

January 26, 2018

submitted via email

Commissioner Carla J. Peterman
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Commissioner Janea A. Scott
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Dear Commissioners Peterman and Scott:

Based on Commissioner Peterman's request on December 18th, regarding how the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) can work together and help direct and fund vehicle-grid integration (VGI) efforts in 2018 and beyond, the Joint Utility-Automaker Parties are resending, in one package, our two November 2017 letters to the CEC and the CPUC on the topic of VGI. (See Attachments 1 and 2 to this letter.) The benefits from VGI are especially important to electric-vehicle (EV) drivers and to avoid costs on the generation, transmission and distribution systems; but VGI benefits are also important to eventually create businesses that can take advantage of the energy- and ancillary-services markets. Additional action items are needed in 2018 because much of the original VGI Working Group's workplan from the five sponsoring agencies was not completed (e.g., Deliverables 2 and 3).

Also, in this cover letter we summarize the points from our letters that make recommendations for agency and stakeholder efforts on VGI to continue in 2018:

- **The most important part of the path forward is to understand the value of VGI benefits with funded studies and large-scale demonstrations:** In order to make a business case and determine the best VGI communication protocol(s) to install on their EVs, most automakers need a better understanding of the VGI benefits. We believe 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. Two key steps are needed based on similar experience with the stationary-storage efforts and both can be funded simultaneously:

- **A VGI value study** on net benefits that examines promising services and benefit streams in the consolidated VGI benefits framework from Deliverable 1.1¹ of the VGI Working Group. This effort would build on the VGI Working Group’s Deliverable 2, which was not finished in 2017.
- **Large-scale demonstrations** in 2018 and later years by automakers, utilities and others (up to 2,000 EVs) of promising use cases in several different charging-market segments (including public, fleet, workplace and homes) in order to get validation of the realizable benefits of VGI as well as costs of implementing VGI in real-world situations.² Demonstrations will allow us to understand more about the ability of EV-centric VGI-communication solutions (e.g. telematics) and EVSE-centric solutions (e.g., IEC/ ISO 15118 with OCPP or IEEE 2030.5) to connect EVs to the grid in a useful way.³ This approach also allows a more level playing field for different business models from the automakers and EVSE providers by including communication solutions such as telematics that are not directly affected by the agency proposal that came out of the 2017 VGI Working Group.⁴ In addition, large-scale VGI demonstrations would sustain the momentum on VGI and accelerate development efforts by the automakers and charging station developers.
- In addition, timely and coordinated approval of cost recovery or funding from the CPUC, CEC and/or other agencies would facilitate near-term validation of the two above action items on VGI value.
- **The 2013 VGI Roadmap should be updated in 2018** with new deliverables, assignments to agencies, clear funding, and a more frequent process for convening all the VGI agencies and stakeholders.

¹ The draft consolidated benefits framework from Deliverable 1.1 lists over 150 types of VGI benefits (monetized and non-monetized) and answers questions such as who needs, what is the need, what meets the need, how is it measured, and how to meet the need.

² Large-scale demonstrations should also include determining monetized and non-monetized benefits, costs, performance, trade-offs, and other lessons learned, as well as the ability to meet technical and customer requirements.

³ By “connect EVs to the grid,” we mean from the PFE to the EV. Demonstrations will also allow better understanding of “one-step,” end-to-end solutions (PFE to EV) and “two-step” end-to-end solutions (PFE to EVSE to EV) that require protocol translation, decryption/encryption, etc. Note: PFE is a term the VGI working group developed and it means power flow entity. The PFE is broad term that may include the aggregator, utility, site host, EV service provider, Energy Service Company, alternative energy supplier, energy portal, or clearing house.

⁴ One of the most promising solutions is to use automaker telematics solutions as the VGI communication pathway (PFE to EV) where the automaker (or their partner) is the aggregator and no EVSE is needed. Automakers such as General Motors, Ford, BMW, Honda, Tesla, Fiat Chrysler America and potentially others are all pursuing this low-cost, low-risk solution.

