

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

Order Instituting Rulemaking Regarding Policies,
Procedures and Rules for the Self-Generation
Incentive Program and Related Issues

Rulemaking 20-05-012
(Filed May 28, 2020)

**JOINT COMMENTS OF THE VEHICLE-GRID INTEGRATION
COUNCIL AND BMW OF NORTH AMERICA, LLC TO THE ASSIGNED
COMMISSIONER'S SCOPING MEMO AND RULING**

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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”)¹ hereby submits these joint comments on behalf of its members and BMW of North America, LLC (together, “Joint Commenters”) to the *Assigned Commissioner’s Scoping Memo and Ruling* (“Scoping Memo”) issued by Commissioner Rechtschaffen on August 17, 2020. Pursuant to the Scoping Memo, VGIC timely files these comments to the Scoping Memo on September 16, 2020.

I. INTRODUCTION.

A. *Overview of VGIC*

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

¹ VGIC member companies and supporters include American Honda Motor Co., Inc., Connect California LLC, Enel X North America, Inc., Fiat Chrysler Automobiles, Ford Motor Company, General Motors Company, Nissan North America, Inc., Nuvve Corporation, and Toyota Motor North America, Inc. 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/>).

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.

B. Overview of BMW of North America, LLC

BMW of North America, LLC was established 1975. The BMW Group in the United States is responsible for marketing, sales, and financial service organizations for the BMW brand, the MINI brand, and the Rolls-Royce brand of Motor Cars; Designworks USA, an industrial design firm in California; a technology office in Silicon Valley and various other operations throughout the country. BMW Manufacturing Co., LLC in South Carolina is part of BMW Group’s global manufacturing network and is the exclusive manufacturing plant for all X3 and X5 Sports Activity Vehicles and the X6 Sport Activity Coupe. The BMW Group sales organization is represented in the U.S. through networks of BMW passenger car centers, BMW motorcycle retailers, MINI passenger car dealers, and Rolls-Royce Motor Car dealers. BMW (US) Holding Corp., the BMW Group’s sales headquarters for North, Central and South America, is located in Woodcliff Lake, New Jersey.

C. Organization of Joint Comments

Joint Comments are organized as follows:

- First, Joint Commenters offer **overarching recommendations on consideration of EVs/EV supply equipment (“EVSE”)** in the Self-Generation Incentive Program (“SGIP”).
- Second, Joint Commenters **addresses Scoping Memo questions h, i, j, and k** related to EV/EVSE eligibility in SGIP. Joint Commenters provide several recommendations for the Commission’s consideration.

II. OVERARCHING RECOMMENDATIONS RELATING TO EV/EVSE IN SGIP.

A. SGIP incentives should be made available to eligible vehicle-to-grid (V2G) resources in the near-term.

Joint Commenters believe that a broad set of VGI technologies, including both V2G and V1G applications, can and should ultimately be considered for eligibility under the SGIP framework. We believe both V2G and V1G have a significant potential to realize the ratepayer, resilience, environmental, and equity benefits associated with V2G resources. Moreover, we think that V2G solutions in particular are well aligned with the SGIP program objectives. Joint Commenters consider V2G to describe bi-directional charging solutions that leverage the embedded energy storage capacity embedded within EVs. This is distinct from “V1G” smart charging applications. While we believe that V1G offers a similar array of benefits to V2G, we also recognize V2G is more likely to receive consensus support as an eligible technology under the SGIP framework at this time, due to its closer resemblance to stationary energy storage solutions that are currently eligible. Thus, we recognize that the Commission may wish to focus any near-term efforts to support VGI through SGIP on V2G resources, though we recommend leaving open the possibility for V1G to be included either now or in the future. Expansion of SGIP eligibility to VGI solutions would also provide critical information of customer interaction with VGI strategies more generally that would yield learnings and spillover benefits that may be considered later.

B. V2G is both an emerging technology and a form of energy storage that fits well within SGIP’s overall purpose and program design.

VGIC notes that V2G solutions are fully dispatchable, and can provide injections of electricity to the grid. As such, they can be considered a form of generation or energy storage. Thus, to the extent SGIP has and continue to play a critical role in supporting market transition for stationary energy storage, VGIC believes that V2G, as a form of storage, should also be considered under the SGIP framework.

