BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Advance Demand Flexibility Through Electric Rates.	Rulemaking 22-07-005 (Filed July 14, 2022)

COMMENTS OF THE VEHICLE-GRID INTEGRATION COUNCIL ON PROPOSED DECISION ON TRACK B STAFF PROPOSAL TO EXPAND EXISTING PILOTS

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission") and the email ruling extending comment deadline issued by Administrative Law Judge ("ALJ") Stephanie Wang on December 22, 2023, the Vehicle-Grid Integration Council ("VGIC") hereby submits these comments on *Proposed Decision to Expand System Reliability Pilots of Pacific Gas and Electric Company and Southern California Edison Company* ("PD").

I. INTRODUCTION.

VGIC appreciates the efforts of the Commission, Energy Division ("ED") staff, and all stakeholders in working toward advancing demand flexibility rates through the expansion of Pacific Gas and Electric Company's ("PG&E") AgFIT Pilot and Southern California Edison Company's ("SCE") Dynamic Rate Pilot, initially authorized in Decision ("D") 21-12-015 to provide summer reliability benefits.[1] Moreover, VGIC commends the Commission for issuing the PD to expand certain pilots, given that these pilots can support system reliability and help achieve California's clean energy and transportation electrification goals.

[1] D.21-12-015, Phase 2 Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Take Actions to Prepare for Potential Extreme Weather in the Summers of 2022 and 2023. December 2, 2021.

The Commission has proposed to expand customer eligibility for PG&E's AgFIT Pilot to include non-agriculture customers that may have electric vehicle supply equipment ("EVSE"), including EVSE sub-metered systems.[2] The PD would also extend the UL 1741 SB smart inverter exemption for vehicle-to-everything ("V2X") direct current ("DC") EVSE in the expanded pilots, which VGIC strongly supports given the limited availability of bidirectional EVSE. Lastly, the PD proposes to allow dual participation in the expanded pilots and various other programs, including the Emergency Load Reduction Program ("ELRP") Subgroup A. VGIC supports these key provisions, which are necessary steps to capture vehicle-grid integration ("VGI") benefits and promote more electric vehicle ("EV") customer participation in dynamic charging and export rates.

However, while VGIC supports some key provisions of the PD, we offer several critical recommendations that should be considered before finalizing authorization for pilot expansion. It is important to ensure the maximum demand flexibility value from EVs is captured throughout the life of the expanded pilots and, importantly, in the interim as long-term demand flexibility rate guidance is developed.[3] As proposed, the Commission's PD would not provide the appropriate market signals to incentivize EV customers with bidirectional charging capabilities to provide flexible exports when needed most. To achieve this, VGIC recommends the Commission revise the PD to incentivize EV customers to export to the grid in PG&E's Expanded Pilot 2, in addition to SCE's Dynamic Rate Pilot. VGIC offers this and several other recommended enhancements in these comments, summarized below:

- The PD would mistakenly create a critical gap in non-Net Energy Metering ("NEM") export options for PG&E Expanded Pilot 2 participants.

[2] PD at 58-59.

[3] CPUC R.22-07-005. *Assigned Commissioner's Phase 1 Scoping Memo and Ruling*. November 2, 2022. https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M498/K072/498072273.PDF

- The PD correctly enables dual participation in dynamic rates and certain non-rate DR programs, which avoids strategy lock-in, suits the emerging and complex VGI market, and appropriately balances Load Management Standard ("LMS") goals with the established principles of gradualism and simplicity.
- The PD erroneously excludes BEV-1 and BEV-2 customers from PG&E Expanded Pilot 2 eligibility. The PD should be revised to include these customers without allowing dual-enrollment in DAHRTP-CEV or failing to offer non-NEM export compensation.
- The PD correctly applies special provisions to EVSE, including exempting V2G DC EVSE from smart inverter requirements, and the Commission should align other dynamic rates with these provisions.

II. **THE PD WOULD MISTAKENLY CREATE A CRITICAL GAP IN NON-NEM EXPORT OPTIONS FOR PG&E EXPANDED PILOT 2 PARTICIPANTS.**

The PD erroneously excludes a critical component of effective, grid-supportive dynamic rates, as it does not include a non-NEM export option for customers participating in PG&E's Expanded Pilot 2. SCE's Dynamic Rate Pilot targets load shift and distributed energy resource ("DER") exports. Meanwhile, PG&E's Expanded Pilot 2 focuses exclusively on dynamic charging/import rates but presents a clear and significant gap related to non-NEM export compensation. VGIC strongly urges the Commission to incorporate an export component for PG&E Expanded Pilot 2 customers, as non-NEM exports, including vehicle-to-grid ("V2G") exports, can support the grid when needed most. In addition to unlocking real-world export capability, this symmetry can also align SCE and PG&E's pilots along a consistent set of design principles, which can facilitate the long-term evolution of these pilots into self-sustaining, LMS-compliant import/export rates under the *CalFUSE* framework.