- **An EV data-sharing effort is needed in 2018:** We support the recommendation on page 81 of the draft 2017 Integrated Energy Policy Report for the CEC to lead a collaborative effort with researchers; local government, air district, and utility charging infrastructure program administrators; and others to share data about charging-infrastructure programs. Given that charging-station and EV data is being collected in multiple forums, we greatly support this recommendation so that experts will be brought together to compare and understand existing data, and determine what gaps need to be addressed. As we mentioned in previous letters on the Title 20 data-collection pre-rulemaking⁵ we support a voluntary effort as the best way to address the data needs of the state agencies, utilities, and other stakeholders, rather than a mandate from the CEC.

Finally, we suggest additional action items in 2018, in addition to the above action-item list, as a result of the December 18th meeting of the VGI Working Group:

- **The VGI Working Group’s Deliverable 3 on policy recommendations** should be funded in 2018. Many of the best ideas to accelerate VGI are low-cost efforts that can be accomplished via policy (e.g. rates, education, charging rebate design). However, the effort on Deliverable 3 barely started in 2017.
- **The VGI Working Group should be continued in 2018 on a less frequent basis.** The informal nature of the VGI Working Group has allowed improved dialogue, breaking down of silos, and faster progress. In addition, it is more efficient for both the agencies and stakeholders involved. Not only should the original five VGI sponsoring agencies be involved, but staff from the Department of Food and Agriculture’s Division of Measurement Standards, the CEC’s Electric Program Investment Charge and demand forecasting divisions, and CARB’s Low Carbon Fuel Standard program should be added to the VGI Working Group.
- **VGI consultants should be funded:** At the last several meetings and calls of the VGI Working Group, there have been constructive recommendations for various VGI consultants. We agree that a more sustainable approach to the VGI Working Group and VGI Roadmap update tasks above involves hiring consultants in 2018:
 - Cybersecurity experts to address any additional needs to implementing end-to-end VGI communication protocols or comparing protocols.

⁵ CalETC Letter Re: General Rulemaking Proceeding for Developing Regulations, Guidelines and Policies for Implementing SB 350 and AB 802: Title 20 Data Collection Regulations to Support New Analytical Needs, October 17, 2016, 16-OIR-01; CalETC Letter Re: Title 20 Data Collection Regulations, Proposed Language Discussed at the November 16, 2016 Commissioner Workshop, December 12, 2016, 16-OIR-03.

- Survey experts to understand the consumer experience aspects of VGI solutions.
- Project management and report writing for the VGI Roadmap update. We note that the CEC funded a similar effort in 2013 even though the lead agency was the California Independent System Operator.
- Project management and report writing for the VGI Working Group's remaining tasks (e.g., Deliverable 2 and 3) and for the CEC's proposed data-sharing effort.

The Joint Utility-Automaker Parties appreciate your consideration of these comments and look forward to continuing collaboration with the Public Utilities Commission, the Energy Commission, the other VGI sponsoring agencies, and the broader stakeholder community. We welcome continued dialogue on the details of how best to implement the above recommendations.

Sincerely,

Ryan Harty, American Honda Motor Company, Inc.
Adam Langton, BMW of North America LLC
Hannah Goldsmith, California Electric Transportation Coalition
George Bellino, Electric Power Research Institute
Sunil Chhaya, Electric Power Research Institute
Rich Scholer, Fiat Chrysler Automobiles
Dave McCreadie, Ford Motor Company
Jamie Hall, General Motors LLC
Jim Tarchinski, General Motors LLC
Lance Atkins, Nissan North America, Inc.
Abigail Tinker, Pacific Gas & Electric
Bill Boyce, Sacramento Municipal Utility District
David Goldgraben, San Diego Gas & Electric
Dean Taylor, Southern California Edison
Bryan Cope, Southern California Public Power Authority
Dan Mikat, Toyota Motor North America

cc: VGI Working Group Sponsoring Agencies

Attachments

Attachment 1

November 14, 2018

Dear VGIWG sponsoring agencies:

Thank you for the opportunity to respond with comments to the California Public Utilities Commission's (CPUC) and the California Air Resource Board's (CARB) staff proposal to futureproof the EVSE and refocus the work plan of the Vehicle Grid Integration (VGI) working group ("agency proposal") as presented during the October 30th VGI working group meeting. These comments represent the individual views of many utility and automaker members of the VGI working group.

