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COMMENTS OF THE PUBLIC ADVOCATES OFFICE ON ASSIGNED COMMISSIONER'S AND ASSIGNED ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING COMMENT ON ASSIGNED COMMISSIONER'S PROPOSAL ON FLEXIBLE SERVICE CONNECTIONS

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I. INTRODUCTION

On July 7, 2026, Assigned Commissioner Houck and Administrative Law Judge (ALJ) Regnier issued the *Assigned Commissioner's and Assigned Administrative Law Judge's Ruling Requesting Comment on Assigned Commissioner's Proposal on Flexible Service Connections* (July 2026 Ruling).[1] On July 10, 2026, ALG Regnier issued the *Email Ruling Granting Schedule Modification* that granted additional time for filing comments.[2] The July 2026 Ruling directs parties to respond to questions regarding the *Assigned Commissioner's Proposal* (Proposal)[3] on flexible service connections (FSCs) that was attached to the July 2026 Ruling. The Public Advocates Office (Cal Advocates) at the California Public Utilities Commission (Commission) submits the following responses and recommendations. The Commission should:

- Adopt lower-cost FSC recommendations that standardize existing processes, extend static and non-bridging service options, or rely on certified customer-side controls, including extending the Decision (D.) 26-02-025[4] Standard Offer requirements to San Diego Gas & Electric Company (SDG&E).
- Require the investor-owned utilities (IOUs) to compare FSCs with the traditional wires alternatives they are intended to replace and to measure and report the costs, enabled capacity, infrastructure outcomes, and verified net ratepayer benefits of each offering.
- Limit Flex Connect-type offerings to customer classes and grid constraints where existing or already-authorized IOU capabilities can provide cost-effective additional capacity. The Commission should not allow the IOUs to submit Advice Letters that request

[1] Cal Advocates submits its comments pursuant to the July 2026 Ruling. The July 2026 Ruling is available at: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M610/K354/610354104.PDF.

[2] *Email Ruling Granting Schedule Modification*, July 13, 2026. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M610/K764/610764723.PDF.

[3] *Assigned Commissioner's Proposal*, July 2026. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M610/K354/610354105.PDF.

[4] D.26-02-025, *Decision Establishing a Standard Offer for Flexible Service Connections*, February 5, 2026; issued in Rulemaking (R.) 24-01-018, *Order Instituting Rulemaking to Establish Energization Timelines*. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M598/K715/598715449.PDF.

authorization for new ratepayer-funded technology investments, incentives, rebates, or compensation mechanisms.

- Strengthen the Proposal's Real-Time Pricing (RTP) reporting requirements to determine whether RTP produces customer or ratepayer benefits beyond the load limits already imposed by an operating envelope, including customer response, bill impacts, automation use, and cost shifts to non-participants.
- Not direct Southern California Edison Company (SCE) and/or SDG&E to implement ChargeBoost-like Grid Edge Distributed Energy Resource Management Systems (DERMS) offerings, or require Pacific Gas and Electric Company (PG&E) to scale ChargeBoost, until completed pilot results demonstrate performance, avoided-upgrade value, and cost-effective transferability across the IOUs.
- Clarify that the IOUs' obligation to serve does not require them to construct every upgrade needed to provide a customer's requested firm capacity when the customer elects non-bridging FSC.
- Use the existing known-load reporting process to inform the California Energy Commission (CEC) of each project's bridging or non-bridging FSC status, applicable operating limit or load profile, and whether the associated upgrade remains planned.

II. DISCUSSION

A. Question 1: *Please provide feedback on the Proposal itself, identifying any concerns with and/or support for the direction and background. Comments on the Proposal shall be provided within the same structure as the Proposal where possible (e.g., discussion of Operating Envelopes should come in Section 4 of party comments).*

The Proposal's overall direction is reasonable and properly frames FSCs as a potential affordability tool. Where implemented on a permanent (non-bridging) basis, FSCs can increase the use of existing distribution infrastructure and reduce or defer ratepayer-funded distribution upgrades.[5] Distribution upgrades depend not only on how much load customers add, but also on when and how customers use electricity. FSCs can

[5] Proposal at 3.

reduce costs where a customer safely operates within a lower or more flexible capacity limit instead of triggering a traditional wires upgrade.

However, the Proposal should more clearly distinguish between FSC options that can move forward with existing capabilities and FSC options that require significant new IOU investment. This distinction matters because the Proposal addresses several different tools. These tools range from Limited Power arrangements and static operating envelopes to variable operating envelopes, dynamic operating envelopes, and Grid Edge DERMS.[6] These tools do not have the same costs, readiness, or implementation risk.

