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**Comments of VGIC on Draft Second AB 2127 Assessment
Workshop**

Additional submitted attachment is included below.



Comments of the Vehicle-Grid Integration Council (VGIC)

to

The California Energy Commission (CEC)

Docket # 19-AB-2127

Implementation of AB 2127 Electric Vehicle Infrastructure Assessments

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I. Introduction

The Vehicle-Grid Integration Council (“VGIC”), a 501(c)6 membership-based advocacy group, is pleased to provide comments in response to the California Energy Commission (“CEC”) Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment: Assessing Charging Needs to Support Zero-Emission Vehicles in 2030 and 2035, issued August 2023 (Docket 19-AB-2127, “Draft AB 2127 Report”).

VGIC is 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 electric sectors by ensuring the value from EV deployments and flexible EV charging and discharging is recognized and compensated in support of a more reliable, affordable, and efficient electric grid.

VGIC commends Energy Commission staff for its extensive and considered exploration of VGI in the Draft AB 2127 Report, including the recommendation to leverage automated load management (“ALM”) solutions to support California’s ambitious charging infrastructure deployment goals. VGIC’s comments below address specific barriers to charger infrastructure deployment, discuss how VGI solutions are critical to overcoming them, emphasize the important role of bidirectional charging, and provide several recommendations to support further development of the Draft AB 2127 Report. VGIC’s comments are summarized below:

- California’s Ambitious Clean Energy Goals Demand a Charging Infrastructure Deployment Strategy that Prioritizes Solar Charging and Bidirectional Charging to Appropriately Balance the Needs of the Electric Grid.
 - The Importance of Balancing Transportation and Electric Sector Goals
 - Promoting Investments that Leverage Excess Clean Energy Generation Balances Equity Goals, Grid Needs, and Deployment Cost
- Promoting Automated Load Management (“ALM”) and Distributed Energy Resource (“DER”) Paired Charging Alongside Considerably Improved Planning Tools Represents a No-Regrets Solution Set to Support Charging Infrastructure Deployment Goals.
 - ALM and DER-Paired Charging Offers an Invaluable “Relief Valve” for Mounting Energization Timeline Delays, Which EVSE Deployment and Grid Evaluation (“EDGE”) Results Indicate May Otherwise Worsen
 - Recommended Actions for the CEC To Advance ALM and DER-Paired Charging
 - The CEC’s EDGE Tool and Other Planning Tools Represent a Crucial and No-Regrets Complement to ALM and DER-Paired Charging

- Addressing Remaining Barriers to Widespread VGI is Crucial for California’s Charger Deployment Goals.
 - The Draft AB 2127 Report Accurately Identifies VGI as a Key Area for Emphasis Moving Forward
 - A Variety of Compensation Mechanisms Should be Advanced to Capture Different VGI Use Cases
 - Specifically, the CEC Should Promote Expanded Bidirectional Vehicle-to-Everything (“V2X”) Charging Participation in its Emerging DSGS Program.
 - Incremental Funding for VGI Products, Namely Bidirectional Charging Equipment and DER-Paired Charging, Should Be Provided Through the CEC’s Existing Funding Mechanisms
 - Establish a Bidirectional Charging Capacity Target
 - Additional VGI Potential Can Be Unlocked Through Vehicle Telematics and Low-Cost Isolation Technologies
 - The CEC Should Continue Its Efforts to Align Technical Standards Expectations with Regulatory Requirements

II. California’s Ambitious Clean Energy Goals Demand a Charging Infrastructure Deployment Strategy that Prioritizes Solar Charging and Bidirectional Charging to Appropriately Balance the Needs of the Electric Grid.