Importantly, **the detailed rate design work to enable this non-NEM export opportunity has already been done by PG&E, the Commission, and stakeholders**. PG&E, supported by numerous other parties, detailed their thoughtful proposal in the September 25, 2023 *Comments on ALJ's Ruling on Track B Staff Proposal to Expand Existing Pilots* to incorporate a non-NEM export component into PG&E Expanded Pilot 2.[4] Moreover, Resolution E-5192 directs PG&E to establish a "dynamic, marginal cost-based rate" for its VGI pilots that is "bidirectional."[5] PG&E subsequently filed Advice Letter ("AL") 6694-E, which requests approval for a specific bidirectional dynamic import/export rate design to be used, and both the import and export components are based on the existing AgFIT pilot.[6] The design of the dynamic, marginal cost-based bidirectional rate proposed in AL 6694-E is explicitly modeled after the AgFIT pilot since it was already highlighted by the Commission in Resolution E-5192 as a potential best practice.[7] As a result, VGIC believes it is reasonable to authorize non-NEM export credits for PG&E Expanded Pilot 2 participants based on Joint Parties' (including PG&E) September 25, 2023 comments and the proposal found in AL 6694-E, as the underlying rate design is fundamentally based on the AgFIT pilot.

Unlocking the full suite of export capability by including a non-NEM export credit in PG&E's Expanded Pilot 2 is aligned with the underlying need "to ensure that there would be adequate electric power in the event of extreme weather during times of greatest need," which Governor Newsom urged all state energy agencies to do in the Emergency Proclamation issued by the Governor on July 30, 2021 (the same Emergency Proclamation that led to both SCE and

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[4] *See* Comments of GridX, Inc., Polaris Energy Services, Gridtractor Inc., and PG&E (collectively, "Joint Parties") at 19 and Comments of VGIC at 6.

[5] Resolution E-5192 at 20-21.

[6] AL 6694-E at 10.

[7] *See* Resolution E-5192 at 20-21 and AL at 10.

PG&E's dynamic rate pilots).[8] Despite this clear alignment, detailed extensively in September 25, 2023 comments from numerous parties on *ALJ's Ruling on Track B Staff Proposal to Expand Existing Pilots*, the PD discussion mistakenly fails to address the need to promote exports in PG&E Expanded Pilot 2.[9] VGIC is concerned over what appears to be the potential **missed opportunity** for the Commission to tap into the full suite of benefits that EV drivers can offer the grid and create an incentive for investments in bidirectional charging equipment. Allowing dual participation in ELRP and the expanded dynamic charging rates partially addresses this persistent non-NEM export gap. Still, the PD leaves considerable latent energy storage capacity locked away by overlooking the export compensation opportunity within PG&E's Expanded Pilot 2. Lastly, VGIC reiterates that the VGI market, specifically the V2X market, is relatively nascent. To transition the VGI market from early V2G demonstrations and pilots to large scale deployments which can meaningfully benefit grid reliability and provide grid edge energy storage capacity *en masse,* V2X customers would benefit from exposure to a menu of export compensation options in which customers with various duty cycles, dwell times, vehicle battery sizes, charger configurations, and site load characteristics can participate based on their specific needs and internal cost/benefit calculations. The need for a *menu* is well-suited for the diversity of use cases clearly demonstrated by California's effort to list and rank **thousands of VGI use cases** in the Commission's 2019-2020 VGI Working Group, as well as the Smart Inverter Operationalization Working Group's list of prioritized use cases, including Category E for "EVs as DERs."[10] While ELRP, PG&E's VGI

[8] PD at 4.

[9] *See* Comments of GridX, Inc., Polaris Energy Services, Gridtractor Inc., and PG&E (collectively, "Joint Parties") at 19 and Comments of VGIC at 6.

