

**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)

**JOINT COMMENTS OF THE VEHICLE-GRID INTEGRATION COUNCIL, ENEL X
NORTH AMERICA, INC. , ADVANCED ENERGY ECONOMY, CALIFORNIA
ENERGY STORAGE ALLIANCE, CHARGEPOINT, INC., ENVIRONMENTAL
DEFENSE FUND, GREENLOTS, NATURAL RESOURCES DEFENSE COUNCIL, AND
SIEMENS ON EMAIL RULING SEEKING PARTY COMMENT ON VEHICLE-GRID
INTEGRATION ISSUES**

August 17, 2020

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INTEGRATION ISSUES**

In accordance with Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the Vehicle Grid Integration Council (VGIC¹) is pleased to provide these comments on behalf of its members and supporters, as well as Enel X North America, Inc., Advanced Energy Economy (“AEE”), California Energy Storage Alliance (“CESA”), ChargePoint, Inc., Environmental Defense Fund (“EDF”), Greenlots, Natural Resources Defense Council (“NRDC”), and Siemens (“Joint Commenters”) on the *Administrative Law Judge’s Email Ruling Seeking Party Comment on Vehicle-Grid Integration*

¹ The views expressed in these Comments are those of VGIC, and do not necessarily reflect the views of all of the individual VGIC member companies or supporters. (<https://www.vgicouncil.org/>).

Issues (“Ruling”) issued by Administrative Law Judge (“ALJ”) Patrick Doherty on July 20, 2020. Pursuant to the Ruling, we timely file these comments on August 17, 2020.

I. INTRODUCTION

The Joint Commenters were among the original supporting coalition for Senate Bill (“SB”) 676 and have a keen interest in its successful implementation. Additionally, our organizations share the common goal of utilizing Vehicle-Grid Integration (“VGI”) solutions as a tool to help accomplish key transportation electrification (“TE”) related policy objectives. Specifically, we believe that VGI can help to:

- Decarbonize California’s transportation sector.
- Support decarbonizing California’s power sector.
- Increase the affordability of the grid and utility customer bills.
- Improve grid resiliency and security.
- Foster economic activity and innovation in a dynamic new sector of California’s clean energy economy.

We view the effective implementation of SB 676 as a key step towards these objectives.

II. OVERVIEW & PURPOSE OF JOINT COMMENTS

The Joint Commenters have organized these comments as follows.

- First, we provide some thoughts and recommendations on preferred procedural pathways for SB 676 implementation;
- Second, we respond to Questions 1-4 that were included in the July 20, 2020 Email Ruling Seeking Party Comment on VGI Issues; and

- Finally, as part of our response to Question 2, we describe an idealized “VGI Portfolio” framework that we recommend the Commission adopt.

III. PROCEDURAL PATHWAYS FOR SB 676 IMPLEMENTATION

The Joint Commenters note that SB 676 was conceived of, and enacted into law, well in advance of the Commission’s Draft Transportation Electrification Framework (“TEF”) and subsequent activities related to the Draft TEF. These TEF-related activities have understandably diverted a considerable amount of Staff resources and stakeholder attention from SB 676 and related issues. We anticipate this will likely continue through the end of 2020. As such, it may not be practical to develop and execute as robust of a VGI implementation strategy as SB 676 originally envisioned before December 31, 2020. However, the Commission can and should take decisive action prior to December 31, 2020 to set the state on a path towards robust VGI implementation over the next decade. Below, we describe 1) recommended actions for the Commission to take prior to the December 31, 2020 statutory deadline, 2) ongoing actions to be taken from January 1, 2021 through 2030, and 3) how these SB 676-related actions can be linked to similar actions under the TEF.

a. Actions to be taken by 12/31/2020

In order to comply with SB 676 requirements, the Joint Commenters recommend that the Commission issue guidance to the investor-owned utilities (“IOUs”) on future VGI implementation (i.e. through a Proposed and Final Decision) prior to December 31, 2020. This guidance should include a “Model VGI Portfolio” which we describe in more detail below. Additionally, the guidance should include a directive for IOUs to develop their own VGI Portfolios and begin implementing the elements of these portfolios in 2021 (if not sooner for

some program elements). We also recommend that these IOU solutions be aligned closely with industry developments from OEMs and EVSPs for maximum effectiveness and minimum delay.