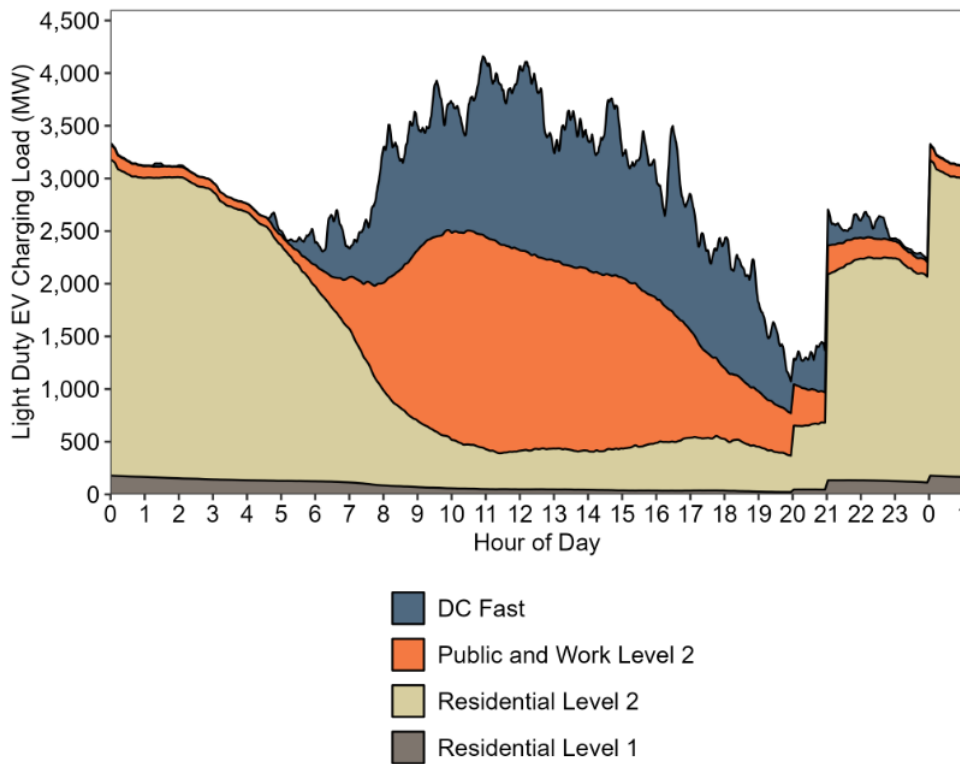
A. The Importance of Balancing Transportation and Electric Sector Goals

The California Air Resources Board’s Advanced Clean Cars II (“ACC II”), Advanced Clean Trucks (“ACT”), and Advanced Clean Fleets (“ACF”) regulations together establish an immense driving force toward rapid transportation electrification across the state between now and 2035. Over this same period of rapid transformation, California’s electric power sector will undergo an equally herculean shift in its resource portfolio and real-time grid coordination demands. If the CEC wishes to support either of these transitions and, ideally, *both* effectively, VGIC believes the respective planning efforts – exemplified in the Draft AB 2127 Report for the transportation sector and the Senate Bill 100 (“SB 100”) Report for the power sector – must be closely coordinated. With this in mind, VGIC strongly supports the CEC’s notion that **“coordinated investments in the grid and charging infrastructure [including bidirectional charging] will support charging and community needs locally and statewide,”** and recommends the Commission adopt this statement with an additional

emphasis on bidirectional charging as noted in the brackets above as a guiding principle for charging infrastructure deployment.¹

In pursuit of this increased coordination, the CEC should prioritize infrastructure investments in public and workplace Level 2 charging and other daytime charging sites, as demonstrated in the Draft AB 2127 Report’s Figure 2 below.² Combined with bidirectional charging, daytime solar energy production can be sent back to buildings and the grid in the early evening during the challenging net peak hours that utilities face. Furthermore, bidirectional vehicles with V2X technology can help manage the ramping of conventional generation resources when the solar resource declines in the late afternoon hours. In essence, V2G is the ideal asset class to address California’s worsening “duck” curve challenge.³

Figure 2: Projected Statewide Power for Light-Duty Vehicle Charging for 7.1 Million Zero-Emission Vehicles on a Typical 2030 Weekday



¹ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 44.

² California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 5.

