. In California in 2017, EVs (including plug-in hybrids) represented approximately 4.5 percent of total vehicles.³ To meet the Governor’s Zero Emission Vehicle (ZEV) goals and the state’s climate goals, the primary focus of the utilities’ infrastructure programs should continue to be on enabling deployment and adoption of transportation electrification. Therefore, further evaluation is needed for stakeholders to understand the value of VGI including the study and demonstration of utilizing EV-centric VGI communication solutions (i.e. telematics) and Electric Vehicle Supply Equipment (EVSE)-centric solutions (i.e. IEC/ ISO 15118 with OCPP or IEEE 2030.5) to connect EVs to the grid in a useful way.

II. RESPONSE TO SPECIFIC QUESTIONS IN RULING

a. Overall feedback on Staff Report

i. Does the Staff Report accurately reflect Working Group discussions?

Overall, the Staff Report provides a succinct overview of the content developed within the Working Group and the many discussion by the stakeholders, all of which are difficult to capture

¹ Staff Report, p.12.

² Joint Utilities and Automakers Comments, November 14, 2017. Available at: <http://www.cpuc.ca.gov/vgi/>.

³ <http://next10.org/sites/default/files/ca-zev-brief.pdf>; p.4.

given the nuanced topic. There are, however, several figures, tables, and other elements of the report that could be further clarified.

For instance, it is unclear why Appendix A has been included as it was not explicitly referenced as part of the draft Staff Report outline that was released in December 2017.⁴ While we did not participate in the detailed discussion of every subgroup meeting under the Working Group process, it does not appear that the Working Group reached consensus on the items referenced in Appendix A. Furthermore, we do not agree with the underlying sentiment of Appendix A that VGI is necessary to grow the EV market and which appears to be reflected in the statement “that the EVSE designed only with the list of hardware functionalities identified... will likely forego the immediate opportunity to achieve maximum possible VGI benefits needed to support EV adoption.”⁵ If staff determines that Appendix A is necessary to accurately reflect discussions in the Working Group, then it would be helpful to also include other issues where the Working Group did not reach consensus and/or there is need for further discussion.

ii. Are there any key stakeholder comments that are missing from or misrepresented in the Staff Report?

While we participated in the Working Group, we defer any specific feedback on any missing comments to the more active, technical stakeholders that were part of the Working Group.

iii. Are all of the Deliverables referenced in the Staff Report,⁹ such as the VGI Glossary, complete and accurate based on Working Group discussions and findings?

It appears that our specific feedback on the VGI Glossary and other elements of the Working Group deliverables has been incorporated, yet we defer to the more active, technical stakeholders on determining whether all deliverables are complete and accurate. One specific

⁴ <http://www.cpuc.ca.gov/vgi/>

⁵ Staff Report, Appendix A, p.43.

recommendation that that has been raised by other stakeholders as well is the opportunity to continue to update and refine the VGI Glossary as the technical context for VGI communication protocols is constantly evolving. We support the consideration of the VGI Glossary as a living document and helping ensure its serves as the basis for the application of correct VGI terminology in other state policymaking contexts.

b. Scope of electric vehicle service equipment (EVSE) hardware performance requirements

i. Is it appropriate, as described in the Staff Report, to exclude single-user EVSE in privately-accessible locations (e.g., home charging) from the EVSE hardware requirements for utilities?

Yes, it is appropriate to exclude private access locations from the EVSE hardware requirements for utilities. The Staff Report correctly notes that “for single-user EVSEs in locations with restricted use – such as single-family residences– the additional hardware may provide minimal additional benefits and may not be worth the additional costs. Projects supporting these types of users should be evaluated on a case-by-case basis.”⁶ This point has been reiterated by the joint utilities and automakers throughout their comments stating that “private-access AC charging locations can save substantial amount of money by pursuing lower cost options that still have VGI communications. In addition, a home and fleet’s VGI communication needs can be met by many different customized solutions. Thus, an EVSE future-proofing solution is not needed in these locations.”⁷ Beyond being cost prohibitive, there are other pathways for integrating home charging to meet grid needs including vehicle telematics and vehicle scheduling under time-of-use rates.

⁶ Staff Report, p.32.

⁷ Joint Utilities and Automakers Comments, December 18, 2017, p. 10. Available at: <http://www.cpuc.ca.gov/vgi/>.

ii. Is it appropriate, as described in the Staff Report, to exclude workplaces or fleets that only use their EVSE for business vehicles from the EVSE hardware requirements for utilities?

