

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

Application of Pacific Gas and Electric
Company for Approval of its Electric
Vehicle Charge 2 Program. (U39E)

Application 21-10-010
(Filed October 26, 2021)

OPENING BRIEF OF THE VEHICLE-GRID INTEGRATION COUNCIL

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August 24, 2022

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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”) ¹ hereby submits this opening brief in the *Application of Pacific Gas and Electric Company for Approval of its Electric Vehicle Charge 2 Program. (U39E)* (“Application”) pursuant to *Email Ruling Setting Dates for Status Conference and Evidentiary Hearing and Providing General Guidance and Instructions in Advance of Remote Hearing* (“Ruling”) issued by Administrative Law Judge (“ALJ”) Brian Korpics on May 24, 2022.

I. INTRODUCTION.

VGIC is excited to see Pacific Gas and Electric (“PG&E”) continue the work on the deployment of infrastructure to support the growing number of electric vehicles (“EV”) in California being adopted by customers to support our climate goals. PG&E began this work with its EV Charge Network (“EVCN”) and EV Fast Charge programs and proposes to continue to deploy make-ready infrastructure in EV Charge 2 (“EVC 2”), the subject of this application.

¹ VGIC member companies and supporters include American Honda Motor Co., Inc., dcbel, Enel X North America, Inc., ENGIE NA, Fermata Energy, FlexCharging, FLO EV Charging, Ford Motor Company, FreeWire Technologies, Inc., General Motors Company, Kaluza, Nissan Group of North America, Nuvve Holding Corporation, Sacramento Municipal Utility District, Stellantis N.V., Sunrun, Switch EV Ltd, The Mobility House, Toyota Motor North America, Inc., Veloce Energy, Inc., Wallbox USA Inc., and WeaveGrid. The views expressed in these Comments are those of VGIC, and do not necessarily reflect the views of all individual VGIC member companies or supporters. (<https://www.vgicouncil.org/>)

Overall, VGIC supports PG&E’s EVC 2 proposal to provide incentives to support make-ready infrastructure behind the meter (“BTM”) and electric vehicle supply equipment (“EVSE”) to enable widespread adoption of EVs and transportation electrification (“TE”), especially in AB 841 underserved communities.

Throughout this proceeding, VGIC has been focused on unlocking maximum grid and ratepayer benefits in this program by advancing vehicle-grid integration (“VGI”) strategies, particularly Automated Load Management (“ALM”), a tool used to control and optimize EV charging across multiple EV chargers at a given site. ALM is typically used to minimize costs during installation and operations. In this proceeding, PG&E and many parties have raised the benefits of ALM, especially concerning ratepayer savings. These savings are \$115,000 on average per site² and could total over \$2 billion across all sites by 2030.³ ALM should be encouraged across the EVC2 program as a tool that can provide ratepayer savings during a time when electric rate affordability is top of mind.

Moreover, ALM can accelerate deployment timelines by deferring or avoiding the need for grid upgrades.⁴ As clarified by PG&E⁵ and supported by parties,⁶ a variety of PG&E-owned and third-party ALM solutions should be a part of EVC 2. To advance the adoption of ALM, VGIC offers the following recommendations:

² VGIC-01 Appendix B

³ See VGIC-01 at p.5, lines 5-9, VGIC-01 Appendix B.

⁴ See VGIC-01 at p.4, lines 5-17 and p.5, lines 1-2.

⁵ PG&E-03 at p.57, lines 22-23: “PG&E does not intend to implement or administer any ALM solutions on customer-owned EVSE”

⁶ TSLA-02 at p.2, lines 11-12: “I agree with VGIC’s recommendation to provide customers the option to select third-party ALM options”

EA-02 at p.5, lines 21-13: “BTM battery storage [...] should be qualified as an ALM measure”

- Energy storage and other solutions that reduce infrastructure costs should be considered as Automated load Management tools in EVC 2
- ALM to-the-meter (“TTM”) cost savings should be shared with participants to encourage ALM adoption

II. ENERGY STORAGE AND OTHER SOLUTIONS THAT REDUCE INFRASTRUCTURE COSTS SHOULD BE CONSIDERED AUTOMATED LOAD MANAGEMENT TOOLS IN EVC 2.

Currently, PG&E defines ALM as a tool used to “share available electrical capacity among charging stations *to avoid the installation cost of additional electrical capacity*” (*emphasis added*).⁷ ALM is typically thought of as software-based solutions that help to regulate the current being drawn by EVSE by allocating power among different EVSE through load management schemes or by staggering EVSE charging over time. VGIC acknowledges that software-based solutions are an essential ALM tool that customers should leverage where appropriate.