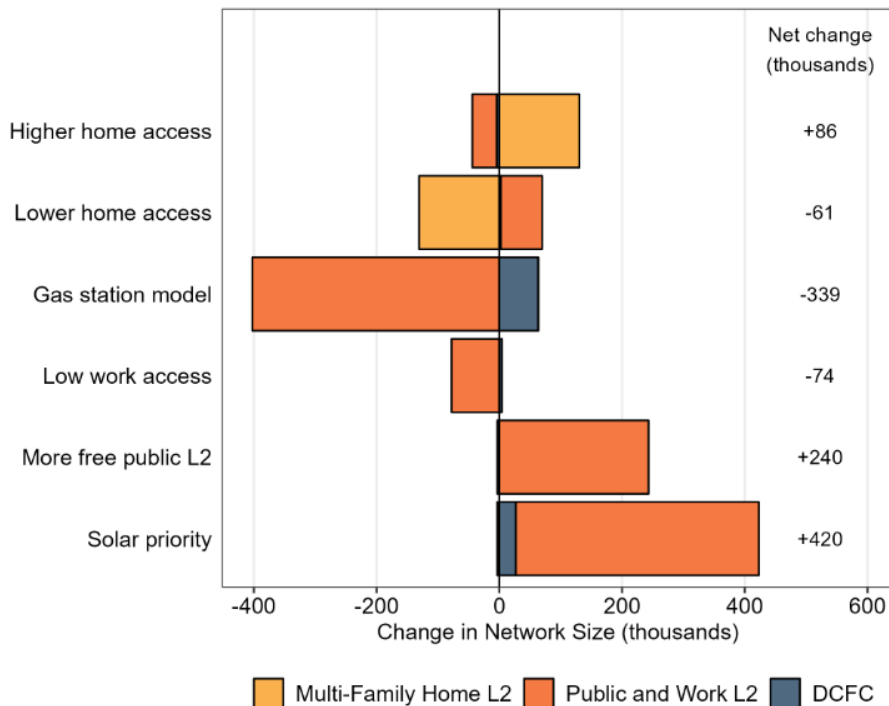
³ See Center for Community Energy V2X as a Solution to the Duck Curve available at https://drive.google.com/file/d/10gOZIQqN52_16esR5I5ywjUERYB6BP-5/view?usp=sharing.

This recommendation emerges as a recurring theme throughout the Draft AB 2127 Report, which in discussing the light-duty vehicle segment further suggests, “As PEVs make up a larger share of light-duty vehicles on the road, it will be increasingly important to focus charging investments in the areas that are most grid-friendly and cost-effective while ensuring that the transition to PEVs is equitable and convenient for drivers.”⁴

B. Promoting Investments that Leverage Excess Clean Energy Generation Balances Equity Goals, Grid Needs, and Deployment Cost

The Draft AB 2127 Report duly contemplates various alternative future scenarios, including *higher home access, lower home access, gas station model, low work access, more free public L2, and solar priority*. The resulting charger counts displayed in the Draft AB 2127 Report’s Figure 21 below offer significant implications for California’s transportation electrification and SB 100 clean energy transition goals, including the total cost and the pace at which California can achieve its goals.⁵

Figure 21: Difference in 2030 Charger Counts Between Alternative Future Scenarios and Baseline Scenario



⁴ California Energy Commission, *AB 2127 EV Charging infrastructure Second Assessment Draft Report*, pg. 47.

⁵ California Energy Commission, *AB 2127 EV Charging infrastructure Second Assessment Draft Report*, pg. 50.

VGIC respectfully urges the CEC to pursue charging infrastructure investments that facilitate increased charging from solar and other clean energy resources. Furthermore, VGIC recommends that the CEC establish ambitious state goals for installing bidirectional EV chargers.⁶ This would support an optimal balance of clean transportation and energy goals, aligning with CARB’s ACC II, ACT, and ACF regulations and SB 100 goals.

During the September 7th Draft AB 2127 Report workshop, stakeholders noted that a higher Direct Current Fast Charger (“DCFC”) count relative to the baseline, as detailed in the *solar priority* and *gas station model* scenarios, could support equitable charging access for renters and other Californians who may not have long-dwell Level 2 charging at home or work. The *solar priority* scenario appears to result in significantly lower DCFC deployment and higher Level 2 charging than the *gas station model*. While detailed charger counts for each scenario are presented in Draft AB 2127 Report: Appendix E, the overall cost impacts of each change are unclear at this time. On one hand, the *gas station model* would require the deployment of significantly greater DCFC, which cost more than Level 2 chargers. On the other hand, the *solar priority* scenario results in less DCFC but far more Level 2. Given these tradeoffs, VGIC posits the overall costs may be similar for either scenario.

The CEC’s ongoing efforts to advance load management and demand flexibility will be inherently limited by the charging infrastructure decisions made today, as automated response to dynamic price signals, for example, can only be utilized to absorb excess renewable energy generation if EVs have chargers available where they are parked. Lastly, selecting scenarios that emphasize charging from clean energy would maximize solar resources and mitigate the need to extend the life of existing natural gas peaking plants and other fossil fuel electric generation resources, typically sited in disadvantaged communities. In this way, promoting charging from clean energy will accelerate progress toward California’s critical equity and environmental justice goals.