The Proposal provides a stronger basis for moving forward with lower-cost options that build on existing engineering processes, existing FSC offerings, or customer-side power control systems. For example, the Proposal recommends that the IOUs evaluate whether a Limited Operating arrangement, Operating Envelope, or Power Control System-enabled mitigation can safely satisfy a customer's requested capacity before initiating a ratepayer-funded distribution upgrade.[7] The Proposal also recommends that the IOUs provide Operating Limits as the default mitigation for distribution transformer upgrades using certified Underwriters Laboratories (UL) 3141 devices.[8] These recommendations directly target the Proposal's affordability goal because they focus the IOUs on lower-cost alternatives before the IOUs plan or build new ratepayer-funded infrastructure.

The Proposal also recommends that the IOUs implement or further develop FSC options that require larger investments in utility communications, control systems, DERMS, and customer equipment. Specifically, the Proposal recommends Variable Operating Envelopes, further development of Dynamic Operating Envelopes, and implementation or scaling of Grid Edge DERMS use cases.[9] These recommendations

[6] Proposal at 22.

[7] Proposal at 6-7.

[8] Proposal at 7.

[9] Proposal at 30-32.

may eventually provide ratepayer value. However, the record lacks evidence demonstrating that these options are ready for broad deployment, that their avoided or deferred upgrade benefits will exceed their utility and customer costs, or that PG&E's Grid Edge DERMS approach can be transferred cost-effectively to SCE and SDG&E.

This gap matters because the Proposal's ratepayer benefits depend on a specific outcome: the IOU must avoid, defer, or resize a ratepayer-funded upgrade at a lower cost than the traditional wires solution. A flexible service arrangement does not create ratepayer savings merely because it limits customer load or increases operational flexibility. The flexible service arrangement creates ratepayer savings only when the avoided or deferred upgrade value is greater than the cost of implementing and maintaining the flexible solution.

The Proposal itself recognizes this issue in several places. The Proposal acknowledges that benefits vary depending on whether the upgrade proceeds on schedule, is deferred, or is entirely avoided.[10] The Proposal also recognizes that manufacturer or service-provider fees may offset ratepayer savings or create vendor lock-in concerns.[11] The July 2026 Ruling also states that quantification of ratepayer costs and benefits is necessary and that the level of planning, progress, and costs for Grid Edge DERMS is not clear.[12] Accordingly, the Commission should distinguish between FSC recommendations that can be implemented using existing capabilities and those that require significant new utility technology investment. The Commission should adopt lower-cost options that build on existing capabilities and engineering processes, while requiring additional cost, performance, and evidence of ratepayer-benefit before authorizing broad deployment or scaling of more technology-intensive options.

[10] Proposal at 6.

[11] Proposal at 39-40.

[12] July 2026 Ruling at 4-5.

B. Question 2: *Section 9 of the Proposal includes a summary of the recommendations for Commission action. Please provide feedback on the recommendations, being as specific as possible regarding the pros and cons of the proposed recommendations, and on the feasibility of implementation.*

The Commission should address the Section 9 recommendations in three categories. First, the Commission should adopt the recommendations that standardize, align, or extend existing FSCs processes and customer-side control options. Second, the Commission should adopt or further develop the recommendations that are promising but require a clear evaluation methodology and safeguards before IOUs rely on those FSC options to avoid, defer, or resize ratepayer-funded upgrades. Third, the Commission should not direct broad deployment or scaling of technology-intensive recommendations until the record establishes implementation costs, readiness, avoided-upgrade value, and expected net ratepayer benefits.

1. The Commission should adopt recommendations that standardize or extend existing FSC processes and customer-side control options.

