

**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
ADMINISTRATIVE LAW JUDGE'S RULING 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 September 13, 2023, the Vehicle-Grid Integration Council (“VGIC”) hereby submits these comments on *Administrative Law Judges Ruling on Track B Staff Proposal to Expand Existing Pilots* (“Ruling”), issued by the Commission on August 15, 2023.

I. INTRODUCTION.

VGIC commends Energy Division (“ED”) staff for proposing the Commission direct the Investor-Owned Utilities (“IOUs”) to expand certain existing dynamic rate pilots, as presented by ED staff at a workshop on August 24, 2023.¹ VGIC appreciates the attention given to advancing demand flexibility through dynamic rates, especially considering the role Distributed Energy Resources (“DER”) play in supporting grid reliability, efficiency, and resiliency. Moreover, VGIC commends ED staff for proposing to expand Southern California Edison’s (“SCE’s”) Dynamic Rate Pilot and Pacific Gas and Electric’s (“PG&E”) AgFIT Pilot, which could present valuable

¹ Staff Proposal Presentation: *Existing Dynamic Rate Pilot Expansion in Demand Flexibility Rulemaking R-22-07-005*. August 24, 2023.

incentives for customers to shift energy usage, including electric vehicle (“EV”) charging and discharging.

EVs are well-positioned to take advantage of dynamic pricing and provide load flexibility. Vehicle Grid Integration (“VGI”) strategies, including managed unidirectional charging, bidirectional charging and discharging, and DER-paired charging, can unlock EVs as strategic grid assets. These price signals can directly influence customer behavior or integrate with automated charge management systems for a “behind the scenes” customer experience. Critically, VGI strategies will play a key role in helping California meet its ambitious clean energy and transportation electrification goals.

Dynamic pricing implementations in other jurisdictions demonstrate its success in shifting load from peak periods, including EV charging load. For example, a Denmark program produced evidence of dynamic pricing leading to grid friendly flexible demand.²

VGIC is supportive of ED’s proposal to expand certain existing dynamic rate pilots, including SCE’s Dynamic Rate Pilot, which was initially authorized by the Commission in Decision (“D.”) 21-12-015 for a duration of three years and started enrolling customers in May 2022, and is scheduled to close enrollment in May 2024. Additionally, VGIC supports the proposed expansion of the Agricultural Pumping Dynamic Rate Pilot (“AgFIT”), implemented by Valley Clean Energy (“VCE”) in coordination with PG&E, into a dynamic rate pilot that enables the participation of bundled and unbundled customers on the B-19, B-20, and E-ELEC rates.

² See Presentation: “Flexible Demand in Denmark – Perspectives on Market Framework and Digital Infrastructure,” by Claus Korg Ekman (Climate and Energy Attache, Ministry of Foreign Affairs of Denmark) presented to R.22-07-005 Working Group 1 on June 23, 2023.

VGIC offers comments, summarized below, in support of the dynamic rate expansion proposal but also provides recommendations to enhance the proposed pilot expansions to increase EV customer participation.

- VGIC recommends the Commission direct the IOUs to offer additional no-regrets dynamic rate components to a wide set of customers until future Demand Flexibility Guidance is issued, including:
 - Marginal energy component and generation capacity
 - Alternatives to circuit-specific dynamic distribution components
 - Shadow billing
 - Forward price curves
 - Rate symmetry for export credit
 - Broad customer eligibility
 - Dual participation in Emergency Load Reduction Program and other nonrate incentive programs
 - Extend smart inverter exemption for V2G DC EVSE
- The Commission should continue support for existing nonrate programs and establish new programs that capture VGI benefits and customer participation that are hard to reach through rate design alone.

II. VGIC RECOMMENDS THE COMMISSION DIRECT THE IOUS TO OFFER ADDITIONAL NO-REGRETS DYNAMIC RATE COMPONENTS TO A WIDE SET OF CUSTOMERS UNTIL FUTURE DEMAND FLEXIBILITY GUIDANCE IS ISSUED.