We view the agency proposal as positive because it:

- Is not requiring a specific VGI communications protocol
- Is trying to find a common ground among the various stakeholders in order to accelerate VGI by recognizing
 - more time is needed to understand the various VGI issues and determine which VGI solutions will best accelerate EV adoption, including "policy" solutions that are part of Deliverable 3
 - that the EV manufacturers must decide what to put on their EVs as far as a VGI communication protocol
- Is continuing the VGI working group process in 2018 with quarterly meetings and helping to update the 2014 VGI roadmap and implement it
- Is focused on multi-user, public-access level 2 charging and would not mandate futureproofing of charging stations in other tailored charging applications including such as DC charging (home, fleet, corridor and other locations), V2G,⁶ wireless (inductive) charging and single-use and private charging stations using AC conductive connectors.⁷

A compromise solution is the right direction: Both the stakeholders and the agencies appreciate the complexity of the VGI communication protocol issue as a result of the working group's process. We agree with the agencies that we need a path forward that involves futureproofing of the EVSE and that allows all promising VGI communication pathways to go forward; the working group cannot select a 'winning' VGI communications protocol at this time.

Lack of a uniform communication standard is not the key barrier to VGI, we think that most of the issues in the working group come down to needing to understand cost-effective implementation of VGI solutions for AC charging and that valuing VGI benefits should be the focus going forward.

⁶ The standard development process essentially moves this to out-years.

⁷ Fleets, single family detached homes, and single family attached homes are included in the definition of single-use, private charging stations.

The most important part of the path forward is to understand the value of VGI benefits: In order to make a business case and determine the best VGI communication protocol(s) for their EVs, most automakers need a better understanding of the VGI benefits. We believe the automakers can figure out the cost part on their own. Once the automakers and utilities understand the VGI benefits more clearly, then they can develop business cases and improve utility programs. By adopting the agency proposal, we believe that provides the working group with some time to help enable new large scale demonstrations and other actions that can help stakeholders understand the value of VGI. Demonstrations will allow us to understand more about the ability of EV-centric VGI communication solutions (e.g. telematics) and EVSE-centric solutions (e.g., IEC/ ISO 15118 with OCPP or IEEE 2030.5) to connect EVs to the grid in a useful way.⁸ This approach also allows a more level playing field for different business models from the automakers and EVSE providers by including communication solutions such as telematics that are not directly affected by the agency proposal.⁹

Two key steps are needed based on similar experience with the stationary storage efforts. We support a VGI value study that looks at promising services and benefit streams in the consolidated VGI benefits framework from Deliverable 1.1.¹⁰ Also we would be supportive of the CPUC, CEC, or other agency authorizing funding for large-scale demonstrations by utilities and others (up to 2000 EVs) of promising use cases in several different charging market segments (including public, fleet, workplace and homes) in order to get validation of the realizable benefits of VGI as well as costs of implementing VGI in real world situations.¹¹ Timely and coordinated approval of cost recovery or funding would facilitate near-term validation of this VGI value.

We support the agency proposal on future-proofing the EVSE with the IPv6¹² simplification: We believe it is important to have a compromise solution for a VGI communication pathway that does not pick a winning communication protocol or combination of protocols and likely avoids risk of costly or underused assets. We believe the agency proposal (including IPv6) should be able to achieve this. However, we caution that a futureproofed charging station in the agency proposal is not a functional station and will require additional costs (e.g. software, certification, physical

⁸ By EV to the grid we mean from the PFE to the EV. Demonstrations will also allow better understanding of “one-step”, end-to-end solutions (PFE to EV) and “two-step” end-to-end solutions (PFE to EVSE to EV) that require protocol translation, decryption/encryption, etc. Note: PFE is a term the VGI working group developed and it means power flow entity. The PFE is broad term that may include the aggregator, utility, site host, EV service provider, energy service company, alternative energy supplier, energy portal, or clearing house.

⁹ One of the most promising solutions is to use automaker telematics solutions as the VGI communication pathway (PFE to EV) where the automaker (or their partner) is the aggregator and no EVSE is needed. Automakers such as General Motors, Ford, BMW, Honda, Tesla, Fiat Chrysler America and potentially others are all pursuing this low cost, low risk solution.

¹⁰ The draft consolidated benefits framework from Deliverable 1.1 lists over 150 types of VGI benefits (monetized and non-monetized) and answers questions such as who needs, what is the need, what meets the need, how is it measured, and how to meet the need.