[10] *See* Final Report of the VGI Working Group. https://gridworks.org/2020/09/final-report-of-the-california-joint-agencies-vehicle-grid-integration-vgi-working-group/ and SIOWG Public Information https://verdantassoc.sharepoint.com/sites/siowg/SharedDocuments/Forms/AllItems.aspx?id=%2Fsites%2Fsiowg%2FShared%20Documents%2FSIOWG%20Public%20Information&p=true&ga=1

Pilots, San Diego Gas & Electric's ("SDG&E") Export Compensation Pilot, SCE's Dynamic Charging Pilot, and the California Energy Commission's ("CEC") Demand Side Grid Support program are all such "menu items," it is clear that adding PG&E's Expanded Pilot 2 to the list would help round out the full suite of opportunities from which various customers can choose from based on their needs and particular constraints. This concept of a diverse VGI/demand-side management portfolio is further detailed below in Section III.

With this in mind, **VGIC strongly recommends the Commission revise the PD to include an export option for all EV customers to (1) create consistency across PG&E and SCE's pilots, (2) leverage already-developed non-NEM export credit design, (3) align with the explicit intent of the Governor's Emergency Proclamation addressing urgent reliability concerns, and (4) support the transition of the V2X market in pursuit of Senate Bill 676 VGI goals and broader state TE goals.**

III. THE PD CORRECTLY ENABLES DUAL PARTICIPATION IN DYNAMIC RATES AND CERTAIN NON-RATE DR PROGRAMS, WHICH AVOIDS STRATEGY LOCK-IN, SUITS THE EMERGING AND COMPLEX VGI MARKET, AND APPROPRIATELY BALANCES LOAD MANAGEMENT STANDARD GOALS WITH THE ESTABLISHED PRINCIPLES OF GRADUALISM AND SIMPLICITY.

VGIC recognizes that the PD's expanded pilots create a relatively large-scale learning opportunity and a potential glide path toward the CEC's Amended LMS requirements, which aims to "increase flexible demand resources through electricity rates…and other measures that are technologically feasible and cost-effective relative to the costs for new electrical capacity."[11] To achieve this, the CEC highlights that their LMS amendments would "support cost-effective grid

[11] California Energy Commission. *Analysis of Potential Amendments to the Load Management Standards*. December 22, 2021. Pg ii.
See: https://www.energy.ca.gov/publications/2021/analysis-potential-amendments-load-management-standards

reliability through measures designed to synchronize daily electric demand with carbon-free supplies."

With this in mind, VGIC believes the PD correctly seeks to balance the various tools at its disposal to support cost-effective grid reliability by encouraging participation in both optional dynamic rate pilots and non-rate programmatic approaches to customers. **Specifically, the PD correctly authorizes dual participation in the dynamic rate pilot expansions and ELRP**, a key demand flexibility and grid reliability measure, especially for emerging resources like VGI. By enabling dual participation, the Commission is electing to pull one of the key policy levers at its disposal to mitigate a projected **$50 billion** in upcoming grid upgrade costs, as modeled by the CPUC's Electrification Impacts Study: Part 1.[12] VGIC believes that both demand flexibility rates *and* non-rate programmatic approaches will be needed to help manage EV load and avoid these potentially high ratepayer costs, and interprets the PD's dual participation provision as an implicit alignment with this belief. In the context of grid reliability, the state of California cannot afford to *put all our eggs in one basket* and rely on rates alone. For some customers, emergency reliability response strategies and event-based programs may be better suited to their needs and goals. Other customers may fit seamlessly into a 24/7, year-round optimization approach. Still other customers may seek to participate in both dynamic rates and non-rate programs, optimizing their charging and discharging to maximize cost-effective VGI value streams.

In this way, there is no *one-size-fits-all* approach to demand flexibility. Just as California seeks fuel diversity in its bulk power generation profile, it should seek demand-side management and VGI strategy diversity. **VGIC reiterates that it advises against placing all of the**

[12] CPUC Electrification Impacts Study: Part 1: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M508/K423/508423247.PDF

Commission's eggs in one basket, whether that be CalFUSE rates, emergency demand response programs, or non-ratepayer-funded grant funding opportunities. Especially within the context of VGI technologies and some of the more nascent EV solution sets, there is a need to promote customer response from a wide array of vehicle classes and use cases, customer segments, charger sizes and types, site hosts, relevant agents and actors, and price sensitivities. As detailed above in Section II, this is evident in California's effort to list and rank **thousands of VGI use cases** in the Commission's 2019-2020 VGI Working Group.