VGIC reiterates its appreciation of ED Staff for proposing to expand certain dynamic rate pilots in recognition of the urgent need for additional resources to enhance summer reliability, DERs that can support renewable energy integration, and improve efficiencies in grid utilization. Moreover, VGIC believes that the proposed expansion of the pilots comes at a critical point when the state is experiencing and anticipating further increased load growth from Transportation Electrification (“TE”). As TE rapidly accelerates, shaping load in ways useful to the grid becomes simultaneously more *feasible* and *critical* for grid reliability and affordability. To harness and shape this load, VGIC supports ED Staff’s proposal to expand existing dynamic rate pilots.

However, in light of the magnitude of the opportunity presented by VGI solutions and the unique challenges facing California’s electric grid, VGIC strongly recommends that the IOUs considerably expand efforts by offering certain no-regrets dynamic rate components to a wide set of customers. This approach will help to bridge the gap until the Commission issues guidance for demand flexibility rate applications. It will also yield important lessons at a meaningful but cost-controlled scale to inform the development of full-scale, optional dynamic rates for all customers by 2027. While the demand flexibility guidance proposals developed in Track B Working Group 1 consider several different rate design elements, a few are shared across all of the proposals and some are already implemented in the ongoing CalFUSE pilots. VGIC considers these elements to be “no-regrets” rate components and rules that the Commission should direct IOUs to implement even though the full, final demand flexibility guidance has not yet been developed.

Specifically, VGIC urges the Commission to direct SCE and PG&E to expand their respective dynamic rate pilots identified in the staff proposal (i.e., SCE’s Dynamic Rates Pilot and PG&E’s AgFIT Pilot) to include the following no-regrets elements, beginning in Q2 2024:

- **Marginal energy component and generation capacity.** Already central to each pilot, these rate components should be maintained for ED staff’s proposed expansions #1, #2, and #3.
- **Alternatives to circuit-specific dynamic distribution components.** Dynamic circuit-specific distribution rate components can be challenging to calculate, track, and communicate with customers. Additionally, distribution grid topology changes relatively quickly due to customer- and utility-side actions (e.g., new commercial and industrial solar facilities, transformer and substation upgrades, etc.). Dynamic circuit-specific distribution pricing could result in EV charging customers making major investment decisions based on patterns in the circuit-specific price signals they receive. VGIC is concerned over the relatively fast-moving changes in

dynamic circuit-specific price patterns leading to customer frustration as distribution capacity changes due to nearby load growth, generation additions, or expanded distribution capacity outside that customer's control. In contrast, a system-wide dynamic distribution component could (1) offer customers a higher degree of certainty to infrastructure deployment decisions, (2) be easier for utilities to implement in the near term without significant changes to existing pilot methodologies, and (3) be easier to communicate with customers than circuit-specific pricing, which relates to more complex rate design and utility cost recovery concepts. This system-wide component could be based on average marginal distribution costs. That said, VGIC does believe circuit-specific optimization will remain a critical load management strategy. Therefore, another set of alternatives to circuit-specific pricing that may promote circuit-level optimization is a non-rate program portfolio. The Commission can expand or establish new programs to capture these circuit-specific benefits. VGIC also recommends the utilities explore which transmission-related costs can be considered marginal and added as a dynamic rate component for both EV charging and exports.

- **Shadow billing.** Already central to each pilot, the shadow billing structure offers important customer bill protection needed during the pilot period and may defer major billing system upgrades for the IOUs.
- **Forward price curves.** The AgFIT pilot offers participants dynamic hourly prices 1-7 days ahead.³ Forward price curves can help EV customers and fleets plan charging and vehicle operations well ahead of forecasted high or low-price hours. Moreover, the option to procure

³ CPUC R.22-07-005. *Administrative Law Judges Ruling on Track B staff Proposal to Expand Existing Pilots – Attachment B: Preliminary Assessment of VCE's Agricultural Pumping Dynamic Rate Pilot.* August 15, 2023.

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M517/K408/517408172.PDF>

energy based on forward prices can provide additional benefits to flexible EV charging customers who wish to transact with other customers and end-users.