The following Proposal recommendations for Commission action are ready for near-term adoption:

- Section 3 Recommendation 1: *Extension of Standard Offer to SDG&E customers.*
- Section 3 Recommendation 2: *Large IOUs to record and provide values helpful to dedicated infrastructure customers independently implementing Operating Limits.*
- Section 3 Recommendation 3: *Rule 2—Updating definition of Controlled Load and alignment language between Large IOUs.*
- Section 4 Recommendation 1: *Large IOUs to provide Limited Power arrangements as the default mitigation for distribution transformer upgrades.*
- Section 5 Recommendation 1: *Direct IOUs to propose implementation of baseline cybersecurity considerations from the SIO-CS.*
- Section 6 Recommendation 1: *Establish durable non-bridging solutions for new flexible connections.*

- Section 6 Recommendation 2: *Clarification that current Static and Variable Operating Envelope customers can elect to transition from a bridging to a persistent non-bridging solution.*
- Section 6 Recommendation 4: *Large IOUs should be required to implement a non-bridging version of the Standard Offer.*
- Section 7 Recommendation: *Interoperability and Customer Choice Requirements.*

These recommendations are appropriate for near-term adoption because they generally standardize existing practices, extend existing FSC frameworks, clarify customer options, or rely on customer-side controls. For example, the Proposal explains that Limited Power has the lowest implementation requirements among the flexible connection tiers and can be implemented with certified customer-side controls rather than utility communications channels, DERMS integration, interoperability testing, or real-time operational coordination.[13] The Commission should adopt these recommendations because they can help customers access available capacity and reduce reliance on unnecessary ratepayer-funded upgrades. The Commission should also adopt the non-bridging recommendations in Section 6. These recommendations are consistent with the Proposal's goal to move FSCs beyond temporary bridge-to-wires arrangements to avoid or defer upgrades where a customer can safely accept service under operating limits.[14]

2. The Commission should require a transparent evaluation methodology and Advice Letter safeguards before IOUs use FSCs as an alternative to ratepayer-funded upgrades.

For the following Proposal recommendations, the Commission should require a clearer implementation methodology before allowing the IOUs to rely on the recommended FSC options to avoid, defer, or resize ratepayer-funded distribution upgrades.

- Section 3 Recommendation 4: *Flexible connection evaluation requirements.*

[13] Proposal at 24-25.

[14] Proposal at 37-39.

- Section 4 Recommendation 2: *SCE and SDG&E to implement Variable Operating Envelope bridging solutions modeled after PG&E's Flex Connect.*
- Section 6 Recommendation 3: *PG&E should formalize its Flex Connect offering and expand its non-bridging Flex Connect Generation option to load customers.*
- Section 8 Recommendation 1: *Real-Time Pricing Rate Enrollment.*
- Section 8 Recommendation 2: *Data Tracking.*

Section 3 Recommendation 4 would require each IOU to evaluate whether a Limited Power arrangement, Operating Envelope, or other PCS-enabled flexible connection solution can safely satisfy a customer's requested capacity before initiating a ratepayer-funded distribution upgrade.[15] The Proposal would also require the IOUs to submit a Tier 2 FSC Implementation Advice Letter to describe eligibility criteria, the evaluation process, documentation, and customer communications.[16] However, Section 3 Recommendation 4 should more clearly require the IOUs to explain how they will compare the FSC option against the traditional wires option. The Commission should require that the IOUs' Advice Letters identify the baseline upgrade the IOU would otherwise pursue, the estimated cost and timing of that upgrade, the incremental IOU and customer-side costs of the FSC option, the expected avoided or deferred upgrade value, and how the IOU will verify whether the upgrade was avoided, deferred, resized, or later built.

The additional showing above is necessary because process descriptions and participation tracking alone will not show whether FSCs reduce ratepayer costs. The Proposal's data tracking language focuses on customer interest, participation, and impacts on customer and ratepayer costs. That is useful, but it does not expressly require tracking the corresponding ratepayer benefit: the value of the upgrade avoided, deferred, or resized. Without that baseline and benefit information, the Commission and parties

[15] Proposal at 46.

[16] Proposal at 46.

cannot determine whether an FSC produced net ratepayer savings or merely created a new program cost while the underlying upgrade still moved forward.

Section 4 Recommendation 2 and Section 6 Recommendation 3 are ready for further development. The Proposal provides a reasonable basis for these recommendations because it states that PG&E has implemented Flex Connect as a low-cost IEEE 2030.5-based solution and that SCE and SDG&E have related experience through SCE's Load Control Management System pilot and SDG&E's Wholesale Distribution Access Tariff pilot.[17] However, the Proposal also limits the practical scope of this recommendation by recognizing that communications infrastructure is likely too costly and the required power flow model is likely unavailable for smaller customers.[18] The Proposal therefore frames Flex Connect as a working structure for larger customers served by Mainline infrastructure.[19]

The Commission should direct SCE and SDG&E to develop Variable Operating Envelope bridging offerings, and direct PG&E to formalize and expand Flex Connect for load customers, only where the offering can serve larger customers connected to Mainline infrastructure using existing or already-authorized IOU capabilities and customer-owned site equipment. The Commission should require the IOUs to demonstrate in the Flex Connect Advice Letters that the benefits of providing additional capacity are expected to exceed implementation costs for the customers and grid conditions where the offering would be available. The Commission should also make clear that the IOUs are not permitted to use the Flex Connect Advice Letters to seek broad new ratepayer-funded DERMS, communications, telemetry, or control investments, or to expand Flex Connect-type offerings to customer classes or grid constraints where the Proposal itself indicates the approach may not be cost-effective.