C. EV/EVSE can serve a critical role in supporting SGIP's equity and resiliency focus.

Joint Commenters acknowledge California's near-term focus in ensuring the current SGIP Equity Resiliency Budget be leveraged to benefit our most vulnerable communities in the face of wildfires and public safety power shutoffs ("PSPS"). Joint Commenters believe that a subset of VGI strategies focused on resiliency could meaningfully support the goals described in Decision (D.) 19-09-027 establishing the \$100 million equity resiliency budget and D.20-01-021 expanding the equity resiliency budget to \$613 million over five years. As the Commission continues to consider the appropriate balance between broad-based support for energy storage technologies and targeted support (including program budget carve-outs) for equity and resilience applications, Joint Commenters strongly recommend V2G solutions be viewed through a similar lens. SGIP could meaningfully support V2G market development more broadly while providing targeted support for EV/EVSE use in resilience applications and to ensure equitable technology deployment. While there exists a wide range of use cases that may be applicable in this regard, VGIC offers the following specific examples which could benefit from targeted market transition support:

- *Vehicle-to-building ("V2B") backup power solutions:* These solutions use V2G-capable EV/EVSE systems to provide backup power to on-site load (e.g., critical facilities as defined in D.19-05-012) in the event of a PSPS, rolling blackouts caused by heat waves, or other resilience event.

- *V2G exports for resiliency:* These solutions use V2G-capable EV/EVSE systems to provide backup power to islanded sections of the grid (i.e., microgrids) in the event of a PSPS, rolling blackouts caused by heat waves, or other resilience event.

The technology and equipment needed to enable these solutions reflect high technological readiness levels, with most either commercially available now or in the near term. The Nissan LEAF is currently V2G-capable, and VGIC notes medium- and heavy-duty vehicle (“MHDV”), for example school busses, OEMs have announced V2G capability. VGIC believes these solutions can efficiently complement the existing suite of energy storage technologies currently eligible for the SGIP Equity Resiliency Budget (“ERB”) incentives.

D. Consideration of SGIP incentives for EVs/EVSE should be developed in close coordination with related policies and programs, such as the Transportation Electrification Framework (“TEF”)

Joint Commenters believe that SGIP and TEF budgets – perhaps further supplemented by other program budgets in the future – should represent a complete package of funding available to the full suite of VGI use cases. To further moderate impacts on SGIP budget, eligibility can be targeted to specific V2G use cases, such as those supporting SGIP’s current equity and resiliency focus. However, as an emerging technology, VGIC believes the development of SGIP incentives for VGI should consider a balance between broad-based support for V2G and targeted support for SGIP priorities areas such as equity and resilience

E. The various EV/EVSE customer types merit separate consideration under the SGIP framework due to their important and inherent differences.

Joint Commenters recommend the Commission consider the important differences between EV fleets, commercial EVSE site hosts, and residential customers as they relate to EV/EVSE adoption and use. EV fleets, such as commercial delivery fleets, may be more likely to

utilize VGI strategies to optimally shape their charging and discharging profiles in response to price signals. Commercial EVSE site hosts, in contrast, may have less flexibility as the EV owner is unlikely to be the same as the EVSE owner. While single family home (“SFH”) residential customers may not have this split ownership problem, multi-unit dwelling (“MUD”) customers may operate under one of several charging and parking norms in which they do not own the EVSE. For many SFH residential customers, flexible charging/discharging may need to be performed “behind the scenes” by an automotive original equipment manufacturer (“OEM”) or EV service provider (“EVSP”) in order to simplify the customer experience. While these example customer segments do not reflect the full constellation of EV/EVSE ownership models and customer types, they do demonstrate some of the most notable differences. As such, Joint Commenters recommend the Commission consider a modest level of customization to accommodate the unique characteristics and capabilities of each customer type. At a minimum, SGIP incentives for VGI should be allocated separately for commercial and residential customers, similar to the manner in which it is allocated for other forms of energy storage.