Furthermore, by offering a portfolio of participation options, the Commission can stretch into more innovative rate design approaches, like that represented by CalFUSE, while still maintaining two key principles of rate design: gradualism and simplicity. For example, from perspective of an exporting V2G customer, opportunities like demand response programs (ELRP or New England's Connected Solutions) or static TOU export credits can be appealing precisely because of their simplicity. Customers may initially participate in one of these simpler opportunities and then, at a later date, decide that a relatively more complex offering, like a CalFUSE dynamic rate pilot, is appropriate. **Regardless of the customer's choice or how that choice evolves, a stable underlying price signal – whether that be the demand flexibility rates or mass-market managed charging/VGI programs – is needed to deploy grid-supportive VGI resources.** Regarding gradualism, VGIC recommends the Commission consider including a specific yearly roadmap to guide the evolution of rates between now and the CEC LMS' 2027 compliance date. This will help keep implementation on track to that impending deadline while also ensure changes can be made gradually so as to not have adverse impacts on customers.

IV. THE PD ERRONEOUSLY EXCLUDES BEV-1 AND BEV-2 CUSTOMERS FROM PG&E EXPANDED PILOT 2 ELIGIBILITY. THE PD SHOULD BE REVISED TO INCLUDE THESE CUSTOMERS WITHOUT ALLOWING DUAL-ENROLLMENT IN DAHRTP-CEV OR FAILING TO OFFER NON-NEM EXPORT COMPENSATION.

The PD correctly concludes it is "reasonable for PG&E to offer the PG&E Expanded Pilot 2 to commercial, industrial, and residential customers enrolled in the following rates: B-6, B-10, B-19, B-20, E-ELEC, and EV2-A, provided that PG&E shall not simultaneously offer both the Day-Ahead Hourly Real-Time Pricing ("DAHRTP") rate and the PG&E Expanded Pilot 2 to customers on a given rate schedule."[13] VGIC also notes that PG&E's Business EV ("BEV")/Commercial EV ("CEV") customers may be interested in participating in PG&E Expanded Pilot 2. Currently, the DAHRTP-CEV rate authorized in Decision ("D.") 21-11-017, D.22-08-002, and D.22-10-024 and slated for launch in Q1 2024, would offer a full-scale, optional dynamic rate to commercial EV charging customers taking service under the CEV rate (i.e., schedules BEV-1 and BEV-2). However, DAHRTP-CEV includes only a generation import component and prohibits dual participation (i.e., in ELRP). In contrast, PG&E's Expanded Pilot 2 would include a marginal distribution import component, permit dual participation (i.e., in ELRP), and offer other key features of the CalFUSE vision, like the transactive/forward price curve element. VGIC summarizes key differences between the two offerings below:

Table 1

	PG&E Expanded Pilot 2 in PD		DAHRTP-CEV	
	Charging/Imports	Non-NEM Exports	Charging/Imports (D.21-11-017, D.22-08-002)	Non-NEM Exports (D.22-10-024)
Eligibility	B-6, B-10, B-19, B-20, E-ELEC, and EV2-A	None (Joint Parties and VGIC proposed, but	BEV-1 and BEV-2	DAHRTP-CEV

[13] PD at 21.

		not in PD; *see Section II above*)		
Duration	Through 2027	-	No sunset date	36 months; participation incentive available in first 12 months
Budget	$4.7M - $10.5M	-	-	Estimated ~$1.5M cost, including $250,000 participation incentive budget
Enrollment Target	100 MW	-	-	-
Dual Participation	Permitted with ELRP Group A, Critical Peak Pricing, NEM, Net Billing Tariff.	-	Prohibited	Prohibited
Non-Performance-Based Participation Incentive	-	-	-	$1,800-$6,560 based on size and use case
Smart Inverter Requirements	V2X DC EVSE exempt from UL 1741 SB and subsequent Rule 21 Smart Inverter requirements	-	N/A for charging	Full Rule 21 interconnection requirements (i.e., no UL 1741 SB exemption)
Generation Import	Yes	-	Yes (incl. Revenue Neutral Adder)	-
Generation Export	-	-	-	Yes (not incl. Revenue Neutral Adder)
Distribution Import	Yes	-	-	-
Distribution Export	-	-	-	-
Subscription	Yes	-	-	-
Forward Price Curve	Yes	-	-	-

VGIC believes that certain charge-only CEV customers may be more compelled to participate in the PG&E Expanded Pilot 2 rather than CEV-DAHRTP if given the option. Specifically, VGIC posits that the more complete value stack (i.e., the including of a distribution import component) and the dual participation provision may attract certain CEV customers. With this in mind, **VGIC strongly recommends the Commission include BEV-1 and BEV-2 rates as eligible for the PG&E Expanded Pilot 2.** In the case of customer classes eligible for PG&E General Rate Case ("GRC") Phase 2 DAHRTP pilot (i.e., residential, non-EV-specific commercial), the PD determines that PG&E should only *offer* Expanded Pilot 2 to these customers *if* PG&E does not also *offer* DAHRTP. This is appropriate for the GRC Phase 2 DAHRTP pilot.