⁶ In 2013, the California Public Utilities Commission issued Decision 13-10-040, which set an energy storage procurement target of 1,325 MW, spurring the now-burgeoning stationary energy storage market (the largest in the U.S.). VGIC recommends the CEC work with other state agencies to establish a “Bidirectional Charger Deployment Goal” to repeat the same success achieved 10 years ago with stationary energy storage.

Bidirectional charging will also reduce the need for stationary storage and the associated costs that are anticipated to be needed to manage the variability of solar production. Given that battery suppliers appear to prioritize the needs of the EV industry over the stationary storage segment due to the much larger volumes, investments in bidirectional charging can hedge against potential supply chain and other stationary storage deployment delays.

VGIC strongly urges the Commission to strike this appropriate balance of charging infrastructure deployment and clean energy goals to achieve California’s ambitious climate and environmental justice goals. Moreover, by promoting charging from clean energy, the CEC can best support its Draft AB 2127 Report Conclusion’s “key areas for emphasis” #2 and #7 related to creating an inclusive charging experience and meeting the state’s greenhouse gas emissions goals. The CEC has before it a defining opportunity to showcase national and global leadership by promoting charging from clean energy and deploying bidirectional charging equipment to a much greater extent.

III. Promoting Automated Load Management (“ALM”) and Distributed Energy Resource (“DER”) Paired Charging Alongside Considerably Improved Planning Tools Represents a No-Regrets Solution Set to Support Charging Infrastructure Deployment Goals.

A. ALM and DER-Paired Charging Offers an Invaluable “Relief Valve” for Mounting Energization Timeline Delays, Which EVSE Deployment and Grid Evaluation (“EDGE”) Results Indicate May Otherwise Worsen

ALM and DER-paired charging solutions can accelerate charger connection timelines and limit the overall cost impacts of widespread EV infrastructure deployment. These technologies are used today throughout California for these purposes, as detailed in the Draft AB 2127 Report’s Chapter 6.⁷ The report discussion on VGI overall represents a clear and thorough description of its role today and in the future. However, *VGI Advancement 3: Site-Level Electrical Readiness*, is unquestionably the most detailed, accurate, and thoughtful description of ALM and DER-paired charging appearing in any state document to date, and

⁷ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 84.

VGIC commends the CEC staff's attention to a solution set that is long overdue to be formally supported by the state of California.

Considering the pressing need for additional charging infrastructure driven by ACC II, ACT, and ACF and detailed extensively in the Draft AB 2127 Report, ALM and DER-paired charging represents a solution set that can provide a “relief valve” on both cost and timeline pressures. The CEC’s EDGE modeling results indicate that about 13% of the modeled circuit capacity may be overloaded by EV charging peak load by 2025.⁸ Given the historically long lead times associated with major circuit capacity upgrades, VGIC strongly recommends prioritizing ALM and DER-paired charging as near-term solutions to address this 13% EDGE gap and as a long-term strategy for accelerating charger deployment at the fastest speed and lowest cost. The Draft AB 2127 Report accurately shares this conclusion. It arguably even understates its importance, stating that “both ALM and DER-integrated charging will be crucial in the near term as California faces grid component supply shortages and may support an accelerated energization timelines for sites that would otherwise need capacity upgrades.”⁹

B. Recommended Actions for the CEC To Advance ALM and DER-Paired Charging

Beyond acknowledging the importance of ALM and DER-paired charging and incorporating the solutions within the Draft AB 2127 Report, the CEC has a critical role to play in advancing the use of ALM and DER-paired charging. VGIC recommends the following actions for the CEC related to ALM and DER-paired charging:

1. **Funding Deployment.** The CEC should consider how to best support ALM and DER-paired charging solutions through its existing CALeVIP, Communities in Charge, and EnergiIZE block grant rebate programs, its emerging portfolio of clean energy reliability programs including the Distributed Energy Backup Assets and Demand Side Grid Support programs, its Research & Development funding, including EPIC 4 and the

⁸ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 64.

⁹ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 84.

upcoming EPIC 5, and through remaining clean transportation program funding for both light- and medium/heavy-duty vehicle segments.