[17] Proposal at 47-48.

[18] Proposal at 47-48.

[19] Proposal at 47-48.

For Section 8 Recommendation 1 and Section 8 Recommendation 2, the Commission should strengthen the Proposal's data-tracking requirements so that it can evaluate whether pairing RTP with Variable or Dynamic Operating Envelopes produces incremental benefits, rather than outright reject default RTP enrollment. The Proposal already requires that the IOUs track enrollment, opt-outs, customer type, load curve, service size, location, FSC program, bridging or non-bridging status, RTP rate, and opt-out reasons.[20] The Commission should also require that the IOUs track evaluation of customer response, automation use, bill impacts, export compensation impacts, and any cost shifts to non-participants. Finally, the Commission should require that the IOUs evaluate, where feasible, whether observed load reductions are attributable to the operating envelope requirement, the RTP price signal, or both.

3. The Commission should not direct broad deployment or scaling of less-developed technology-intensive recommendations until costs, readiness, and ratepayer benefits are established.

The Proposal's Section 4 Recommendation 3: *Leveraging Enterprise DERMS based Variable Operating Envelope infrastructure for centralized Dynamic Operating Envelopes to address abnormal grid conditions* appropriately calls for a workshop and workshop report rather than immediate deployment.[21] Dynamic Operating Envelopes may eventually provide value during abnormal grid conditions, but the Proposal recognizes that implementing Dynamic Operating Envelopes requires ongoing coordination between utility operational systems and customer equipment and that it is not yet clear whether the benefits of this approach outweigh its challenges.[22] The Commission should require that the workshop report identify the specific abnormal-condition use cases, the incremental utility and customer-side costs, the expected avoided or deferred upgrade value, and the performance data from lower-complexity FSC tools,

[20] Proposal at 55-56.

[21] Proposal at 48.

[22] Proposal at 30.

including static and variable operating envelopes, that would support later consideration of more dynamic approaches.

The Proposal's Section 4 Recommendation 5: *Establish a series of Energy Division-led workshops with reports to further develop Grid Edge DERMS solutions* is also reasonable. The Proposal identifies several unresolved Grid Edge DERMS design questions, including capacity sharing, program access, whether Advanced Metering Infrastructure (AMI) meters are the appropriate long-term solution for computing operating envelopes, and whether devices beyond electric vehicle (EV) chargers can be locally controlled.[23] The Commission should use the workshops and reports to resolve these design questions and determine whether broader Grid Edge DERMS deployment is feasible and cost-effective before authorizing it.

However, the Commission should modify Section 4 Recommendation 4: *SCE and SDG&E should implement Grid Edge DERMS for 100 A residential customers whose EV charging would normally require an upgrade*. The Commission should not direct SCE and SDG&E to establish ChargeBoost-like programs within six months, or direct PG&E to scale ChargeBoost beyond the first 1,000 customers, until the record includes pilot performance results, implementation costs, customer-device requirements, cybersecurity requirements, verified avoided-upgrade value, and IOU-specific transferability. PG&E's 2025 Electric Program Investment Charge (EPIC) Annual Report shows meaningful progress toward deployment, including securing more than 1,100 advanced meters, launching the enrollment portal, beginning participant screening and approvals, supporting the first charger installation, and completing Phase 1 testing for the meter-agent minimum viable product.[24] However, PG&E's deployment shows that the project is still moving toward broader empirical validation; it does not yet establish realized

[23] Proposal at 50.

[24] PG&E, *Electric Program Investment Charge (EPIC) 2025 Annual Report*, April 30, 2026 (PG&E EPIC 2025 Annual Report) at 26-27. Available at: https://www.pge.com/assets/pge/docs/about/corporate-responsibility-and-sustainability/2025-annual-report-epic.pdf.

avoided upgrades, lifecycle costs, customer performance, or cost-effective scalability across IOUs.