- **Rate symmetry and export credit.** SCE’s Dynamic Rate Pilot aims to work with automation service providers (“ASP”) that can integrate with the TeMix transactive pricing platform.⁴ SCE’s Dynamic Rate Pilot also aims to work with behind-the-meter energy storage and EV charging customers.⁵ These technologies can provide net export to the grid in return for dynamic export credits. Meanwhile, PG&E’s AgFIT pilot offers only dynamic import rates but does not offer compensation for exports, which is a reasonable limitation for pumping customers.⁶ VGIC strongly recommends that the expansion of SCE’s Dynamic Rate and PG&E’s AgFIT pilots be paired with an export credit for all components associated with marginal costs (e.g., marginal energy costs, marginal generation capacity costs, and distribution capacity costs). The Commission can unlock far greater value from EV participation by including export compensation in the expanded AgFIT pilot. Shifting charging may yield some load reduction from vehicles that would have otherwise charged during a given high-priced period. However, promoting EV exports can incentivize customers who would not have otherwise been actively charging to discharge their vehicle’s battery. In that sense, promoting EV exports offers a “VGI multiplier” compared to price signals that only shift load.
- **Broad customer eligibility.** VGIC supports ED staff’s proposal to expand SCE’s Dynamic Rate Pilot to include Level 2 Charge Ready customers and PG&E’s AgFIT pilot to include B-

⁴ Energy Division Disposition Letter Approving SCE Advice Letter 4684-E, issued April 26, 2022.

⁵ Energy Division Disposition Letter Approving SCE Advice Letter 4684-E, issued April 26, 2022.

⁶ CPUC R.22-07-005. *Administrative Law Judges Ruling on Track B staff Proposal to Expand Existing Pilots – Attachment B: Preliminary Assessment of VCE’s Agricultural Pumping Dynamic Rate Pilot.* August 15, 2023.

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M517/K408/517408172.PDF>

19, B-20, and E-ELEC customers. Notably, PG&E’s commercial EV charging customers on the BEV rate will soon be eligible to enroll in the optional Day-Ahead Hourly Real Time Pricing (“DAHRTP”) rate and the associated export rate pilot. However, PG&E’s residential EV charging customers on EV2-A and EV-B will have no opportunity to optimize charging against a dynamic rate. While some residential EV drivers may be on E-ELEC, VGIC believes EV2-A and EV-B customers should also be deemed eligible to enroll in PG&E’s expanded AgFIT pilot. Additionally, while ED staff’s proposal does not direct San Diego Gas & Electric (“SDG&E”) to take any action to expand existing dynamic rate pilots, VGIC notes that SDG&E has run its dynamic Power Your Drive (“PYD”) VGI pilot rate for several years.⁷ VGIC recommends the Commission direct SDG&E to (1) expand its VGI rate eligibility beyond PYD customers to include both residential and non-PYD commercial EV charging customers, (2) include compensation for exports as considered in SDG&E’s Application (“A.”) 21-12-006/008,⁸ and (3) include the other no-regrets components detailed in these comments.

- **Dual participation in Emergency Load Reduction Program and other nonrate programs.**

VGIC urges the Commission to enable dual participation between dynamic rate pilots and nonrate demand-side management programs like ELRP. By prohibiting dual participation, the Commission is pitting two effective load management strategies against one another rather than allowing them to work together. In their proposal, ED staff notes that the exclusion of dual participation for certain programs is intended to avoid challenges with attribution of the

⁷ SDG&E. *Power Your Drive Research Report*. April 2021. <https://www.sdge.com/sites/default/files/regulatory/SDG%26E%20FINAL%20Power%20Your%20Drive%20Research%20Report%20April%202021.pdf>

⁸ SDG&E’s A.21-12-006/008 proposal considers a dynamic export pilot for commercial customers on SDG&E’s the EV High Power or EV-HP rate. Notably, SDG&E’s proposal does not include dynamic rate components for charging or dynamic distribution components for exports, which VGIC recommends be directed by the Commission, along with the other “no-regrets” dynamic rate components offered herein.

