

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

Order Instituting Rulemaking to
Establish Policies, Processes, and
Rules to Ensure Reliable Electric
Service in California in the Event of an
Extreme Weather Event in 2021.

Rulemaking 20-11-003
(Filed November 19, 2020)

**COMMENTS OF THE VEHICLE-GRID INTEGRATION COUNCIL ON E-MAIL
RULING SEEKING RESPONSES REGARDING A PROPOSED AMENDED SCOPE
AND SCHEDULE TO ADDRESS RELIABILITY ISSUES IN 2022 AND 2023**

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the Vehicle-Grid Integration Council (“VGIC”) hereby submits these comments on the *E-mail Ruling Seeking Responses Regarding a Proposed Amended Scope and Schedule to Address Reliability Issues in 2022 and 2023* (“Ruling”), issued by Administrative Law Judge (“ALJ”) Brian R. Stevens on August 2, 2021.

I. INTRODUCTION.

VGIC is a 501(c)6 membership-based advocacy group committed to advancing the role of electric vehicles (“EV”) and vehicle-grid integration (“VGI”) through policy development, education, outreach, and research. VGIC supports the transition to a decarbonized transportation and electric sector 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.

VGIC commends the ALJ for issuing the Ruling to address California’s pressing reliability concerns, as detailed in Governor Newsom’s July 30th emergency proclamation. As VGIC

understands, California’s available options to ensure reliability for 2022 and 2023 on short notice are substantially limited. Relying on hydro capacity is risky as extreme heat and drought continue to plague the west. On the other hand, reliance on fossil fuel generation jeopardizes California’s climate goals and would likely further exacerbate the power sector’s contribution to global emissions and, ultimately, the very extreme weather events that are contributing to the current reliability concerns.

Meanwhile, efforts to deploy additional, utility-scale renewable energy and energy storage are underway, and the Governor’s emergency proclamation directs and requests bold action from state agencies, including the Commission, to streamlining permitting and construction for these resources.¹ However, to mitigate reliability concerns without compromising its climate goals, California needs an all-of-the-above approach that includes both utility-scale renewables and energy storage, but also distributed energy resources (“DERs”). VGIC believes California must make significant progress in its ability to leverage DERs and encourages the Commission to take bold and decisive action to unlock latent capacity in already deployed resources, including EVs. VGIC offers the following comments focusing on how to refine the scope to unlock EVs as a grid resource for Summer 2022 and 2023.

II. COMMENTS ON THE PROPOSED SCOPE.

A. VGIC supports the inclusion of EV load management or “VIG” in the Ruling’s proposed scope.

Each of California’s three major investor-owned utilities (“IOUs”) offer whole-home time-of-use (“TOU”) rates, and PG&E and SDG&E offer a separately metered residential EV TOU rate.

¹ Kavya Balaraman. *California governor moves to free up electricity supply amid projected 3.5 GW summer shortfall*. Utility Dive. August 3, 2021. <https://www.utilitydive.com/news/california-governor-moves-to-free-up-electricity-supply-amid-projected-35/604344/>

The IOUs also offer separately metered EV TOU rates for commercial customers and multi-unity dwellings (“MUDs”), with SCE waiving demand charges and PG&E and SDG&E offering subscription rate structures. While these TOU rates have been effective in shaping EV load, VGIC believes much more should be done to unlock additional load reduction from EVs through EV load management or “VIG.” Decision (“D.”) 20-12-029 (the “VGI Decision”) adopted EV load management as a strategy to achieve the goals of SB 676, and PG&E and SCE recently filed advice letters seeking approval of VGI pilots.² While VGIC is encouraged by several of the proposed VGI pilots, the Governor’s proclamation highlights an urgent and important need to promote VGI strategies far beyond the limited VGI pilots that have been proposed. With this in mind, VGIC recommends the *EV load management* scope item include approaches to unlock third-party submetering pathways to alleviate the critical barriers detailed below.

Existing IOU transportation electrification (“TE”) programs typically require EV load be separated from customers’ building load to be eligible for program incentives. Additionally, separately metered EV TOU rates typically have higher peak/off-peak differentials than their whole-home TOU counterparts, which may make them a more compelling choice for some customers. The combination of funding from TE programs and compelling value proposition of separately metered TOU rates creates an environment in which customers are nudged toward isolating EV load from site load. However, isolating EV load significantly limits the ability for EVs to achieve load reductions by using VGI technologies. First, standalone EV load is a unique end-use load that may benefit from additional consideration and methodology development to construct baselines within existing demand response (“DR”) programs. Second, isolated

² Advice Letter 6259-E *Requesting for Approval of PG&E’s VGI Pilots in Compliance with Decision 20-12-029* and Advice Letter 4542-E *Request for Approval of Proposed Vehicle Grid Integration Pilots*, submitted on July 15, 2021.

bidirectional EVs and EV supply equipment (“EVSE”) cannot provide backup power, mitigate demand charges, or otherwise offset grid consumption by discharging. In addition, some customers may not want to expose their whole site load to a TOU rate or are unable to install level two (“L2”) charging stations. For these customers, vehicle telematics in particular offers a low-cost pathway to enable VGI.