b. Ongoing actions from 1/1/2021 through 2030

In response to the guidance described above, each IOU would be required to develop an initial VGI Portfolio in the 2021 timeframe. We anticipate that each portfolio would require Commission approval to the extent that the IOUs seek cost recovery for any incremental new VGI program elements. Once each IOU has established an initial VGI Portfolio, each portfolio could then be updated and expanded on a regular basis (e.g. every 2 years) throughout the SB 676 compliance period. This could occur in parallel with, but separate from, other TE activities.

c. Linkages to TEF

The Joint Commenters believe that any VGI Portfolio development and approval processes could either function as a standalone effort or be incorporated into the TEF/transportation electrification plan (“TEP”) process. Presently, the Joint Commenter’s preference is for each VGI Portfolio to be a standalone effort, for a few reasons, before being incorporated into the final TEPs once that process is approved:

- As the Final VGI Working Group Report concluded, there are a wide variety of VGI use cases that can provide value now, or in the very near term (“[there] are 320 different VGI use cases that, for the purposes of this report, should be considered as able to provide value by 2022”).² Thus, there is no reason to wait for the final TEF to be adopted for new VGI efforts to be proposed and implemented.

² VGI WG Final Report, p 7. <https://gridworks.org/wp-content/uploads/2020/07/VGI-Working-Group-Final-Report-6.30.20.pdf>

- The VGI Portfolios that are developed can ultimately be referenced and incorporated into the Final TEF, future TEF updates, and ongoing TEPs. However, the Joint Commenters believe these VGI Portfolios can initially exist as independent efforts. This is also sensible because not all VGI activities are necessarily contingent on IOU programs or ratepayer funding .
- The development of standalone VGI Portfolios as a complement to the TEPs is consistent with the recommendation in the August 10, 2020 Energy Division Staff Paper on VGI Implementation. In this paper, Staff calls for the IOUs to conduct a request for proposals (“RFP”) for “third party evaluation of the IOUs VGI implementation to complement IOU annual reports required under §740.16(i) (as noted under SB 676 above) and scorecard reporting under the draft TEF”.³

IV. ANSWERS TO COMMISSION QUESTIONS

Q1: Should the Commission adopt a revised definition for “electric vehicle grid integration”?

If so, what should it be?

The Joint Commenters generally support the definition included in Public Utilities Code Section 740.16(b)(1). However, we suggest that the definition be sufficiently broadened to capture backup power use cases. This could be done by adding the following language after Section 740.16(b)(1)(E) “(F) Increase the economic, social or environmental benefits associated with transportation electrification.”

³ Energy Division Staff Paper on Vehicle Grid Integration Implementation and the Draft Transportation Electrification Framework

Q2a: Which strategies should the Commission adopt by the end of 2020 to maximize the use of feasible and cost-effective VGI by January 1, 2030?

The Joint Commenters recommend that by the end of 2020, the Commission adopt a flexible VGI Portfolio framework that would serve as the basis for ongoing SB 676 compliance through January 1, 2030. This framework would include a Model VGI Portfolio, which contains a minimum number of VGI elements that IOUs can implement quickly (i.e. in the 2021 timeframe). However, the portfolio would be flexible enough to grow and evolve over time as new VGI approaches are developed and insights are gained about which VGI approaches are most feasible, likely to deliver value, and cost-effective. As described above, we envision each VGI Portfolio being updated on a regular basis (e.g. every 2 years), after requiring IOUs to develop an initial VGI Portfolio in the 2021 timeframe. Ideally, this timeline will align with TEF processes once the TEF is finalized.

Potential Components of a Model VGI Portfolio

The Model VGI Portfolio would include a broad range of components that support different VGI use cases including utility administered programs, rate options, customer rebates, and marketing, education, and outreach (“ME&O”) activities. Some of these potential components are described below. Notably, while some of these components may be novel, others have overlap with existing programs, rates, and incentives.

