

**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)

**REPLY COMMENTS OF THE VEHICLE-GRID INTEGRATION COUNCIL ON
TRACK B WORKING GROUP REPORT**

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), and pursuant to *Assigned Commissioner’s Phase I Scoping Memo and Ruling*, issued November 2, 2022, and the *Email Ruling Modifying Deadlines for Working Group Proposal and Comments* issued by Administrative Law Judge (“ALJ”) Stephanie Wang on September 29, 2023, the Vehicle-Grid Integration Council (“VGIC”) hereby submits these reply comments on the *Track B Working Group Report*, submitted by Southern California Edison Company (“SCE”), on October 11, 2023, on behalf of the Track B Working Groups.

I. PARTY COMMENTS INDICATE THE NEED FOR A FULL VALUE STACK THAT OFFERS SUFFICIENT SAVINGS OR REVENUE CERTAINTY FOR DER CUSTOMERS.

VGIC commends the Commission and stakeholders’ continued efforts to shape demand flexibility policies and establish guidance for demand flexibility rates, which will help California capitalize on the opportunity presented by the concurrent energy and transportation transitions. While party opening comments present different perspectives on the future demand flexibility rate guidance, VGIC notes an area of emerging consensus is the need for a full “value stack” that recognizes and compensates the entire suite of grid services that a customer may be either consuming or providing. We recommend the Commission adopt the below recommendations in its final guidance to promote a full, sustainable value stack that offers customers the sufficient

level of certainty needed to guide investments in grid-responsive technologies, like networked EV chargers or bidirectional charging equipment.

A. Certain and Sufficient Revenue Should be the Goal of a Full Value Stack.

In opening comments, the California Energy Storage Alliance (“CESA”) highlights the impact dynamic rate structures can have on existing technology (i.e., customers who have already installed the technology), which are “the most likely adopters of a flexible rate design.”¹ CESA also emphasizes that “revenue certainty is key for...new technology.” VGIC strongly agrees with this sentiment. Similar to stationary energy storage, mobile energy storage solutions require upfront investment to deploy the enabling technologies. To connect EVs to the grid and unlock the vehicle-to-everything (“V2X”) functionality, customers must install bidirectional EV supply equipment (EVSE) and enabling equipment that may differ across use cases (e.g., site controllers/EMS, meters, panel and switchgear upgrades, etc.). Without sufficient revenue certainty for customers considering participation in demand flex rates, customers will not make the necessary investment in V2X technology and the capabilities required to respond to dynamic rates. As CESA noted in their opening comments, “[f]or projects in the commercial and industrial sectors, financiers require a reasonable level of assurance that debt will be repaid.” VGIC again agrees with CESA, and notes EV customers in the commercial and industrial sectors represent a relatively nascent use case for VGI investments. The early market stage for this customer segment, as well as the relatively large size of these charging sites, demands a strong and compelling value proposition to incentivize the deployment of VGI solutions. This could include managed charging software, bidirectional charging equipment, and/or DER-backed charging. With that said, **demand flexibility rates can provide certainty and sufficient**

¹ CESA Opening Comments, pg. 3.

revenue for customers through a complete “value stack” including energy, generation capacity, transmission capacity, distribution capacity, and, potentially, ancillary services components, thus, unlocking far greater load flexibility and value from EV customers and fleets.

B. At a Minimum, Primary Distribution Costs Should Comprise the Distribution Component of the Value Stack.

As detailed in Section I.A above, all components that make up a full value stack are critical to providing certainty and sufficient revenue to encourage investment in VGI technologies. However, VGIC strongly believes that distribution compensation is particularly important to unlocking load shift from EVs that is responsive to distribution system constraints, given the observed and anticipated incidence of EV clustering on individual circuits. In the context of long-term dynamic rate guidance, it may be helpful to distinguish between primary and secondary distribution costs. This would align with what the Joint IOUs posed in their opening comments.²

Distribution system management is particularly important for EV charging load. For example, residential EV charging can quickly overwhelm local neighborhood transformers in areas with high EV adoption. A similar dynamic can be observed in commercial areas where warehouses and fleet charging depots may be just across the street from one another. It’s important to note that these examples can result in localized distribution system peaks that may not coincide with the bulk system’s net peak load. As a result, demand flexibility rates should be thoughtfully designed to accommodate this unique characteristic. Programmatic approaches to secondary distribution costs can be a valuable tool to complement demand flexibility rates that may otherwise communicate only system-level conditions. To that end, VGIC supports the

² Opening Comments of Joint IOUs. Page 5-6.
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M520/K881/520881587.PDF>

IOU's reversal from their initial position that a distribution component should not be included in the initial demand flexibility rates to the new position, represented in opening comments, to include a distribution component from the outset.³ However, we encourage the IOUs to consider how to round out a full dynamic rate value stack using programmatic elements. For example, primary distribution cost optimization could be addressed through a dynamic rate design component, while secondary distribution costs are optimized through a managed charging program.

Additionally, **we strongly recommend the IOUs include an export distribution component to fairly round out the value stacking**, which in turn, will incentivize resources to support the grid via exports when needed most. Without a distribution component for exports, there would be little-to-no incentive for customers/resources with the greatest grid support potential (e.g., VGI resources) to support the grid through strategically times exports.

The Public Advocates Office's ("Cal Advocates") recent Distribution Grid Electrification Model ("DGEM") study, which aimed to study and forecast the costs of upgrading California's three largest IOUs' (i.e., SCE, PG&E, SDG&E) distribution system to meet California's Transportation Electrification ("TE") goals, found that EVs will account for the vast majority of load growth expected by the year 2035.⁴ The Commission's *Electrification Impacts Study: Part I*, completed by Kevala, finds the need for new distribution investments over this period to be as high as **\$50 billion**.⁵ However, Cal Advocates' DGEM study finds that smart charging (e.g., VGI

³ Joint IOUs Opening Comments, pg. 5, 10-11.