However, in the case of DAHRTP-CEV, a different approach is needed, since DAHRTP-CEV is authorized as a full-scale, mass market opt-in dynamic rate – the first of its kind – and not a capped pilot like the GRC Phase 2 DAHRTP. VGIC does not recommend the Commission direct PG&E to entirely forego implementation of DAHRTP-CEV for two reasons. Firstly, DAHRTP-CEV was established through two settlement agreements with about a dozen parties over two years, culminating in three separate Commission Decisions in Application ("A.") 20-10-011. This represents a substantial amount of record. While VGIC could understand the urge to fold DAHRTP-CEV into the Expanded Pilot 2, we caution modifying and nullifying the three Commission Decisions in A.20-10-011 based on the comparatively limited record in Rulemaking ("R.") 22-07-005.

Secondly, and more importantly, as detailed above in Section II and Table 1, DAHRTP-CEV customers can also enroll in the DAHRTP-CEV Export Rate Pilot, whereas PG&E Expanded Pilot 2 does not offer any non-NEM export components. If PG&E were to entirely forego DAHRTP-CEV implementation and address CEV customers *only* through the PG&E Expanded

Pilot 2 (in its current form proposed in this PD - i.e., with no non-NEM export credit) then the non-NEM export opportunity for CEV customers will be **entirely eliminated**. As a result, **VGIC recommends that the Commission direct PG&E to deem BEV-1 and BEV-2 customers eligible for participation in Expanded Pilot 2 as long as they are not also enrolled in DAHRTP-CEV.** Alternatively, suppose the Commission decides to address CEV participation *only* in Expanded Pilot 2 (i.e., forego DAHRTP-CEV implementation entirely and deem BEV-1 and BEV-2 eligible for Expanded Pilot 2). **In that case, VGIC recommends the Commission: (1) authorize a non-NEM export component in Expanded Pilot 2, as detailed above in Section II, and (2) retool the $250,000 incentive participation budget originally authorized for DAHRTP-CEV non-NEM export pilot participants by offering this funding to non-NEM exporting BEV-1 and BEV-2 customers in Expanded Pilot 2.**

V. THE PD CORRECTLY APPLIES SPECIAL PROVISIONS TO EVSE, INCLUDING EXEMPTING V2G DC EVSE FROM SMART INVERTER REQUIREMENTS, AND THE COMMISSION SHOULD ALIGN OTHER DYNAMIC RATES AROUND THESE PROVISIONS.

VGIC strongly supports the PD's provisions in Attachment B related to EVSE. Specifically, exempting V2G DC EVSE from UL 1741 SA, SB, and subsequent smart inverter requirements is absolutely necessary to facilitate dynamic rate pilot participation from exporting V2G customer resources. We commend the Commission for taking this key step to unlock V2G participation, and urge them to apply these same provisions to other dynamic rate pilots, including PG&E's CEV-DAHRTP Non-NEM Export Pilot and SDG&E's Export Compensation Pilot. As detailed in VGIC's September 25, 2023 *Comments on Administrative Law Judge's Ruling on Track B Staff Proposal to Expand Existing Pilots,* the V2G DC EVSE equipment availability is limited to devices certified to UL 1741 SA – but not SB – and VGIC expects this dynamic to persist well into the launch of these dynamic export rate pilots. Without this exemption, many bidirectional EVSE could become stranded assets when they are most needed and available to provide grid flexibility services. We, therefore, urge the Commission to make a note of the current state of the bidirectional charger market and find ways to support customers with UL 1741 and UL1741-SA certified V2G bidirectional chargers that wish to participate in other dynamic rate pilots, not just the ones considered in the PD.

VI. CONCLUSION.

VGIC appreciates the opportunity to submit these comments on the Proposed Decision to Expand System Reliability Pilots of PG&E and SCE. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

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