¹¹ including determining monetized and non-monetized benefits, costs, performance, trade-offs, and other lessons learned as well as the ability to meet technical and customer requirements

¹² See appendix A discussion on IPv6 and an explanation of what it replaces in the original agency proposal. This IPv6 concept seemed to be the consensus of the VGI working group on the Oct 30 call.

security) to be implemented in utility programs. These costs should be monitored to the degree possible in case they turn out to be too high.

All the leading contenders for end-to-end VGI communication solutions in AC charging should be accelerated by state agency actions including telematics, IEC/ISO 15118 with OCPP, and IEEE

2030.5: Each of the end-to-end VGI communication solutions have pros and cons and some may best be suited for certain charging market segments. Future proofing the EVSE is not enough to advance VGI communications because some solutions like telematics don't use the EVSE, but the working group has found them to be very promising. Consequently, we believe it is important to try not to advantage EVSE-centric VGI communication solutions over EV-centric ones. Thus, we are recommending a "package solution" to advance both types of VGI communications:

- The agency proposal on EVSE futureproofing¹³ should be adopted in the final report as the working group's recommendation to the CPUC
- Along with a commitment to accelerating stakeholder's knowledge of the VGI value proposition in AC charging through large scale demonstrations and other efforts (described above)

Attached in Appendix A are more detailed comments to the specific questions posed on Oct 30 by the sponsoring agencies on the CARB-CPUC agency proposal, including some recommendations for improving the agency proposal.

Again, we appreciate the opportunity to provide these comments.

Sincerely,

Jeremy Whaling, American Honda Motor Company, Inc.

Hannah Goldsmith, California Electric Transportation Coalition

Sunil Chhaya, EPRI

George Bellino, EPRI

Rich Scholer, Fiat Chrysler Automobiles

Dave McCreddie, Ford Motor Company

Jim Tarchinski, General Motors

Robert Uyeki, Honda R&D Americas, Inc.

Mike Bourton, Kitu Systems, Inc.

Lance Atkins, Nissan North America, Inc.

Abigail Tinker, Pacific Gas & Electric

David Goldgraben, San Diego Gas & Electric

Bill Boyce, Sacramento Municipal Utility District

Dean Taylor, Southern California Edison

Dan Mikat, Toyota Motor North America

¹³ Including the recommendations in Appendix A

Appendix A to attachment 1

Please find below our response to questions on the *Concerns to Address* slide as well as technical comments related to the agency proposal and the subsequent discussions from the 10/30/2017 meeting.

Would requiring the hardware with the previous criteria encourage scaled EVSP and OEM charging investments that provide VGI capability?

We suggest one-on-one dialogue with automakers and EVSE providers to answer whether requiring such hardware would lead to investments by them. In addition, we add a word of caution. One of the major concerns with this VGI process and the proposals that have emerged is the unproven assumption that deploying VGI technology will automatically lead to enactment of VGI use cases and provisioning of benefits as described within Deliverable 1 and 2. This question hints at the same conjecture: that deploying this futureproofed EVSE technology will somehow organically lead to VGI. While we agree that this enables the possibility, as do the other proposals to a greater or lesser degree, what will actually need to occur for EVs to be integrated into the grid for VGI purposes is for utility programs to be enabled. This process by necessity involves understanding the VGI benefits/value based on larger demonstrations. This is especially true where new technologies or capabilities are being implemented as is the case with VGI. In short, enabling demonstration of the VGI technologies is just one part of enabling VGI use cases that provide benefits to the grid.

How could hardware change over time, given design innovations and new use cases?

It is unclear if this question refers to the hardware proposed by the PUC and ARB, or to the charging equipment itself. In either case, is it unclear why this is relevant for technologies with limited life span (~10 years). We would instead suggest that the agency proposal to consider a minimum set of hardware (e.g., both the processor and interfaces as proposed and the L2 conductive charger), and defer to future IOU charging infrastructure deployments as it becomes necessary to deploy newer or replacement technologies. In addition, futureproofing is based on what one knows at the time the decision is made, and not based on predicting hardware or software changes. If EVSE hardware upgrades are made within assumed 10-year equipment life, they would be relatively costly, but some EVSE provider business models may include this cost.