2. **Streamlining Implementation.** The CEC can contribute to the development of blueprints and frameworks to streamline the utilization of ALM and DER-paired solutions that are currently mired in a lack of clear, consistent utility connection rules and requirements.
3. **Leading California’s State Agencies.** VGIC recommends the CEC educate the California Public Utilities Commission, California Building Standards Commission, Governor’s Office of Business Development, and other key agencies on the importance of enabling ALM and DER-paired charging.
4. **Convening Stakeholders.** The Commission should host stakeholder workshops to further discuss ALM and DER-paired charging, its implications for the charger deployment goals identified in the Draft AB 2127 Report, and key remaining barriers to widespread use.
5. **Improve Planning Tools.** As detailed below in Section III.C, the CEC should seek to expand the EDGE tool to include more geospatially granular data, which will support ALM and DER-paired charging deployment.

VGIC believes each of these steps are necessary to advance ALM and DER-paired charging and offers itself as a resource to support the CEC and other stakeholders in executing an infrastructure deployment future that maximizes the use of ALM and DER-paired charging in pursuit of a reliable, affordable, and clean charging statewide network.

C. The CEC’s EDGE Tool and Other Planning Tools Represent a Crucial and No-Regrets Complement to ALM and DER-Paired Charging

VGIC appreciates the CEC staff’s efforts in developing the EDGE tool and is encouraged by the detailed results shared in the Draft AB 2127 Report. As detailed in the report, the CEC aims to launch the EDGE tool later this year fully and is already considering enhancements and refinements to the tool. One such improvement is using “more geospatially granular information... to give users the ability to assess particular sites where

they may be interested in deploying charging infrastructure.”¹⁰ VGIC supports this recommended improvement and respectfully requests the CEC’s EDGE tool be expanded to include secondary distribution data. Given the limitations of Integrated Capacity Analysis (“ICA”) data detailed in the report, VGIC questions whether any third-party partnerships, for example with an academic institution, national laboratory, technical consultant, or other third-party entity, could be helpful in developing a methodology and collecting data to model these constraints without having access to investor-owned utilities’ static ICA data.

Alternatively, the CEC could partner with the California Public Utilities Commission and investor-owned utilities to explore updates to the ICA maps to make them more dynamic.

By promoting ALM and DER-paired charging and improving planning tools such as the EDGE model align, the CEC can closely align its practices with the Draft AB 2127 Report Conclusion’s “key areas for emphasis” #5, #6, and #7 related to ALM, high-powered charging, and grid capacity analysis.

IV. Addressing Remaining Barriers to Widespread VGI is Crucial for California’s Charger Deployment Goals.

A. The Draft AB 2127 Report Accurately Identifies VGI as a Key Area for Emphasis Moving Forward

The Draft AB 2127 Report appropriately concludes that a “key area for emphasis” is to:

“Leverage VGI technologies to manage charging in ways that benefit consumers and move charging to times when there’s excess capacity on the grid and the cleanest possible energy. While vehicle charging makes up a small fraction of California energy usage today, the rapid increase in ZEV adoption required by new regulations will increase the amount of grid capacity needed.”¹¹

Moreover, the CEC details the many strategies that make up “A Framework for Widespread VGI” in Chapter 6, highlighting (1) compensation structures, (2) customer products and services, (3) site-level electrical readiness, (4) EV and grid planning processes, and (5) customer ease, confidence, and enrollment as key elements. VGIC supports this

¹⁰ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 67.

¹¹ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 99.

categorization and reiterates its appreciation for CEC staff and Commissioners in explicitly prioritizing VGI strategies that are critical to the success of California’s clean transportation and energy goals. VGIC offers key recommendations for the Commission’s consideration beyond the Draft AB 2127 Report, and looks forward to further collaboration with the CEC and other stakeholders to make meaningful progress in developing the VGI market.