The Commission should be especially cautious about applying PG&E's approach to SCE and SDG&E before understanding IOU-specific infrastructure needs. The Proposal explains that ChargeBoost relies on AMI 2.0 meters that communicate with neighboring meters and aggregate information to the transformer level.[25] PG&E's data request responses further indicate that PG&E's planned AMI 2.0 deployment can operate on the same existing Itron GenX mesh network as its AMI 1.0 meters without changes to access points, relays, or other network infrastructure.[26] The record in this proceeding does not yet show whether SCE and SDG&E can implement a comparable Grid Edge DERMS approach at similar cost, using comparable infrastructure, or within the six-month implementation timeline proposed in Section 4 Recommendation 4.

C. Questions 3: *Section 9 of the proposal summarizes recommendations for Commission action based on the stated goal of the proposal. Do parties find that any additional recommendations are warranted in support of this goal?*

The Proposal already creates pathways for customers to elect persistent and durable non-bridging FSCs. Under a persistent non-bridging solution, the customer's project would no longer drive a future grid upgrade.[27] Under a durable non-bridging solution, the customer would agree to maintain the flexible connection for a specified period and refrain from requesting the upgrade associated with the incremental capacity.[28] However, while the Proposal recognizes that non-bridging FSCs may alter or eliminate the need for an associated upgrade, it does not expressly determine whether

[25] Proposal at 31-32.

[26] Attachment A, PG&E Response to Cal Advocates Data Request 025-Q008, March 20, 2026 at 2; and Attachment B, PG&E Response to Cal Advocates Data Request 025-Q001, March 20, 2026 at 2. PG&E states that both AMI 1.0 and planned AMI 2.0 deployments use the same Itron GenX RF mesh network, and that AMI 2.0 deployment does not require modifications to existing access points, relays, or other network infrastructure.

[27] Proposal at 35.

[28] Proposal at 36.

service under those arrangements satisfies the IOU's obligation to serve or establish how the avoided or deferred upgrade must be reflected in utility planning and forecasting.[29]

The Commission should clarify how the obligation to serve interacts with flexible service connections. This clarification is necessary because the IOUs have not consistently described the obligation to serve as permitting long-term flexible service in place of an upgrade. SDG&E previously argued that flexible load energization is "temporary by design" because its obligation to serve requires it to plan and build the infrastructure needed to serve all known and forecast load.[30] The Proposal contemplates persistent solutions in which the customer's project does not drive a future upgrade and durable solutions that can avoid the upgrade entirely.[31] Without Commission guidance, one IOU could treat a persistent FSC as eliminating the need for the associated upgrade, while another IOU could continue forecasting or advancing the same project in anticipation of a later request for firm service. The IOUs could also impose unnecessarily short agreement terms or inconsistent rules for customers that later request firm capacity. These differences would make avoided-upgrade benefits difficult to verify and could reduce the ratepayer savings the Proposal seeks to achieve.

In addition, an IOU may interpret the obligation to serve as requiring the IOU to build whatever capacity is required by the load included in a customer's request for energization. The IOU could reach that conclusion even when it identifies a viable long-term flexible service option that would minimally affect the customer and avoid the need for new capacity. The IOU should not have an "automatic" requirement to build to meet every customer's requested peak capacity. In some circumstances, the optimal solution

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[29] Proposal at 34-38.

[30] SDG&E, *Comments of San Diego Gas & Electric Company (U 902 E) on Administrative Law Judge's Ruling Regarding Future Grid Study Report*, December 6, 2024 at 6:

> Utilities have an obligation to serve which means SDG&E will plan and build the distribution infrastructure upgrades necessary to safely and reliably serve all known and forecast loads.

SDG&E then states: "Flexible load energization strategies are temporary by design."

[31] Persistent solutions are introduced in the Proposal at 35.

may require flexibility on behalf of a customer to avoid creating new costs that ratepayers must bear.