Do today's commercial EVSEs meet the proposed hardware functions?

As has been mentioned throughout the VGI Work Group proceedings, outside of small pilots that have been conducted by the utility, EVSP and EV participants, we are unaware of any EVSE to EV VGI communications capable EVSEs that exist in the commercial market today.

Can VGI software be implemented within the proposed hardware?

There is no reason to believe that if designed correctly this proposal would not be able to support any desired VGI software. However, we would again state that the group should be careful not to 'overdesign' the EVSE, thus adding more costs, when it is yet unclear if/how VGI functionality will be adopted and implemented. We would suggest that the CPUC and CARB determine, with clear

evidence (and consensus) from stakeholders exactly how much an EVSE that meets this proposal would cost 'off the shelf' vs baseline costs of EVSEs that IOUs have acquired in their infrastructure programs.

Will the hardware proposal assist in vehicle/EVSE/utility connectivity across California?

We believe that this question pertains less to roaming (charging and being billed on the same account wherever you are) than to allowing VGI communications to exist between the grid and the EV. We believe that the major constraint related to the existence of this architecture is the support by the EV OEMs of the functionality and supporting interfaces. It would make little sense for the IOUs to develop VGI programs without the vehicle included. This is apparent in the way the IOUs have commenced pilots related to telematics as these capabilities emerge. We would also point out that, similar to the *Future Proofing the EVSE* proposal by the utilities and automakers, the agency proposal would allow EV OEMs to implement differing VGI communications functionality and protocols either through the EVSE or directly to the EV. However, the functionalities and protocols would still need to be validated in demonstrations and larger-scale utility programs. In addition, as addressed in the letter above, VGI telematics communication solutions (should not be disadvantaged by this proposal.

How can utilities and regulators best ensure that EVSEs which include the proposed hardware are functional with grid-integrated vehicle charging?

As mentioned above and during discussions, we believe that if the goal is to support multiple protocols on the EVSE (aka protocol translation, decryption/encryption, storing white lists, etc.), then the required processing power and onboard memory must be sufficient to do this in near-real time. We would suggest that the experts on the Working Group that work in this area make this determination in coordination and with consensus. If this cannot be done, then this should be determined via testing. We would reiterate that regardless of supporting the capabilities, it is unclear if and when these functions will be utilized. Thus, larger scale demonstrations are needed for both EV and EVSE VGI communication solutions with AC charging.

Further comments

- Along with the agency proposal, there were some comments from the working group participants on October 30 that suggested EVSEs support specific northbound physical communications. In our experience with existing infrastructure programs (e.g., SCE's Charge Ready) it is clear that EVSPs have differing communication architectures. Some have implemented cellular communications to the EVSE, others use Zigbee IP (802.15.4) or Wi-Fi (802.11). We would concur and reiterate what seemed to be the outcome of the October 30 discussions, that EVSEs should support IPv6 and HomePlug Green Phy (southbound) and allow communications to be chosen by the EVSPs or IOUs in real world deployments.
- Cybersecurity is critical to the deployment of VGI. For this agency proposal, which is not defining any specific standard(s), the ultimate design of real world deployments must include requirements related to securing the hardware (e.g., anti-tampering) including the storage, processor, and communications cards. Penetration and other necessary testing should also be

conducted. We would suggest that to determine these requirements, the agency panel assign the work to a subgroup to determine the requirements by utilizing as source documents existing cybersecurity requirements and best practices available from the government, non-profit and private sectors.