Yes, it is appropriate to exclude workplaces and fleets from the EVSE hardware requirements for similar reasons as provided above in the private-access use case. While the Staff Report briefly references the exclusion of fleets and workplaces under the “multi-user justifications” section⁸ and the definitions of single-user and multi-user can be implied from other definitions of terms within the VGI Glossary, it would be helpful to add a clarifying footnote in this section of the report. The footnote should either clearly define multi-user or specify that fleets and single-family homes are included in the definition of single use, private charging stations and therefore excluded from the hardware requirements.

iii. If a third party, such as an aggregator, plans to aggregate residential or private workplace charging loads to provide grid benefits, would the recommended hardware requirements be appropriate to apply to these use cases?

It would not be appropriate to apply the recommended hardware requirements under a third-party aggregator scenario for residential or private workplace charging loads. There are several reasons why this is the case that were discussed during the Working Group. One important reason that should continue to be top of mind in this evaluation is that vehicle telematics can also be utilized in such a scenario, especially for the use cases discussed above, which would therefore bypass the EVSE and render the hardware requirements as unused. Furthermore, as the joint utilities and automakers have noted, “there is an underlying unproven assumption that deploying VGI technology, such as future proven EVSE technology, will automatically lead to enactment of VGI use cases and provisioning of benefits.”⁹ It is unclear that mandating a specific EVSE

⁸ Staff Report, p.32.

⁹ Joint Utilities and Automakers Comments, December 18, 2017, p. 8. Available at: <http://www.cpuc.ca.gov/vgi/>.

requirement will in turn lead to automakers equipping their EVs with a specific communication protocol.

iv. If so, should the scope of the hardware requirements be extended to single-user residential or private workplace EVSE?

No, the hardware requirements scope should not be extended. See response above.

v. If not, what EVSE hardware is necessary to enable an aggregator to provide VGI services (e.g. demand response) to residential and private workplaces in addition to any utility program offerings?

The premise of this question implies that the residential EV market has matured to a level where the primary concern should be beyond accelerating adoption. Given the responses above and the continued need to focus on accelerated deployment of EVs first and foremost, it is unclear why any additional EVSE hardware is necessary at this point for residential customers. The customer experience of reliable home charging is key to continuing to drive widespread EV adoption.

Furthermore, there continues to be a need to first understand the value of VGI benefits to make a business case for its application.

c. Identifying future VGI work

i. Are there specific research or technology pilots underway that could aid in identifying the value of use cases and/or the business case(s) for implementing VGI?

No additional comment.

ii. Are there ideas for new research, development, or deployment pilots that would help utilities, electric vehicle service providers, and/or automobile manufacturers to identify the value of use cases and/or the business case(s) for VGI?

The Staff Report specifically references the 2018 update of the VGI Roadmap as one avenue for additional research on VGI. We support an effort to update the VGI Roadmap including identifying clear next steps for assessing the value and return to customers. A key outcome of the

Roadmap update should be actionable next steps to help better understand the value of VGI benefits. Like the sentiment expressed by other automakers throughout the Working Group, we also agree that it is critical to first identify the business case and further evaluate the costs and benefits before moving forward with VGI communications protocol(s).¹⁰ As the Staff Report points out, stakeholders “determined that the potential value of VGI use cases needs further analysis, and potentially additional, largescale pilots that identify the business case for enabling VGI as a resource.”¹¹ Therefore, two potential next steps for research and deployment pilots could include: 1) large scale demonstrations including both EV-centric (telematics) and EVSE-centric solutions for grid integration and 2) VGI value study on net benefits.¹²

iii. Are there any policy proceedings not identified in the Staff Report that should be included in the VGI discussion going forward?

No additional comment.

III. CONCLUSION

Tesla appreciates the opportunity to provide feedback on the Staff Report regarding VGI communication protocols.

Respectfully submitted,

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¹⁰ “The automakers are best suited to determine the costs of VGI communication protocol(s) given their unique vehicles and circumstances. Once the automakers and utilities understand the VGI benefits more clearly, then they can develop business cases and improve utility programs.” Joint Utilities and Automaker Comments, December 18, 2017, p. 1. Available at: <http://www.cpuc.ca.gov/vgi/>.

¹¹ Staff Report, p.19.

¹² Joint Utilities and Automakers Comments, December 18, 2017, p. 2. Available at: <http://www.cpuc.ca.gov/vgi/>.