⁴ Public Advocates Office, *Distribution Grid Electrification Model – Study and Report*, August 2023. "We estimate that electrification will cost \$26 billion in required upgrades to the utilities' distribution grids through 2035. However, this number has significant uncertainty, and the total cost could be as much as \$18 billion lower or \$31 billion higher."

⁵ See Kevala

strategies) “reducing the peak load could avoid **\$35 billion** or more in distribution investments” (emphasis added).⁶ Meanwhile, recent studies of VGI capability found that peak demand can be decreased by roughly 3 to 20 percent with V2G systems, and under different scenarios (e.g., residential V2G), the system peak demand was decreased by 27 to 67 percent.⁷ While this VGI-specific analysis is specific to bulk system peak demand, VGIC posits similar reductions can be achieved for distribution system peak demand. These three studies, taken together, demonstrate the critical need to address distribution impacts and minimize investments in distribution system upgrades, thereby saving ratepayers money. **VGIC recommends the Commission include, at a minimum, (1) a primary distribution component for both imports and exports and (2) create a programmatic pathway to mitigate secondary distribution impacts.**

To ensure a sufficient value stack that incentivizes the adoption of grid-responsive VGI solutions, VGIC recommends that IOU demand flexibility applications include an analysis of the payback period for various types of VGI solutions across different customer segments, including unidirectional charging networking costs, bidirectional charger deployment costs, and DER-paired EV charging solutions. This analysis will help to inform the level of compensation that is necessary to attract investment into the nascent VGI market.

Lastly, VGIC recommends the Commission consider expanding the value stack in the future to include additional distribution system optimization services, including balancing

⁶ Public Advocates Office, *Distribution Grid Electrification Model – Study and Report*, August 2023. Pg. 44.

⁷ Bijan Bibak, Hatice Tekiner-Mogulkoc, *The parametric analysis of the electric vehicles and vehicle to grid system’s role in flattening the power demand*, Sustainable Energy, Grids and Networks, Volume 30, June 2022.

See: <https://www.sciencedirect.com/science/article/abs/pii/S2352467722000030>

voltage and frequency, which EVs may be able to support through unidirectional or bidirectional charging equipment.

II. CAL ADVOCATES’ ASSERTION THAT THE COMMISSION HALT RATEPAYER INVESTMENTS IN DEMAND FLEXIBILITY DIRECTLY CONFLICTS WITH THEIR ANALYSIS SHOWING THE \$35 BILLION THAT DEMAND FLEXIBILITY CAN SAVE RATEPAYERS BY 2035.

In opening comments, Cal Advocates’ asserts that funding opportunities for demand flexibility through the California Energy Commission’s (CEC) *Distributed Electricity Backup Assets* (“DEBA”), *Energy Efficiency and Load Flexibility Grant Funding Opportunity*, *Responsive, Easy Charging Products with Dynamic Signals* (“REDWDS”) *Grant Funding Opportunity*, Clean Energy Reliability Investment Plan, Climate Resiliency Bonds, Cap-and-Trade Auction Revenue, and the Department of Energy’s (“DOE”) Grid Resilience and Innovation Partnership (“GRIP”) “be fully exhausted before requiring ratepayers to fund the Demand Flexibility transition.”⁸ VGIC acknowledges the critical need to guard against imprudent ratepayer costs given that California IOU ratepayers see the highest electricity rates in the nation. VGIC also agrees that there is a patchwork of funding opportunities that have been recently opened to demand flexibility technologies. However, Cal Advocates’ assertion that demand flexibility rates not be implemented until these funds are exhausted is in direct conflict with their DGEM analysis, detailed in Section I.B. above. The Cal Advocates’ DGEM study correctly concludes that managed EV charging will be key to mitigating the billions of dollars in distribution system upgrade costs identified within the study. One way to encourage this desired level of VGI is through demand flexibility rates. VGIC reiterates that non-rate programmatic approaches can also be effective in enrolling customers and managing EV load.

⁸ Public Advocates Office Opening Comments, Pg. 7.

Moreover, in the context of grid reliability, we cannot put all our eggs in one basket and rely on programs like DEBA and Demand Side Grid Support (“DSGS”) alone, as those only target deploying emergency reliability resources during the months of May to October, and do not consider year-round, 8,760-hour DER optimization. For some customers, emergency reliability response strategies may not be well-suited for event-based programs and may be better fit to a 24/7, year-round optimization approach. In this way, there is, unfortunately, 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 strategy diversity. **VGIC strongly advises against placing all of the 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 solutions and some of its more nascent technologies, there is a need to promote customer response from an immense array of vehicle use cases, customer segments, charger sizes and types, site hosts, relevant agents and actors, and price sensitivities. 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.

Additionally, the REDWDS solicitation referenced by Cal Advocates is meant to promote technology development for additional solutions that can respond to demand flexibility rates. In other words, deferring rate implementation would directly inhibit the success of the CEC’s REDWDS effort and its significant funding.

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. Cal Advocates’ DGEM study demonstrates California's critical cost imperative to establish this price signal, and VGIC questions how else California could capture the \$35 billion in

distribution system upgrade cost avoidance by 2035. VGIC urges the Commission to authorize strategic investments in VGI solutions, including through both demand flexibility rates and non-rate managed charging/VGI programs, to ensure there is a **relief valve** for ratepayer costs as the pace of EV load growth accelerates and shows no sign of tapering off.

III. CONCLUSION.

VGIC appreciates the opportunity to submit these reply comments on the Track B Working Group Report. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

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