- For application security, we would suggest the group defer to the standard when a single protocol is used from the grid to the EV (no mapping is required), and for multiple standard implementation¹⁴ defer to the standard development organizations that would be working on the mapping standard (which presumably consist of utility, EV and EVSP stakeholders) to determine cybersecurity functionality.
- The coexistence of differing VGI architectures and functionality should be viewed as beneficial. The agency proposal,¹⁵ in effect, allows for this. It may be that many different VGI programs that meet differing grid needs emerge from this, allowing automaker and charging station manufacturers to determine what provides the most value to their company and consumers. While conflicts may emerge, addressing them is best done when protocol applications and standards are implemented in IOU charging infrastructure demonstrations and programs.
- The agency proposal mentions ‘hardware extensibility’. It is unclear what this means and should be clarified by the CPUC and CARB. As we believe that the only way to extend hardware is to manually install or replace a physical device on the EVSE, this would be prohibitively expensive with thousands or tens of thousands of EVSEs that would need to be touched. As mentioned above, we suggest that real world deployments determine hardware (outside of the agency proposal) and differing hardware be used only upon replacement at end of life or when new utility charging infrastructure programs emerge.
- The agency proposal should ensure that investments be secured against the risk of stranded assets. It is not enough to define a generic processor and IP communications. Even defining a standard would not ensure the VGI communication assets are available. The VGI working group should consider how to ensure that these assets are ‘accessible’ should a provider be replaced or removed for any reason. This should be done with awareness of security requirements.
- Finally, we agree with the agency proposal that private-access locations should not be included, except for large apartments and condos that have unassigned parking in common areas (e.g., multi-user charging stations). 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.

¹⁴ Multiple standards refer to when two different communication protocols must work together to communicate from the PFE to the EV.

¹⁵ And the original utility-automaker “futureproofing the EVSE” proposal.

California Energy Commission
Docket Office, MS-4
Docket No. 17-IEPR-01
1516 Ninth Street
Sacramento, CA 95814
docket@energy.ca.gov

Re: Joint Utility-Automaker Comments on the Draft 2017 Integrated Energy Policy Report

The California Electric Transportation Coalition (CaETC) submits this Joint Comment Letter on behalf of itself, American Honda Inc., BMW of North America LLC, Fiat Chrysler Automobiles, Ford Motor Company, Kitsu Systems Inc., Pacific Gas & Electric, Sacramento Municipal Utility District, San Diego Gas & Electric, Southern California Edison, and the Southern California Public Power Authority (the “Joint Utility-Automaker Parties”). The Joint Utility-Automaker Parties appreciate the opportunity to provide feedback on the California Energy Commission’s (CEC’s) Draft 2017 Integrated Energy Policy Report (Draft IEPR).

We agree with the Draft IEPR’s assessment that plug-in electric vehicles (PEVs) have a lot of promise to address grid needs, that much work remains to be done, and that the “potential for use [of PEVs] in grid management is still at least several years out.” (Draft IEPR, p. 120.) Thus, we respectfully submit the following comments for your consideration:

Vehicle-Grid Integration Roadmap

CaETC supports staff’s recommendation on page 141 to update the VGI Roadmap. The following recommendations relate to how the VGI Roadmap should be updated, and what deliverables should be included in the update.

We believe that a major barrier to advancing VGI is not having a clear understanding of the value; the six months of work by the state-agency-led VGI Communications Protocol Working Group (VGIWG) has shown that addressing this barrier—by determining the value of VGI—is a major step to unlocking the vision of VGI (listed as priorities for updating the VGI Roadmap, on page 132 of the Draft IEPR). This point was mentioned in the VGI Roadmap workshop on June 13th, and repeated in a June 27th letter by CaETC, four automakers, and three utilities.¹⁶ Therefore, we agree with the Draft IEPR, on page 131, that the economic value of VGI needs to be better

¹⁶ Joint Utility-Automaker Comments on the California Energy Commission Docket No. 17-IEPR-12: Joint Agency Staff Workshop on the Review of the Actions and Status of State-level Energy Roadmaps, submitted June 27, 2017.

understood. We urge the CEC to recognize that this value barrier must be addressed and funded in 2018 by the state-agencies sponsoring the VGIWG, and the progress to address this barrier should be tracked as part of an updated VGI roadmap.¹⁷

As we and many other stakeholders have urged in the VGIWG,¹⁸ there are two key steps to be addressed for VGI, which can likely be done simultaneously:

1. A VGI value study that looks at promising services and benefit streams in the consolidated VGI benefits framework from Deliverable 1.1 of the Working Group; and
2. We would be supportive of the CPUC, CEC, and/or other agency authorizing funding for large scale demonstrations by utilities and others (up to 2000 EVs) of promising use cases in several different charging market segments (including public, fleet, workplace and homes) in order to get validation of the realizable benefits of VGI as well as costs of implementing VGI in real world situations. Timely and coordinated approval of cost recovery or funding would facilitate near-term validation of this VGI value.