- **Customer Acquisition/Participation Incentives:** This portfolio component is designed to attract and retain EV customer participation in VGI-related activities, including but not limited to dynamic or time-of-use (“TOU”) charging schedules. This is necessary to overcome the significant barriers that EV customers currently face to enroll in even basic

TOU rate options, let alone more advanced smart charging options. The incentive budgets can be targeted towards specific market segments such as the following:

- Light-Duty Vehicle (“LDV”) Upstream: Incentives LDV Original Equipment Manufacturers (“OEM”) and Electric Vehicle Service Providers (“EVSPs”) to engage individual customers and larger clients such as fleets directly in managed charging options (e.g. via mobile apps/in-vehicle displays, specialized software, etc.). This could also be a fair way to compensate OEM and EVSPs for providing any data used to measure the effectiveness of managed charging through rate options.
- Medium- and Heavy-Duty Vehicle (“MHDV”) Upstream: Incentives MHDV OEMs and EVSPs to engage individual customers and larger clients (e.g. fleets) directly in managed charging options similar to LDV, as above.
- Point of Sale / Dealer Training: Incentives vehicle dealers to educate or enroll customers in managed charging options, and/or offer discounted L2 chargers that are VGI-capable.
- Electric Vehicle Service Equipment (“EVSE”) Workplace Charging: Support investments/actions in workplace charging to build permanent mid-day load to capture solar generation and avoid curtailments.
- **Automated and/or Active Load Management (“ALM”) Tariff for Distribution Upgrade Deferral**: This portfolio component enables EV or EVSE customers to participate in approved ALM schemes that effectively reduce local demand and corresponding distribution upgrade costs (including “make ready” investments). Customers could either be incentivized to utilize ALM by way of a rebate or rate

discount, which may be a “revenue neutral” approach versus a non-ALM approach that requires distribution upgrades. Additional details about this component are discussed in the TEF Section 8 opening comments of Nuvve and Enel X, as well as the TEF Section 8 reply comments of VGIC.⁴

- **Resiliency Programs:** This portfolio component is designed to reflect direct investments and/or customer rebates that are used to deliver grid resiliency services, including backup power solutions via V2B or V2G, or V1G during rolling blackouts. The Joint Commenters note that parties to the SGIP proceeding and Microgrid proceeding have proposed that EV-enabled backup power solutions be considered in those contexts. If the Commission chooses to adopt V2B programs in those proceedings, the associated programs could serve as a potential source of funding for this VGI Portfolio element.
- **Dynamic Charging Rate Options:** This portfolio component would provide a catalogue of all the dynamic EV rate options currently being provided by a given IOU, and could also serve as a venue for newly proposed or modified dynamic EV rate options. Additionally, to the extent that certain rate options are viewed as containing cross-subsidies, those costs could be documented in this portion of the portfolio. Some of the dynamic EV rate options that the Model VGI Portfolio should include are briefly described below. Note that several of the Joint Commenters plan to provide more detailed comments on these options in their upcoming responses to the Commission’s request for comments on TEF Section 9:
 - Commercial EV Rates (“EV Fleet Rates”): This should include increasingly dynamic rate options such as 1) more dynamic demand charges (e.g., based on

⁴ See Joint Comments of Enel X and Nuvve Corporation on TEF Section 8 and Reply Comments of VGIC on TEF Section 8.

average daily demand), 2) enhanced TOU rates that include larger differentials and have time periods updated on a regular basis, and 3) optional real-time rates. In all of these cases, the dynamic components should include distribution system costs and not just energy costs.

- Residential EV Rates: Options would be similar to enhanced TOU and real-time rates described above for Commercial EVs.
- V2G Export Bill Credits: This would provide a bill credit to EV customers who are able to export to the grid during peak times. The credit would be linked to the on-peak retail rate and would be analogous to the Commission's existing policy for net energy metering.
- Non-metered Residential EV Charging Incremental LCFS Credits: Under the existing LCFS framework currently authorized by CARB, there is the potential to generate incremental credits through smart charging of EVs that aligns charging with availability of clean resources on the grid. These incremental credits are above and beyond the base credits currently being pursued through rebate programs. However, to our knowledge this existing feature of the LCFS program is not being utilized. There has yet to be transparency from the IOUs regarding the acquisition of, if any, and use of funds from Unmetered Residential Incremental LCFS credits (see § 95483(c)(1)(B)(3) of the LCFS Regulation). However, if the IOUs were directed to collect and monetize these credits, including the retirement of excess of Renewable Energy Credits (beyond or different from their RPS requirements), the CPUC should work with the California Air Resources Board to ensure the IOUs use these proceeds to fund

various elements of the VGI Portfolio. The Joint Commenters also note that other LSEs (such as CCAs) may be able to pursue this path as well, but this may be outside of the PUC's jurisdiction.

- **Capacity Deferral Programs:** This portfolio component would be focused on leveraging EV charging as a source of local or system capacity (e.g. as demand response resources).