At the same time, not every charging scheme is created equal, and customer charging experience is crucial to consider ensuring that investments made in EV infrastructure are used and useful for EV drivers. Direct-current fast charging (“DCFC”) remains a popular option for charging EVs, particularly in public charging stations and certain fleet depots. Multiple parties have raised concerns that applying ALM solutions that limit charging speed “would not benefit drivers in need of DCFC on demand or promote a positive customer experience that would aid in EV adoption.”⁸

However, software-based ALM is not the only way of reducing the maximum power capacity required by a charging station and, in turn, accelerating deployment and reducing per-site

⁷ PG&E-01 at p.5-2, lines 2-3.

⁸ EVgo-01 at p.8, lines 21-22.

costs. Behind-the-meter (“BTM”) stationary energy storage solutions (“ESS”) can reduce charging station peak load to avoid utility upgrades by “enabl[ing] drivers to avoid using energy from the grid, effectively functioning as an inherent load management plan without impacting the driver’s charging experience.”⁹ A current example from FreeWire’s current deployments shows how BTM ESS is already being used to increase charger output without drawing additional power from the grid or increasing make-ready infrastructure costs.¹⁰ Additionally, customer demand for EV charging, particularly DCFC, is relatively inelastic, and “[time-of-use (“TOU”)] pricing is not likely to deter an EV driver who needs to recharge, notwithstanding the time of day or price,”¹¹ which results in additional upgrades to meet that demand. Even if higher peak TOU pricing helps to recover higher costs, the avoidance of upgrades and minimization of total installation costs still represents a more cost-effective solution for PG&E ratepayers, while the installation of energy storage helps a charging station become a more flexible load or even a source of exports to support the grid during times of stress. Ultimately, the goal of ALM is to reduce electric infrastructure upgrades that increase costs for ratepayers while accelerating EVSE deployment in pursuit of California’s TE goals. If BTM ESS or other hardware solutions can reduce ratepayer costs by managing power drawn from the grid, they should be accepted and promoted as an ALM or load management solution in EVC 2.

⁹ FW-01 at p.14,

¹⁰ FW-01 at 8, lines 2-8: “One 150kW FreeWire DCFC, called the Boost Charger™, can connect to the grid at low-input 208/240V power, drawing no more than 27kW from the grid, and yet can provide up to 150kW to one vehicle or up to 75 kW to two vehicles charging simultaneously. A single legacy 50kW DCFC could be replaced with two Boost Chargers™ using a step-down transformer, changing the station from a 1-plug rather slow fast charger to a 4-port charger with 50%-150% more output per port without any additional make-ready infrastructure.”

¹¹ EA-02 at p.5, lines 18-19.

III. TO-THE-METER COST SAVINGS FROM AUTOMATED LOAD MANAGEMENT SHOULD BE SHARED WITH PARTICIPANTS TO ENCOURAGE ALM ADOPTION.

ALM reduces customer costs in EVC 2 by providing savings on BTM infrastructure investments, such as electric panel upgrades, switchgear, and other equipment or upgrades needed to provide EV charging service. At the same time, ALM has the potential to provide significant savings to ratepayers by reducing to-the-meter (“TTM”) costs covered by PG&E according to Rule 29. VGIC believes a portion of the total TTM cost savings resulting from ALM should be offered to customers to incentivize grid-beneficial ALM adoption.

PG&E’s Electric Rule 29 was established in 2021 pursuant to Assembly Bill (“AB”) 841 (Ting, 2020) to “describe eligibility, installation, ownership and maintenance responsibilities, and cost allocation for certain electric vehicle distribution infrastructure.”¹² AB 841 was designed to provide equal footing to upgrades provided for EV charging/load growth compared to other sources of load. Under Rule 29, PG&E is responsible for the costs of TTM infrastructure triggered by the installation of EV infrastructure, *e.g.*, transformer upgrades, substation upgrades, and other network upgrades on the PG&E side of the meter. Depending on the nature of the network upgrade, TTM upgrade costs can be hundreds of thousands of dollars and ten times the costs of BTM make-ready upgrades.¹³

Under EVC 2, customers would receive a share of the BTM cost savings from ALM. However, there is no mechanism within EVC 2, Rule 29, or any other TE program or rule to fairly compensate customers for the *TTM* cost savings that result from customer decisions to elect ALM

¹² PG&E Advice Letter 6102-E at 2.