Joint Commenters acknowledge California’s near-term focus in ensuring the current SGIP ERB be leveraged to benefit our most vulnerable communities in the face of wildfires and public safety power shutoffs (“PSPS”). While Joint Commenters support a broad-based strategy to accelerate market transformation of VGI overall, we believe that a subset of VGI strategies focused on equity and/or resiliency should be considered and could meaningfully support the goals described in Decision (D.) 19-09-027 and D.20-01-021 establishing the budgets over the next five years. As mentioned above, VGIC has been active in other Commission proceedings and stakeholder processes such as the VGI Working Group where we have articulated the meaningful role that VGI could play in providing resiliency services the form of backup power (including for

PSPS events). We have also detailed how VGI can help lower the total cost of EV ownership, therefore contributing to equity goals. Additionally, SGIP support for VGI could be targeted towards deployments of EVs and EVSEs that benefit disadvantaged communities. These benefits could accrue both in terms of the direct investment in disadvantaged communities as well as through alleviating pollution burden in those communities by accelerated transportation electrification.

III. QUESTION H: HOW CAN SGIP INCENTIVES FACILITATE USE OF EV ENERGY STORAGE SYSTEMS AND/OR EVSE TO REDUCE PEAK LOAD ON THE GRID AND/OR TO CHARGE THE STORAGE SYSTEM WHEN EXCESS ELECTRICITY IS AVAILABLE?

F. V2G represents an immense potential to reduce peak load.

Assuming 3.45 million SFH EVSE by 2030,² an average EVSE power rating of 10 kW,³ and a modest 5% participation rate in a V2G program, tariff, or incentive intended to provide capacity during a grid reliability event, Joint Commenters estimate that California’s SFH-dwelling EVs alone could provide over 1,725 MW of peak reduction during peak times in 2030 – a significant contribution to California’s resource needs. This estimated capacity value is doubled (to 3,450 MW) if vehicles are also encouraged to discharge during peak times. Note this estimate does not include the capacity of MHDV, which have a considerably higher average battery energy capacity than light-duty vehicles (“LDV”).

In addition to meeting peak demand, EVs and EVSEs are readily able to absorb excess generation from solar as long as retail rate structures, including time of use (TOU) and real-time

² Eric Wood et al. *Presentation - Electric Vehicle Infrastructure Projection Tool (EVI-Pro)*. National Renewable Energy Laboratory. August 3, 2020. California Energy Commission Docket Number 20-IEPR-02 <https://efiling.energy.ca.gov/GetDocument.aspx?tn=234215&DocumentContentId=67051>

³ Assumes a mix of Level 1 (“L1”) and Level 2 (“L2”) chargers.

pricing (RTP) options are available to encourage this through lower daytime rates. This could be further enhanced by support for workplace charging that targets EV charging during daytime hours.

G. Current strategies to promote EV peak load reduction and charging when excess electricity is available do not adequately leverage the energy storage capacity embedded within EVs.

All three major investor-owned utilities (“IOUs”) offer time-varying EV rates, and some are in the process of developing dynamic EV rates to specifically support peak load reduction. For example, Southern California Edison’s (“SCE”) residential EV TOU rate provides a price signal to charge during off-peak times, but is not designed to incent increased charging specifically during times of excess electricity availability (i.e., either on-site or grid-sourced mid-day solar generation). However, these rates fall short of the full potential for integrating EVs with the grid, which includes not just charging during off-peak times, but also discharging or exporting during peak times through V2G capabilities. Current no retail rates or programs (or even wholesale participation options such as Proxy Demand Response) are designed to facilitate bi-directional charging capabilities which could essentially double the effectiveness of unidirectional capabilities.

Another significant gap in encouraging flexible EV charging and discharging is the onerous requirement for some customers to install a separate meter to be eligible for an EV rate, which precludes access to existing demand response market products and other value streams that are supported by the presence of behind-the-meter (“BTM”) load. Joint Commenters believe SGIP could play a critical role in supporting the nascent EV/EVSE market in this regard by incentivizing

an important technology set that is otherwise prohibited from accessing and stacking value streams.

H. Existing transportation electrification incentives are not designed to promote EV peak load reduction and charging when excess electricity is available.