At least two potential offerings could exist under this category:

- DER Tariff: This offering would allow EV customers to take service under DER tariff in exchange for upfront “reservation” payment; if need arises, then the flexible VGI resource is “activated” and performance-based payments are provided based on ability to provide capacity during peak hours.
 - Competitive Solicitations for Local RA: This offering would allow EV customers (via aggregation) to offer a bid to meet local capacity needs through the flexibility provided by VGI resources and could be eligible for both V1G and V2G responses.
 - Distribution Investment Deferral Framework (“DIDF”): VGI-enabled EVs could compete as preferred resources in the DIDF construct to defer distribution upgrades identified through the annual distribution planning process. The DIDF construct should also be extended to upgrades that are identified from the interconnection process.
- **Public Charging Enhancements:** This component is designed to incent innovation and overcome barriers to the provision of incremental grid services from VGI resources at public charging stations. For example, funds could be applied towards any necessary software, metering, or telemetry equipment needed for EVSEs to provide distribution

grid services, and/or ancillary services in the wholesale market as a demonstration project.

- **Advanced Telemetry for Enhanced Distribution System Operations:** Vehicle OEMs and EVSPs can provide enhanced telemetry-based data and commands which could improve distribution system operations in specific locations on an as needed basis. In many cases the communications and dispatch can be enabled in real time and adjusted to serve purposes with both automated and contingency-focused precision. These services can be provided in coordination with and as a complement to IOU distribution operations systems such as Distributed Energy Resource Management Systems (DERMS) and Outage Management Systems (OMS). During outages or contingency operations, these capabilities could provide additional versatility and resilience. This advanced functionality could be provided by both public chargers as well as customer-sited EV and EVSE equipment.
- **Customer ME&O for VGI-related options/programs:** This component is meant to address the fact that VGI success is critically dependent upon customer education, participation, and value realization. Joint Commenters believe that a meaningful portion of the larger TE ME&O budgets (e.g. 10-15%) could ultimately be set aside for VGI purposes.
- **Administrative Support:** This component is meant to cover the costs of administering the overall VGI Portfolio.

To summarize what a hypothetical VGI Portfolio could look like, the table below provides a snapshot of an illustrative budget VGI Portfolio table, showing the associated program costs and

target number of EV customers. Note that the numbers reflected in the table are purely illustrative and have no basis in any real-world experience.

VGI Program Area	4-Year Total	Target # EVs or customers
Customer Acquisition/Participation Incentives	\$X million	
LDV OEM/Upstream		80,000
LDV Point of Sale – ME&O and Dealer Training		8,000
MHDV OEM/Upstream		10,000
EVSE Workplace Charging (permanent load shift)		2,000
Active Load Management	\$X million	4,000
Resiliency and GHG	\$X million	
V2B / V2G Deployment for PSPS Events		3,750
Dynamic Rate Options (real-time rate / fleet rate / avg daily demand, etc.)	\$X million	
Customer Marketing Education & Outreach		1 million
Admin. Support		1 million
V2G Export Bill Credit Budget		12,000
LCFS Incremental Credits ME&O, Advisory Services		20,000
Capacity Programs	\$X million	
Local Capacity RFO for EV Aggregation		400
DER Tariff		10,000
Public Charging Enhancements	\$X million	
Ancillary Service Use Case Equipment (e.g., metering/telemetry)		1,000

Q2b: Explain how each recommended strategy is feasible and cost-effective.

The Joint Commenters believe that the recommended VGI Portfolio approach is flexible enough to ensure that it ultimately targets the VGI strategies that are the most feasible, likely to deliver value, and cost-effective over the next decade. While any individual portfolio element may prove to not have long-term success, we are confident that the portfolio as a whole will be successful and can evolve according to real-world results. Regarding the specific program components described above, the Joint Commenters offer these additional thoughts on feasibility and cost-effectiveness.

Feasibility

Each of the program elements described builds upon some form of prior experience and unique benefits. These include existing rates and program structures, as well as demonstration projects that have already been undertaken.⁵ Several members of the Joint Commenters, including VGIC, have also commented on the fact that some of the underlying technologies needed to support VGI have already been deployed at scale. While there are some remaining barriers in terms of interconnection for V2G, there is ample evidence that V1G is widely and effectively deployed today. Moreover, there are demonstration projects in California showing a wide variety of use cases that have been tested and reported upon, including V2G use cases at UC San Diego and UC Davis. As the VGI Working Group report concluded, there are over 300 use cases that can already provide value today or in the very near term. Additionally, by taking a portfolio approach, certain VGI components can readily be added or subtracted if they are found to be more or less feasible than originally anticipated.