We request the IEPR include a new recommendation for the CEC to repurpose and prioritize funding that has already been collected (or that is intended to be collected for purposes of advancing VGI) to support a partnership between automakers, utilities, charging-station providers, and others to (1) assess the VGI value proposition, and (2) pursue large-scale, multi-year demonstration projects to validate the real-world value and cost of VGI. The stakeholder partnership, or working group, established to update the VGI Roadmap should include interested parties, as well as the CEC, CPUC, and Cal ISO, additional agencies such as CARB, U.S. DOE, GO-Biz, and those agencies should have specific funding to pursue their action items. Additionally, we recommend CEC funding for expert participation in the 2018 VGIWG. This is needed based on our experience with the 2017 effort, and to be consistent with the CEC's prior funding of the consultants who created the 2014 VGI Roadmap.

The VGI issue is complex and goes beyond charging equipment. The automakers must be convinced that there is a business case to equip their EVs with VGI communications protocols, and they must think about the potential impact on their customers. They must determine if they want the EV to communicate to the charging station, directly to the grid, or to both. The utilities, charging station providers, aggregators, and other parties also need to understand the VGI value proposition, as discussed above. Our recommendations mirror the process and steps that storage and other emerging grid technologies that have gone through, but these steps require funding and a plan with broad stakeholder buy-in.

¹⁷ The VGIWG has made progress in developing over 75 VGI use cases, understanding the functional, non-functional and customer requirements for VGI communications between the grid and the vehicle for these use cases, mapping these requirements to existing communication protocols, developing a glossary, and other tasks.

¹⁸ See Joint Utility-Automaker Letter to the VGI Communications Protocol Working Group Sponsoring Agencies, Re the CPUC and CARB staff proposal to futureproof the EVSE and refocus the workplan of the VGI Working Group, submitted November 8, 2017.

We also recommend that the Draft IEPR better reflect how complex VGI is, and how challenging the VGIWG effort has been. For example, the VGIWG's deliverables were supposed to be completed by October 2017, but the main deliverables on costs, benefits, and policy recommendations have not yet been launched. In addition, the Draft IEPR should not get ahead of the VGIWG by mentioning, for example, that there is agreement to use open standards or any type of communications protocols. (p. 141.) However, the five state agencies and the private-sector stakeholders in the VGIWG have proved there is great stakeholder interest in accelerating VGI efforts and have made progress on important fundamentals.¹⁹ A sustainable way to capitalize on that interest in 2018 is needed.

Data Collection

We support staff's recommendation on page 81 for the CEC to lead a collaborative effort with researchers; local government, air district, and utility charging infrastructure program administrators; and others to share data about charging-infrastructure programs. We agree that this collaboration will help enhance existing programs. Given that charging-station and PEV data is being collected in multiple forums, we greatly support this recommendation so that experts will be brought together to compare and understand existing data, and determine what gaps need to be addressed. As we mentioned in previous letters on the Title 20 data-collection pre-rulemaking,²⁰ we support a voluntary effort as the best way to address the data needs of the state agencies, utilities, and other stakeholders. If the voluntary, collaborative effort finds critical gaps, then, in the context of the Title 20 rulemaking on transportation-electrification data collection, the stakeholder group could determine what information is needed to close the gaps. We recommend that the date to begin Phase 2 of the Title 20 data-collection rulemaking be updated to account for this voluntary effort and working-group process.

The Joint Utility-Automaker Parties appreciate the Joint Agencies' consideration of these comments and looks forward to its continuing collaboration with the Energy Commission and stakeholders.

Sincerely,

Hannah Goldsmith, California Electric Transportation Coalition
Ryan Harty, American Honda Inc.
Adam Langton, BMW of North America LLC
Rich Scholer, Fiat Chrysler Automobiles
Dave McCreadie, Ford Motor Company

¹⁹ See Footnote 3.

²⁰ CalETC Letter Re: General Rulemaking Proceeding for Developing Regulations, Guidelines and Policies for Implementing SB 350 and AB 802: Title 20 Data Collection Regulations to Support New Analytical Needs, October 17, 2016, 16-OIR-01; CalETC Letter Re: Title 20 Data Collection Regulations, Proposed Language Discussed at the November 16, 2016 Commissioner Workshop, December 12, 2016, 16-OIR-03.

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