net load reduction and to avoid potential double-counting.⁹ VGIC strongly agrees that double counting and double compensation must be avoided to mitigate any risk of overpaying or creating unintended cost shifts. However, VGIC believes ELRP dual participation represents a particularly high-value, low-complexity dual participation use case. Given the urgent need for additional resources to enhance summer reliability, ELRP plays an important and unique role in unlocking incremental emergency demand flexibility and exports during the periods of highest grid stress. Regarding counting methodology, VGIC notes that at least one IOU, PG&E, has developed a methodology for enabling dual participation in dynamic rates and ELRP, as explicitly required by Commission Resolution E-5192.¹⁰ Under the direction of Resolution E-5192, PG&E's VGI Pilots will enroll customers in both ELRP and the dynamic rate (with shadow billing). In the case of ELRP and the dynamic rate pilot dual participation, IOUs can learn from any initial challenges from AgFIT, SCE's Dynamic Rate Pilot, and PG&E's VGI Pilots related double counting and better prepare for other dual participation use cases ahead of optional dynamic rates being offered to all customers in 2027. VGIC identifies below the three primary reasons why dual participation between dynamic pricing pilots and nonrate programs like ELRP is appropriate, and one reason why it is specifically important for SCE Charge Ready customers.

- **First**, nonrate programs and dynamic rates can provide separate grid value streams. In the case of ELRP, for example, emergency reliability is unlocked through the nonrate program, whereas dynamic rate pilots target year-round load and export optimization. Another example would be PG&E's evPulse program, which supports managed

⁹ CPUC R.22-07-005. *Administrative Law Judges Ruling on Track B staff Proposal to Expand Existing Pilots – Attachment A: Staff Proposal on Existing Dynamic Rate Pilot Expansion*. August 15, 2023. Pg. 12.

¹⁰ Resolution E-5192. May 5, 2022. Pg. 20, 22, 23, 32, and 38.

charging in response to Public Safety Power Shutoffs, a value stream that is unsupported by dynamic rates.¹¹ Enabling and promoting dual participation in rate and nonrate programs can allow the Commission to maximize the grid support that can come from EVs.

- **Second**, certain aggregators, EV charging site developers, and technology providers must choose where in the country to invest resources in acquiring customers and, in turn, supporting the grid. Other jurisdictions, such as New York and Massachusetts, permit and even encourage dual participation across several EV rates and programs, attracting significant investment in VGI technologies. If California wishes to be viewed as a global leader in VGI, it must offer a significant, sackable set of values for VGI resources. For reference, V2G electric school buses in Massachusetts can make over \$10,000 in a single summer in a single program (i.e., Connected Solutions) before value stacking with other opportunities.¹²
- **Third**, VGIC does not see a need to meaningfully alter either ELRP or the dynamic rates to accommodate dual participation, aside from clarifying that dynamic rate participants may participate in ELRP. D.21-12-015 authorizing updates to the ELRP program permits dual participation for EV/VGI aggregations in dynamic and real-time equivalent rates.¹³ Namely, ELRP’s existing baselining methodology need not differ

¹¹ Energy Division Letter Approving PG&E’s 2021 Low Carbon Fuel Standard Implementation Plan Detailed in Advice Letter 6226-E. December 24, 2021. https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_6226-E.pdf

¹² A.22-05-002/003/004, Exhibit VGIC-01, *Testimony of Ed Burgess on Behalf of Vehicle-Grid Integration Council*, pg 22.

¹³ D.21-12-015. Attachment 1. Pg 6. “The VGI aggregation or any customer site within the aggregation is not simultaneously enrolled in a market-integrated, supply-side DR program offered by an IOU, third-party DRP, or CCA.” <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821668.PDF>

whether a customer normally charges under a TOU rate (the case for current ELRP participants) or a more dynamic time-varying rate (as would be the case for AgFIT and SCE’s Dynamic Rate Pilot participants). In either case, incremental load reduction below the customer’s baseline can be measured during ELRP hours and compensated at the ELRP compensation rate of \$2/kWh.