B. A Variety of Compensation Mechanisms Should be Advanced to Capture Different VGI Use Cases

VGIC supports advancing both dynamic rate design and access as required by the CEC’s Load Management Standard and envisioned in the California Public Utilities Commission (“CPUC”) Energy Division staff’s CalFUSE proposal and use of “nonrate compensation programs,” as identified in the Draft AB 2127 Report as an effective VGI strategy.¹² Regarding rates, time-varying price signals can offer customers opportunities to optimize EV charging and discharging behavior to align with system level needs like peak reduction or charging from clean energy, saving money for EV customers, supporting renewable energy integration, and reducing total system costs. Regarding nonrate compensation programs, the 2019-2020 Joint Agency VGI Working Group detailed hundreds of “VGI Use Cases,” indicating a need for a variety of approaches to compensating VGI rather than relying solely on rate design.¹³ For example, it is unclear exactly how dynamic rates can effectively capture distribution value for EV charging and coordinate charging at the circuit-level, seeing as all customers on a single circuit may be responding to the same local price signal, which may disrupt the potential charging cost savings or, in the case of export, may overload local circuits. Additionally, the distribution grid changes uniquely fast due to both customer- and utility-side decisions made on any given circuit. Suppose these changes are reflected in local, circuit-specific distribution pricing. In that case, it can make VGI investment decisions a challenging and uncertain prospect. In contrast, well-designed programs can provide a greater level of certainty to encourage customer investments in VGI technologies.

¹² California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 74.

¹³ California Public Utilities Commission. 2020. *Final Report of the California Joint Agencies Vehicle-Grid Integration Working Group*, <https://gridworks.org/wp-content/uploads/2020/07/VGI-Working-Group-Final-Report-6.30.20.pdf>.

California is home to several new but relatively small-scale managed charging programs that promote single EV demand flexibility value streams by nonrate means, including Pacific Gas & Electric’s (“PG&E”) evPulse, Sacramento Municipal Utility District’s (“SMUD”) Managed Charging Program, PG&E’s ChargeForward Pilot, the Emergency Load Reduction Program (“ELRP”), and the CEC’s emerging Demand Side Grid Support Program (“DSGS”). In contrast, Xcel Colorado’s Charging Perks program, for example, is slated to be scaled to thousands of vehicles and aims to capture more than one VGI value stream.

With this in mind, VGIC recommends the CEC, in coordination with the CPUC, continue to support VGI through both rate design (i.e., Load Management Standards, MIDAS platform development, and associated efforts) and nonrate compensation programs (i.e., DSGS). The CEC should also, in coordination with the CPUC, promote “stacking” across different participation options such that more than one value (i.e., system peak reduction, local distribution optimization, clean energy integration) can be captured at any given time, which can support the rapid deployment of managed charging, bidirectional charging, and DER-paired charging solutions.

C. Specifically, the CEC Should Promote Expanded Bidirectional Vehicle-to-Everything (“V2X”) Charging Participation in its Emerging DSGS Program.

As identified in Chapter 6, the CEC’s recently launched DSGS Program provides a similar level of incentives to the ELRP.¹⁴ VGIC commends the CEC for the rapid development of the DSGS and the ongoing program updates being considered. As the program continues to evolve, VGIC strongly urges the CEC take steps to expand EV participation in DSGS. This could include opening Option 3 to bidirectional V2X resources or creating a new VGI-specific “Option 4,” similar to how the CPUC updated its ELRP program to establish customer subgroup A.5: EV/VGI Aggregations. One compelling feature of ELRP Subgroup A.5 that can attract V2X investment to the space is the 30-hour minimum dispatch provision for VGI aggregations. The CEC should also consider creating an interconnection exemption to allow bidirectional chargers that are not UL 1741-SA or UL

¹⁴ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 76.

1741-SB certified to interconnect and participate in the DSGS program, as the CPUC adopted in its ELRP decision for Subgroup A.5 participants.

In the nascent but fast-expanding V2X bidirectional charging market, California is competing nationally against other states for VGI leadership and to attract investment so the potential of V2X can be unlocked. Other states in the northeast, including Massachusetts and New York, offer compelling V2G export opportunities, which may direct private investment toward these other markets over California. If California intends to maintain its leadership in this space, the CEC should take bold action to bolster compensation for V2G resources through its DSGS and other programs.

D. Incremental Funding for VGI Products, Namely Bidirectional Charging Equipment and DER-Paired Charging, Should Be Provided Through the CEC's Existing Funding Mechanisms

As noted in the Draft AB 2127 Report, VGI products and services “are in an early stage of commercialization stage and have seen limited deployment to date.”¹⁵ Specifically, bidirectional charging solutions and DER-paired charging, which typically demand a higher upfront investment than unidirectional and standalone equivalents, exist in a state of relatively nascent deployment. Additionally, some VGI equipment, for example, low-power DC Vehicle-to-Grid (“V2G”) EV supply equipment (“EVSE”) exists within a funding gap unaddressed by utility make-ready and other EV charging infrastructure programs.