Cost Effectiveness

Regarding cost-effectiveness, the Joint Commenters agree that this will be an important focal point for any VGI-related efforts and is indeed a required consideration of SB 676 implementation. However, the Joint Commenters caution the Commission against overly strict interpretation of the term “cost-effectiveness” as it relates to VGI-related activities and investments. Per the requirements of SB 676, we recommend that the Commission focus on delivering and maximizing the value of VGI through 2030, while continue to evaluate cost-efficiency of VGI as each VGI Portfolio is implemented. Actions that can deliver significant value over the longer term, that, may have higher near-term costs but a pathway for cost

⁵ <https://gridworks.org/wp-content/uploads/2019/08/Gridworks-VGI-Initiative-Framing-Document.pdf>

reduction over time, should receive appropriate consideration. The Commission accordingly should increasingly target the Portfolio components that prove to deliver the greatest value or be most cost-effective. That said, we do not believe the Commission should not establish specific cost-effectiveness thresholds as a requirement prior to implementing any specific VGI effort (e.g., TRC score >1.0). There are a variety of reasons why this approach is warranted:

- Transportation electrification as a whole, if integrated optimally into the grid, provides ratepayer benefits by putting downward pressure on rates (i.e., “beneficial electrification”).⁶ To the extent VGI services help to accelerate TE, it reinforces this overall effect. This dynamic is further described below in response to Question 4b.
- VGI leverages other investments in EVs and EVSEs and should therefore not be viewed in isolation from these. The incremental cost of adding VGI functionality to these much larger capital investments will in many cases will be *de minimus*.
- The market for VGI solutions is in a very nascent stage and it may be necessary to support and encourage stage technologies and applications to foster market transformation, even if some of these shovel-ready technologies and applications are not yet strictly “cost-effective” in the traditional methods of comparison. Notably, interoperable equipment can be beneficial, and maturing the market will require an appropriately-balanced deployment of near-term equipment that may not be interoperable with long-term progress toward interoperability.
- The recommended VGI Portfolio approach includes many programmatic elements that are as of yet untested. For example, it is unknown what level of incentives may be

⁶ See Synapse Energy Economics, *Electric Vehicles Are Driving Electric Rates Down*, June 2020, available at https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf.

necessary for attracting and retaining customers who enroll in dynamic charging programs. These learnings will develop as the program is implemented over the coming years, at which point a better evaluation can be conducted.

- Many of the Portfolio elements could be considered “revenue neutral”, meaning the incremental cost to non-participants is close to zero. This includes most of the dynamic rate options, as well as the Active Load Management tariff, if implemented correctly. The Joint Commenters encourage an emphasis on VGI through revenue neutral rates and price signals as much as is practicable, recognizing that there may also be inherent limitations in these approaches.
- In evaluating the costs of VGI Portfolios, the Commission should also consider the fact that certain VGI Portfolio components could be supported through existing utility programs outside of the TEF. While it may be appropriate to support some forms of VGI as an incremental cost of the overall TE Plan budgets, others VGI components may be able to rely on support from programs such as the Self-Generation Incentive Program, LCFS credits (both through unmetered incremental credits, and hold-back funds), Microgrid-related investments, and so on. To reiterate, some Portfolio elements may also not even require budget support if they are revenue neutral.

Q3: For each strategy recommended, what quantifiable metric or metrics should be adopted to measure progress?

Consistent with prior comments on metrics for the TEF, the Joint Commenters support an “activity-program-outcome” framework for measuring progress. Below are some specific suggestions on the program and outcome metrics that may be appropriate for a VGI Portfolio.

Program Metrics:

The primary program-related metric we suggest would be the total number of participants in the VGI portfolio components described above. This could include TOU and dynamic rates as well as the other programs, and participants could include EV customers, as well as EVSE providers. Participation numbers should also be categorized by the number of LDV and MDHD vehicles served.