¹³ See VGIC-01 at p.12-13, where ALM may provide \$25,000 of cost-savings on BTM make-ready infrastructure on a site of 10 chargers, \$100,000 could be saved from ALM due to the deferral of distribution network upgrades.

solutions. VGIC recommends the Commission direct EVC 2 or another existing or new TE program, rule, rebate, or tariff to offer customers a \$/kW rebate amount for reducing TTM upgrades below aggregate nameplate charger capacity at a site. TTM make-ready cost data and total charger kW deployed are published in the EV Load Research Report.¹⁴ This data can be used to find an average TTM \$/kW value of ALM and, in turn, can provide the basis for a \$/kW incentive applied to each kW an ALM approach reduces below aggregate nameplate capacity at a site. Notably, this is a “carrot” rather than “stick” approach to promoting ALM, similar to the EVC 2 methodology for BTM ALM cost savings. Ensuring ALM is an option for customers to choose from – and not a requirement – is an important design element of successful ALM implementation.

IV. BIDIRECTIONAL EV SUPPLY EQUIPMENT NOT INSTALLED ON A SEPARATE SERVICE DROP SHOULD BE ELIGIBLE FOR MAKE-READY FUNDING.

Bidirectional charging equipment is a critical tool to unlock:

- Customer and community resilience by providing clean, low-cost backup power solutions
- Customer bill management opportunities by discharging from a vehicle to meet site load, performing energy arbitrage or demand charge management
- Revenue generation for customers and support for grid reliability and renewable energy integration through vehicle-to-grid (“V2G”) exports. Customers can currently participate in the ELRP EV/VGI Aggregation pathway and PG&E’s V2G Pilots. Additionally, VGIC is hopeful that PG&E’s pending Day-Ahead Hourly Real Time Pricing (“DAHRTP”) V2G export compensation mechanism settlement will be approved by the Commission, which would provide a compelling year-round V2G

¹⁴ Joint IOU Electric Vehicle Load Research and Charging Infrastructure Cost Report: 10th Report Filed on March 21, 2022. Pg 120, Attachment 1 Table 2; Attachment 2 Table 2; Attachment 3 Table 2. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M464/K783/464783120.PDF>

export opportunity for commercial customers as early as October 2023.¹⁵ Lastly, SDG&E’s anticipated Real-Time Pricing Import/Export Rate¹⁶ and the CPUC staff’s proposed CalFUSE concept¹⁷ may provide additional future opportunities for export compensation.

For the backup power and customer bill management use cases, EV load must be comingled with site load rather than placed on a separate meter. VGIC believes these use cases must be supported through EVC 2 and other make-ready funding programs. Make-ready support is needed to offset the higher upfront costs of bidirectional charging systems relative to unidirectional chargers. As such, VGIC recommends EVC 2 be modified to offer make-ready support for bidirectional EVSE placed on an existing service and meter. Alternatively, if EVC 2 rebate eligibility remains limited to separate service drops, VGIC recommends that EVC 2 consider how to “net” the bidirectional EVSE with the on-site building meter. This method of “virtual aggregation” is used for electrically contiguous sites in PG&E’s Emergency Load Reduction Program.¹⁸ By netting out the load from the EVSE and the load of the site meter, PG&E can simulate a BTM installation where the EVSE would actually offset the building load. This would

¹⁵ *Joint Motion of Public Advocates Office, VGIC, Electrify America, and PG&E for Adoption of Joint Settlement Agreement in PG&E’s DAHRTP Commercial EV Proceeding on Non-NEM Export Compensation Pilot.* June 17, 2022. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M488/K538/488538216.PDF>

¹⁶ *Administrative Law Judge’s Ruling Regarding Staff Recommendations and Workshop and Attachment A: Staff Recommendations.* June 15, 2022. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K625/485625918.PDF> and <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M485/K564/485564404.PDF>

¹⁷ *Advanced Strategies for Demand Flexibility Management and Customer DER Compensation.* June 22, 2022. <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/demand-response/demand-response-workshops/advanced-der---demand-flexibility-management/ed-white-paper---advanced-strategies-for-demand-flexibility-management.pdf>

¹⁸ PG&E. *Emergency Load Reduction Program (ELRP) Pilot Group A Terms and Conditions Pursuant to California Public Utilities Commission Decision 21-03-056, 21-06-027, and 21-12-015.* January 31, 2022. <https://elrp.olivineinc.com/wp-content/uploads/sites/5/2022/05/ELRP-Group-A-Terms-and-Conditions.pdf>. Pg 10.

allow separately-metered bidirectional EVSE users to discharge a parked EV during their building demand peaks, providing significant electricity bill management value.

V. **CONCLUSION.**

VGIC appreciates the opportunity to submit this brief. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,



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Date: August 24, 2022