Unlocking the use of EVSE submeters and vehicle telematics to establish baselines and support settlement is a critical next step to alleviate these barriers by providing a low-cost way to separately measure comingled EV and site load. VGIC believes resolving this set of issues is required to enable additional EV load reductions in support of system reliability and recommends it be included in the amended scope ruling.

B. Vehicle-to-grid exports should be added to the scope as a pathway to increase peak and net peak resources in 2022 and 2023.

VGIC appreciates the Commission’s attention and consideration of bi-directional EV and EV supply equipment (“EVSE”) systems in the development of the Emergency Load Reduction Program (“ELRP”). For the past several years, the Commission and industry stakeholders have struggled with a “chicken or egg” problem when it comes to considering the ability of vehicle-to-grid (“V2G”) exports to support the grid. Due to the limited number of available products, it was challenging to generate stakeholder momentum to develop a pathway to incentivize V2G exports. Meanwhile the lack of any incentive structure to sustain V2G activities hampered the commercial activity and product development of these solutions, despite the technology being well understood and used in other markets.

Today, VGIC believes the V2G industry has reached an important tipping point as evident by the variety and magnitude of commercially available solutions, many of which are already on California’s roads. There are an estimated 27,000 V2G-capable Nissan LEAFs in California today, equal to approximately 876 MWh of energy storage capacity.³ In addition, Blue Bird has delivered over 100 V2G-capable electric school buses providing a potential 15 MWh of energy storage⁴, with Proterra and Lion also offering V2G-capable medium- and heavy-duty vehicles (“MHDV”). There are also V2G-capable Mitsubishi EVs in California, the i-MiEV and Outlander PHEV, which contribute an additional 2,121 vehicles and potential 27 MWh of energy storage capacity on the road in California.⁵ The recently announced Ford F-150 Lightning, scheduled to be on California’s roads in 2022, can provide full-home power for up to three days, or up to 10 days if power is rationed.⁶ VGIC notes that today’s bidirectional vehicles span the light-duty vehicle (“LDV”) and MHDV sectors, as do bidirectional EVSE offerings from providers like dcbel, Fermata Energy, and Nuvve Corporation.

Meanwhile, D.20-09-035 (the “September 2020 Rule 21 Decision”) confirmed V2G Direct Current (“V2G DC”) EVSE can seek interconnection under Rule 21, and V2G systems have

³ As of the end of 2020, an estimated 27,000 V2G-capable Nissan LEAFs are on the road in California, totaling an estimated 876 MWh of energy storage capacity, assuming only vehicles model year (“MY”) 2013 or later are V2G-capable, MY2013-2015 vehicles have a 24 kWh battery, 2016 30 kWh, and 2017-2019 40 kWh. Assuming 7 kWh per home, VGIC estimates this is equivalent to 125,000 homes.

California Energy Commission (2021). California Energy Commission Zero Emission Vehicle and Infrastructure Statistics. Data last updated April 30, 2021. <https://www.energy.ca.gov/zevstats>

⁴ According to Blue Bird Corporation, they have delivered more than 400 electric school buses, with more than 100 V2G-capable buses to California, each with a 155kWh battery pack.

⁵ Mitsubishi i-MiEV has a 16 kWh battery and Outlander PHEV has a 12 kWh battery pack. There are 1,750 Outlander PHEV and 371 i-MiEV in California.

California Energy Commission (2021). California Energy Commission Zero Emission Vehicle and Infrastructure Statistics. Data last updated August 28, 2020. <https://www.energy.ca.gov/zevstats>

⁶ Ford. 2021. The Truck of the Future is Here: All-Electric Ford F-150 Lightning.

<https://media.ford.com/content/fordmedia/fna/us/en/news/2021/05/19/all-electric-ford-f-150-lightning.html>

already sought Rule 21 interconnection.⁷ In addition, the ELRP’s inclusion of Rule 21 exporting DERs, which includes V2G DC EVSE, places V2G systems on a level playing field with stationary energy storage systems within the context of a specific compensation pathway for behind-the-meter (“BTM”) exports.

To VGIC’s knowledge, the establishment of the ELRP is the first such action taken in California – and perhaps the nation – to compensate V2G exports alongside stationary energy storage exports. Although VGIC generally supports the proposed ELRP pilot, it has not been welcomed by industry actors given its limited ability to support a sustaining business model. VGIC believes that V2G resources, once incentivized to do so, will play an important role in increasing peak resources in 2022 and 2023. As such, VGIC strongly recommends that V2G exports be considered in scope as an opportunity to increase supply.