Outcome Metrics:

There are a variety of outcome metrics that the Joint Commenters recommend for the Commission's consideration. These include the following:

- Total utility customers with backup power options provided by EVs;
- MWh of off-peak (e.g. overnight or midday) charging as a percentage of total MWh. This can be estimated or measured through EVSE/EV telematics data and will provide a proxy for the MW of demand reduction that VGI provides relative to a non-managed charging approach.;
- Marginal emissions rate during charging hours, similar to what is presently orchestrated in SGIP;
- Gross benefits of any grid services provided (e.g., ancillary services, capacity); and
- Total reduction in distribution system upgrade costs through EV/EVSE active load management.

Q4a: For each strategy recommended, specify how the strategy accounts for the effect of TOU rates on demand from EV charging

The Model VGI Portfolio described above in response to Question 2 specifically identifies TOU rates as one of the core components, and participation in these options is included as one of the

recommended metrics described above in response to Question 3. TOU rates provide a foundation upon which more advanced forms of load management can be built to help integrate and utilize electricity generated from renewable resources. The Joint Commenters also note that TOU rates, as they exist today, are only a partial solution for encouraging managed charging and other VGI solutions. We believe it is important to establish a framework (i.e. the VGI Portfolio) to continuously evaluate and improve upon dynamic rate offerings. Additionally, it is essential to offer other ways to encourage VGI where TOU rates are insufficient on their own, or where TOU rates might result in unintended consequences (such as creating new, localized TOU timer peaks on the distribution system).

Q4b: For each strategy recommended, specify how the strategy is in the best interests of ratepayers

Generally speaking, VGI solutions benefit ratepayers in three ways: 1) VGI can directly help limit overall electricity system costs by providing lower-cost alternatives to traditional supply-side resources and 2) VGI can help to accelerate EV adoption, thereby increasing kWh sales and in turn placing downward pressure on overall electricity rates. The VGIC provided a more detailed description of this latter concept as an input to the VGI Working Group, Subgroup B.⁷ In addition to ratepayer costs, VGI will aid the overall integration of renewable energy and contribute to grid resiliency, both of which provide positive societal benefits to all ratepayers.

Q4c: For each strategy recommended, specify how the strategy reflects demand attributable to EV charging, including from existing approved rates and programs

⁷ See VGI Council Ratepayer Benefits Paper: https://cde03w.dm.files.1drv.com/y4mZ0X155rffb-jHpR2XOF48E_Yw6pkt3Zi5KAML9GQr_Gd4dFeZp5UBCkZCt2AXL7KkuYH2RPwDKdpP_uBTj4x103Dg97kBWhDtCl9rQRHrbMwaUjb88mMXmPYaoc4J5o1af92bkouXgY0Cp9Rpg9Y0wzIMof96dYdIUQczWvmz8/VGI%20Council%20Ratepayer%20Impact%20Benefits%20Category.docx?download&psid=1

Please refer to response to Question 4a above.

Q4d: For each strategy recommended, specify how the strategy is consistent with the TE goals described in SB 350

A robust VGI Portfolio will contribute to the overall goals of SB 350 by 1) directly aiding the decarbonization of the transportation sector and 2) supporting the decarbonization of the power sector. Regarding the transportation sector, VGI will help meet California’s transportation electrification goals by addressing barriers to faster EV adoption. The table below summarizes how VGI addresses specific barriers to EV adoption.

Barriers to faster EV adoption	How VGI addresses this
EV Total Cost of Ownership (TCO) remains too high	Reduces TCO via lower charging costs and new customer revenue streams
Value proposition (versus ICE) not compelling enough for some customers	Unlock new value propositions beyond e-mobility and VGI (e.g., V2H/V2B providing backup power – especially relevant during COVID-19 and rolling brown-outs.)
Margin on sales not large enough for some OEMs to prioritize	Unlocks new revenue streams for OEMs; improves business case for EVs
Lack of TE infrastructure	Can help “right-size” TE infrastructure investments and unlock revenue streams for EVSPs and OEM end users

Regarding support for decarbonizing the power sector, VGI can aid in providing essential grid reliability services as renewable energy penetration increases. As a form of battery storage, VGI-enabled EVs can provide many of the same types of grid services that stationary storage can provide, including resource adequacy, operating reserves, frequency regulation, and frequency response.

V. CONCLUSION:

Joint Commenters appreciate the opportunity to submit these comments on VGI Issues.

We look forward to further collaboration with the Commission and stakeholders on this initiative.

Dated: August 17, 2020

Respectfully submitted,

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