VGIC therefore strongly supports the Draft AB 2127 Report notion that increased rebate amounts for bidirectional chargers be included in rebate block programs such as EnergiIZE.¹⁶ Moreover, VGIC recommends that low-power bidirectional DC chargers be supported in CEC-funded programs, such as CALeVIP, and that DER-paired charging also be considered for increased rebate amounts. Offsetting these upfront costs can support initial deployment and yield benefits throughout the asset's lifetime that may outweigh the initial cost support needed.

¹⁵ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 74.

¹⁶ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 78-79.

E. Establish a Bidirectional Charging Capacity Target

As noted throughout these comments, bidirectional charging can play a critical role in shifting solar daytime production to the net peak hours and thus save all ratepayers money while also minimizing the inefficient ramping of conventional generation resources. The market for V2G charging equipment requires a strong signal of commitment to bidirectional charging by state regulators. VGIC recommends that the state establish a goal for the installation of bidirectional EV chargers. As an example, a goal of 3 GW of charging capacity to be deployed in California by 2030 and 10 GW by 2040 could be considered. The various state agencies and grid stakeholders (CPUC, CARB, CEC, CAISO and the Governor’s Office of Business and Economic Development) should be directed to help achieve the goal. Additionally, given the home, site, and microgrid resiliency benefits that bidirectional charging provides, disadvantaged communities should be prioritized within this goal.

F. Additional VGI Potential Can Be Unlocked Through Vehicle Telematics and Low-Cost Isolation Technologies

The Draft AB 2127 Report considers that many home chargers are “nonnetworked” and, therefore, may not be able to participate in load management opportunities.¹⁷ However, modern vehicles are networked, as Chapter 6 details, and the CEC should detail its plans to enable these capabilities. For example, the CEC can ensure that DSGS participation options are available and marketed to automakers and third-party telematics providers measuring response to grid emergencies using telematics data.

Moreover, as CEC works to expand its “Framework for Widespread VGI,” VGIC posits that any VGI strategy is incomplete without either the presence of telematics programs within a broader portfolio of VGI programs, or an action plan detailing how to enable telematics-based managed charging within existing programs, for example as a category for DSGS.

¹⁷ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 82.

While Chapter 6 provides careful coverage of telematics generally, VGIC respectfully requests that the report be revised to more accurately capture the current state of technological capabilities. VGIC recommends the following revisions based on the proven capabilities of several VGIC members:

“The telematics approach may be less useful for enabling VGI away from home, as telematics systems **currently have limited** ~~lack the ability to coordinate with local site controllers (for example, automated load management systems) and likely do not have~~ **limited** access to relevant grid signals at every location visited by the vehicle”¹⁸

Lastly, additional VGI potential can be unlocked by promoting low-cost electrical isolation mechanisms. For example, meter-socket-based solutions are identified in the Draft AB 2127 Report within the context of site-level electrical readiness,¹⁹ but should also be considered as a safe, low-cost alternative to automated transfer switches. VGIC recommends the CEC work to streamline the acceptance of these devices in California, whether through streamlined utility testing and approval or incremental funding opportunities, to deploy more islanding vehicle-to-home or vehicle-to-building backup power solutions.

G. The CEC Should Continue Its Efforts to Align Technical Standards Expectations with Regulatory Requirements

The CEC, through its partnership with Elaad NL, has played an important role in convening stakeholders for important educational opportunities related to charging standards. VGIC recommends the CEC coordinate with key standards development organizations, including IEEE, SAE, UL, and/or IEC/ISO to align standards expectations with regulatory requirements. For example, successful outcomes related to key VGI objectives like resource aggregation, bidirectional charging, ALM and DER-paired charging, and islanding EV charging microgrids may benefit from increased CEC involvement, to the extent this is feasible and appropriate for a state agency.

V. Conclusion

¹⁸ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 82.

¹⁹ California Energy Commission, *AB 2127 EV Charging Infrastructure Second Assessment Draft Report*, pg. 83.

September 20, 2023



VGIC appreciates the leadership of the CEC in addressing VGI within its Draft AB 2127 Report, and we look forward to further collaboration with the CEC and other stakeholders on this important initiative.

Respectfully submitted,

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