- **Specific to SCE’s Charge Ready Customers:** SCE Charge Ready customers should be permitted to participate in both ELRP and SCE’s Dynamic Rate Pilot because Commission Resolution E-5267 recently directed SCE to transition Charge Ready customers to ELRP.¹⁴ The Commission made this decision after careful consideration in proceedings R.20-11-003 and, likely, a review of SCE’s A.22-05-004, which also proposed this transition.¹⁵ VGIC recommends that the Commission enable dual participation in SCE’s Dynamic Rate Pilot and ELRP to avoid customer confusion and remain consistent with recent Commission guidance.
- **Extend smart inverter exemption for V2G DC EVSE.** VGIC strongly supports ED staff’s proposal to extend the UL 1741 SA/SB exemption for V2G DC EVSE initially ordered in D.21-12-015 to the dynamic rate pilots.¹⁶ Bidirectional charger manufacturers are working to complete certification processes to meet all safety and reliability standards required by California’s Rule 21. There is a very limited availability of SA-certified V2G DC EVSE, and there are no SB-certified V2G DC EVSE to VGIC’s knowledge. This is also evident in the

¹⁴ Resolution E-5267. May 18, 2023. Pg 2.
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M509/K695/509695243.PDF>

¹⁵ Application of SCE for Approval of Demand Response Programs and Budgets for 2023-2027. May 2, 2022. <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M472/K478/472478719.PDF>

¹⁶ D.21-12-015. Attachment 1. Pg 6.
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821668.PDF>

CEC’s V2G Equipment List.¹⁷ If the Commission does not extend the V2G DC EVSE smart inverter exemption to all dynamic rate pilots, California will likely see little-to-no V2G assets enrolling in dynamic rate pilots for the foreseeable future. As a result, hundreds of megawatts of latent energy storage capacity could go untapped, undermining California’s efforts to bolster grid reliability, support renewable energy integration, or achieve its affordability and resiliency goals.

III. THE COMMISSION SHOULD CONTINUE SUPPORT FOR EXISTING NONRATE PROGRAMS AND ESTABLISH NEW PROGRAMS THAT CAPTURE VGI BENEFITS AND CUSTOMER PARTICIPATION THAT ARE HARD TO REACH THROUGH RATE DESIGN ALONE.

VGIC supports advancing both dynamic rate design and access as required by the CEC’s Load Management Standard and envisioned in ED staff’s CalFUSE whitepaper and use of “nonrate compensation programs,” as identified in the CEC’s recent Draft AB 2127 Report as an effective VGI strategy.¹⁸ Dynamic 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.¹⁹ For example, it is

¹⁷ See CEC V2G Equipment List. <https://v2gel.energy.ca.gov/Home/ProcessView>. Accessed September 25, 2023.

¹⁸ California Energy Commission, *AB 2127 EV Charging infrastructure Second Assessment Draft Report*, pg. 74.

¹⁹ 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>.

unclear exactly how dynamic rates can effectively capture circuit-specific distribution value for EV charging and coordinate charging at the circuit level, as detailed above in Section II. All customers on a single circuit may respond to the same local circuit-specific price signal, disrupting the potential charging cost savings or overloading local circuit limits (i.e., for exports). Additionally, the distribution grid changes uniquely fast due to customer- and utility-side decisions 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 enable circuit-specific optimization and provide greater certainty to encourage customer investments in VGI technologies.

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 PG&E's evPulse, Sacramento Municipal Utility District's ("SMUD") Managed Charging Program, PG&E's ChargeForward Pilot, 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.

Moreover, while dynamic rates can implement with EV charger-based automated service providers that can encourage customer participation through EVSE submetering, telematics-based charge management is currently underutilized in California. For example, customers charging on non-networked EVSE, Level 1 chargers, or who simply prefer to participate in grid integration through their vehicle rather than their charger or site energy management system currently represent untapped VGI potential that could be captured through nonrate programs.

With this in mind, VGIC recommends the Commission, in coordination with the CEC, continue to support VGI through both rate design (i.e., ED staff's proposed dynamic rate pilot

expansions, long-term transition to CalFUSE rates) and nonrate compensation programs (i.e., ELRP, evPulse, ChargeForward). The Commission should also, in coordination with the CEC, 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.

IV. CONCLUSION.

VGIC appreciates the opportunity to submit these comments on the ED's Proposed Expansion of the Existing Dynamic Rate Pilots. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

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VEHICLE-GRID INTEGRATION COUNCIL

Date: September 25, 2023