Joint Commenters acknowledge that a given EV buyer may be eligible to receive both federal and/or state tax incentives for their vehicle purchase, and an EVSE buyer may be eligible for state, local, and/or utility rebates. Notably, several OEMs have already surpassed or are fast-approaching the sales threshold to begin phasing out the federal EV tax credit. Additionally, the Furthermore, neither the federal EV tax credit and other EV/EVSE incentives are designed to promote vehicle-grid integration and flexible charging and/or discharging behavior. Joint Commenters reiterate that **no existing EV or EVSE incentives leverage the energy storage capabilities of V2G-capable EV/EVSE systems.** Therefore, VGIC reiterates the potential for SGIP to critically support the nascent market for V2G energy storage capabilities.

IV. QUESTION I: HOW CAN SGIP INCENTIVES FACILITATE USE OF EV STORAGE SYSTEMS AND/OR EVSE TO REDUCE GRID GHG EMISSIONS?

A. SGIP incentives can play a critical role in encouraging EV/EVSE charging and/or discharging behavior that significantly reduces grid GHG emissions.

SGIP incentives for EV/EVSE can lead to marginal emissions reductions on the grid by aligning EV charging with excess renewables and discharging with peak times when GHG emissions from grid electricity (due to fossil fuel peaking plants) tend to be greatest. VGIC recommends the Commission consider how automotive OEMs and/or EVSPs could support their customers in responding to GHG price signals as part of SGIP incentives, including by performing “behind the scenes” charge/discharge management.

- B. As detailed above, Joint Commenters do not recommend SGIP incentives be made available to all EV/EVSE regardless of capabilities. However, to the extent SGIP incentives can support SGIP incentives for EV/EVSE can also promote GHG emissions reductions beyond the grid by supporting broader transportation electrification goals.*

If SGIP incentives are provided to VGI-capable EV or EVSE, this would provide an incremental financial benefit to either the owner or provider of this equipment and would in turn help to accelerate overall EV adoption and transportation electrification goals. However, to the extent SGIP incentives can play a role in supporting these broader transportation electrification through its focus on a specific subset of V2G-capable EV/EVSE systems as part of the broader portfolio of TE and VGI related efforts. , The added financial benefit to EV customers and manufacturers will help to displace the sale and, more importantly, vehicle miles travelled (“VMT”) of internal combustion engine (“ICE”) vehicles which contribute significantly to transportation sector emissions, which represent the largest source of the state’s GHG emissions by sector.

V. QUESTION J: HOW CAN SGIP INCENTIVES FACILITATE USE OF EV STORAGE SYSTEMS AND/OR EVSE TO PROVIDE OTHER BENEFITS OF ELECTRIC VEHICLE GRID INTEGRATIONS (AS DEFINED IN SECTION 740.16)?

VGIC believes that SGIP incentives can be leveraged to help develop the overall market for VGI technologies by filling in certain gaps where there is either no market incentive, or the market mechanisms that do exist are ill-suited for EVs and/or EVSEs. The above sections describe how we believe SGIP incentives can be coordinated with other VGI program offering being developed (e.g. through the TEF) to ensure that any remaining gaps are addressed. Recently VGIC joined with several other parties to submit comments on VGI Issues including those related to SB

676 and Section 740.16.⁴ Through these comments we identified the need for the IOUs to develop an overall VGI Portfolio that would include a variety of programs, rates, and market offerings to support beneficial VGI in conjunction with overall TE efforts. As part of this portfolio effort, we identified several potentially sources of funding, as well as certain “revenue neutral” program elements. One of the potential sources of funding identified was the SGIP program, which if developed to include EVs and/or EVSEs, could support discrete elements of the overall VGI portfolio that were not supported through the TE Plans under the TEF or other funding sources.

Moreover, Joint Commenters believe that existing market participation options are insufficient to support robust VGI activities. Much like stationary energy storage, EVs faces many of the same barriers as other distributed resources when attempting to provide wholesale market products. For example, existing CAISO participation models such as Proxy Demand Response do not allow for storage exports (analogous to V2G) to be properly credited. Moreover, EVs also face fundamentally different barriers due to the fact that separately metered charging stations do not have any on-site load that would allow for ‘baselining’ under a standard demand response approach. Due to these and other market barriers that exist today, Joint Commenters believe it is critical for the Commission to provide other avenues of support for V2G. Support for V2G market transformation is especially critical now since a large number of new EV models are in stages of product development and manufacturing for launch in the 2021-2022 timeframe. Support from SGIP would help to ensure this promising technology is indeed included in these new EV models even when current market signals are insufficient.