C. The scope should consider how to leverage other programs in addition to ELRP and existing demand response programs.

As explained above in Section II.B, VGIC believes the energy-only structure of the ELRP may be an insufficient mechanism to drive significant load reduction and exports from the over 600,000 flexible EVs in California, an estimated 29,000 of which are already V2G-capable.⁸ VGIC urges the Commission to continue iterating on the ELRP pilot structure ahead of Summer 2022 and Summer 2023, especially as EV adoption and EVSE deployment are expected to continue growing at a rapid pace. VGIC therefore supports the inclusion of ELRP in the proposed amended scoping ruling.

⁷ See, for example, *PG&E Quarterly Interconnection Timeline Report Q2 2021*.

⁸ As of the end of 2020, an estimated 27,000 V2G-capable Nissan LEAFs, 1,750 Mitsubishi Outlander PHEVs, and Mitsubishi 371 i-MiEV are on the road in California.

California Energy Commission (2021). California Energy Commission Zero Emission Vehicle and Infrastructure Statistics. Data last updated August 28, 2020. <https://www.energy.ca.gov/zevstats>

Similarly, the IOUs should explore ways to integrate and compensate V2G exports into programs that already provide capacity payments. As such, VGIC supports the inclusion of *modifications to existing demand response programs* in the proposed amended scoping ruling, and specifically recommends modifications to capacity bidding programs to integrate and compensate V2G exports be considered as an opportunity to achieve incremental reductions in net load.

VGIC believes that consideration of strategies to reduce demand in 2022 and 2023 should not be limited to ELRP, existing DR programs, and a new real-time capacity bidding program.

VGIC recommends the following items also be considered in the scope of this proceeding:

- Pathways to clarify and accelerate where reasonable the scale-up of the recently proposed VGI pilots to become full-scale programs
- Creation and expansion of technology incentives, such as SGIP, to include V2G technologies
- Pathways for BTM resources, including EVs, to support reliability through California’s resource adequacy (“RA”) framework.
- Streamlining of Rule 21 processes for small DERs, including V2G DC EVSE.

VGIC reiterates that in order to mitigate reliability concerns without compromising its climate goals, California must use an all-of-the-above approach to leverage all available resources at its disposal. VGIC urges the Commission take bold and decisive action to leverage both V1G and V2G resources to support Summer 2022 and 2023 reliability.

D. VGIC believes the emergency proclamation’s intent to streamline permitting and construction for resources extends to behind-the-meter resources, including VGI-capable TE infrastructure.

To better leverage VGI strategies to reduce peak demand and increase peak resources, the Commission should consider strategies to accelerate the deployment of VGI-capable TE infrastructure. Notably, the Governor’s emergency proclamation emphasizes the importance of

streamlining the permitting and construction of energy resources, and VGIC believes this directive extends to BTM resources, including VGI-capable TE infrastructure. Automated Load Management (“ALM”), which can streamline deployment of VGI resources, was a central part of the December VGI Decision. However, there is growing recognition among VGI stakeholders, including VGIC, that more needs to be done to facilitate the full range of ALM capabilities.⁹ To date, very little has been modified or advanced to integrate ALM into TE programs or EV infrastructure deployed outside of TE programs, despite the clear provisions and intent of the VGI Decision. VGIC believes “Type 2” ALM in particular can support streamlined deployment of VGI resources by adding EVSE on an existing service without triggering utility-side distribution system upgrades.¹⁰ This can be achieved by using customer-side ALM technologies (both software and hardware solutions) to reduce peak load of an multi-EVSE site, and in this way ALM would not only support the infrastructure deferral or avoidance, but also reduce net system peak per the goals of this proceeding. As such, VGIC recommends these concepts of streamlined permitting and construction of EVSE, including through Type 2 ALM, be explored within the scope of this proceeding.

⁹ See, for example, *Enabling Automated Load Management (ALM) – VGI Stakeholder Letter to CPUC*. Advanced Energy Economy, AMPLY Power, Inc., California Energy Storage Alliance, Enel X North America, Inc., Greenlots, Mobility House, Nuvve, Powerflex, Siemens, Vehicle-Grid Integration Council, and Veloce Energy. June 16, 2021.

<https://static1.squarespace.com/static/5dcde7af8ed96b403d8aeb70/t/60d2dbd25b043e4141b16164/1624431572513/Enabling+ALM+-+Stakeholder+Letter+to+CPUC.pdf>

¹⁰ For clarification, “Type 1” ALM refers to the use of load management for participation in demand response or TOU rates, while “Type 2” ALM refers to load management used to avoid additional distribution system upgrades. Type 2 ALM is accomplished by using ALM solutions to safely connect multiple charging ports whose total nameplate load would otherwise exceed the rated capacity of the customer connection. This in turn can avoid the need to upgrade an existing customer site with a new service connection, customer-side panel upgrade, or utility-side distribution system upgrade. While the IOUs have implemented some Type 1 ALM applications, they have not all fully embraced Type 2 ALM.

III. CONCLUSION.

VGIC appreciates the opportunity to these comments on the Ruling. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

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Date: August 6, 2021