⁴ *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* in R.18-12-006 (“DRIVE OIR”)

VI. QUESTION K: HOW CAN THE COMMISSION ENSURE THAT EV STORAGE SYSTEMS AND/OR EVSE THAT RECEIVE SGIP INCENTIVES ARE USED TO PROVIDE LONG-TERM BENEFITS TO RATEPAYERS?

Joint Commenters recognize the Commission’s concerns about the “permanence” of EV storage systems and/or EVSE that receive incentive from SGIP due to the possibility that EVs may ultimately travel out of state and no longer provide benefits to California ratepayers. However, Joint Commenters believe there are several mitigating factors that would limit this from happening thus ensuring that nearly all SGIP incentives directed towards EV storage systems and EVSE would continue to provide long-term benefits to California ratepayers. The two main factors are a) the fact that many EV and/or EVSE installations are in fixed locations, and b) the fact that the EV/EVSE portion of SGIP can be designed to track performance and respond as issues arise.

A. A large share of EV storage systems and/or EVSE are in fixed locations

Joint Commenters note that a large share of potential EV-related facilities eligible for SGIP incentives will be in the form of EVSE. Once installed, these facilities are generally fixed to a particular location and customer site. This effectively guarantees their permanency within California, and in turn guarantees that their usage over the long-term will be for the benefit of California ratepayers. Additionally, Joint Commenters anticipate that another large share of the available EV-related incentives could go towards EV fleets serving California businesses, governments, and schools. These customer types are similarly fixed in terms of their location within the state and therefore pose little to no risk of not serving California ratepayers over the long term. While not all EV storage and/or EVSE fall into these categories, Joint Commenters believe that long-term benefits can still be ensured through good program design.

B. SGIP incentive program design to help ensure long-term benefits to ratepayers from EV and/or EVSE recipients

As mentioned above, other steps can be taken through the design of the SGIP incentives for EVs and/or EVSEs to ensure long-term benefits are accruing to California ratepayers. Three possible steps are outlined below:

1. Linking incentive payments to interconnection

Presently, bi-directionally capable EVs (i.e. V2G systems) may be limited from exporting power to the grid in California depending on inverter configuration (i.e., on-board vs contained within EVSE), in part due to lack of interconnection pathways under Rule 21. However, VGIC notes that this is an issue the Commission is actively addressing. In fact, a Proposed Decision in R.17-07-007 was recently issued that could ensure interconnection pathways some configurations of bi-directional capabilities (i.e., V2G DC and pilots for V2G AC) and advance the possibility of other forms in the future (i.e., V2G AC). Joint Commenters anticipate that all bi-directionally capable EV systems would thus likely need to go through some form interconnection process before being able to export to the grid. Thus, one way to help ensure permanency in the case of EV storage systems would be to link the SGIP incentive payments to the current or future interconnection process that may be required for V2G capabilities.

2. Potential participant data reporting

Joint Commenters believe that one possible way to help ensure that EV and EVSE systems that receive incentives are functioning as intended is to track and monitor program performance through reporting requirements. For example, vehicle OEM telematics data and/or EVSE submetering could be provided on a regular basis (e.g., annually) to track over time how charging and discharging is occurring among participating EVs and EVSEs. If deficiencies are detected through this reporting, program elements could be modified as needed over time.

3. Potential performance-based components

Joint Commenters recognize that other SGIP program participants, particularly those in the commercial sector, have been subject to a performance-based requirement for a portion of the incentive. Joint Commenters suggest that a similar approach could be explored for any SGIP incentives being applied to larger scale EVSE systems (e.g., DCFC) or commercial EV fleets. These performance criteria would help ensure long-term benefits to California ratepayers. Much like other SGIP technology segments, Joint Commenters also recommend that these performance criteria not be applied to residential customers / small scale systems. Instead, the tracking and reporting approach described above should be sufficient to monitor performance and ensure long-term benefits are being delivered.

VIII. CONCLUSION.

Joint Commenters appreciate the opportunity to submit these comments to the SGIP Scoping Memo on EV/EVSE eligibility. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

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