Commission President Reynolds recognized this unresolved issue around how the obligation to serve interacts with flexible service connections. President Reynolds stated:

> The eventual need to build upgrades, and thus the limitation of the flexible connection's benefits, is really dictated by law and Commission policy, specifically how we define the utility's obligation to serve.[32]

President Reynolds further observed that:

> it may be wise for us to revisit how we think about the obligation to serve, perhaps reimagining it in a way that better harnesses the potential flexibility of large loads to the benefit of all customers.[33]

Attorneys for Environmental Defense Fund note that the duty to serve generally requires utilities to provide adequate service and make reasonable extensions, but that the duty "is not limitless."[34] They further explain that IOUs can use flexible interconnections indefinitely to avoid an otherwise necessary grid upgrade and may, in some circumstances, help define the adequate service a utility must provide.[35]

The Commission should issue a staff proposal that addresses how the obligation to serve applies to persistent and durable FSCs. The staff proposal should recommend a consistent standard for determining: (1) when a voluntarily elected FSC constitutes safe and adequate service; (2) when the associated upgrade should be removed from the IOU's queue and planning forecast; (3) how expiration, ownership changes, and later requests for firm service should be treated; and (4) what customer and ratepayer

[32] California Public Utilities Commission, Voting Meeting, February 5, 2026 (February 5, 2026 Commission Voting Meeting), video recording at approximately 1:42:00, remarks of President Reynolds. Available at: https://www.adminmonitor.com/ca/cpuc/voting_meeting/20260205/.

[33] February 5, 2026 Commission Voting Meeting, video recording at approximately 1:42:00, remarks of President Reynolds.

[34] Cole Jermyn & Michael Zimmerman, *Utilities' Duty to Serve in an Era of End-Use Electrification*, November 17, 2025 at 492. Available at: https://www.eba-net.org/wp-content/uploads/2025/11/463-7-Jermyn-491-528.pdf.

[35] Cole Jermyn & Michael Zimmerman, *Utilities' Duty to Serve in an Era of End-Use Electrification*, November 17, 2025 at 523.

protections are necessary, including dispute-resolution procedures and cost responsibility if the customer later requests firm service.

The Commission need not resolve in this phase the broader question of whether, and under what circumstances, an IOU may decline to construct full firm capacity where a safe, adequate, and cost-effective FSC can meet the customer's service needs. However, the staff proposal should also examine whether an IOU may decline to construct full firm capacity when a safe, adequate, and cost-effective FSC can meet the customer's service needs. At minimum, the Commission should clarify whether a voluntarily elected persistent or durable FSC that meets Commission-adopted safety, adequacy, and customer-protection requirements satisfies the IOU's obligation to serve. This clarification would allow the Proposal's non-bridging recommendations to produce consistent and verifiable upgrade avoidance rather than operate only as contractual offerings whose long-term planning treatment remains uncertain.

D. Questions 4: *For the proposed Advice Letters what, if any, additional implementation or program design elements should be addressed in each Advice Letter. Do parties have recommendations on how to consolidate advice letters or make the process more efficient?*

For recommendations that require comparing an FSC with a traditional upgrade, the Commission should require that the IOUs' Advice Letters establish the evaluation method described in response to Question 2, including the wires baseline, relevant FSC costs, and expected avoided or deferred upgrade value. Because the Advice Letters will precede customer participation, they cannot establish whether an upgrade was avoided or deferred. Instead, the Advice Letters should specify the common data fields and the subsequent reporting process the IOUs will use to verify whether an associated upgrade was avoided, deferred, resized, or later constructed. Further, the Commission should make clear that the IOUs are not permitted to request additional ratepayer-funded DERMS, communications, telemetry, or control investments, or to introduce incentives, rebates, or compensation mechanisms in their Advice Letters. The Commission should not require the IOUs to combine the proposed Advice Letters into a single consolidated

submission at this time. The IOUs' respective Advice Letters will likely address different technologies, implementation requirements, and customer use cases. Accordingly, a consolidated single Advice Letter could obscure the costs, eligibility criteria, and safeguards associated with each IOU's recommendation.

E. Questions 5: ***Many of the Proposal's recommendations are premised on the goal of affordability and ratepayer savings from greater capacity utilization, speed to power, and deferral or avoidance of upgrade capital expenditure. To realize these goals, quantification of ratepayer costs and benefits will be necessary. For each recommendation how should the IOUs measure, track and report key costs and benefit metrics?***

The Commission should require the IOUs to submit a common cost- benefit framework for the recommendations that are intended to provide customer service sooner or avoid, defer, or resize distribution upgrades. Separate metrics are appropriate for bridging, non-bridging, and technology-intensive FSCs because those arrangements produce value in different ways. However, the Commission should require each IOU to identify the specific distribution upgrade it would pursue without the FSC and compare that upgrade's cost and timing with the FSC's actual costs and infrastructure outcome.

The Proposal contains useful but incomplete tracking requirements. For example, the proposed non-bridging Advice Letters would track customer interest, participation, and impacts on customer and ratepayer costs.[36] Section 8 Recommendation 2 would track RTP enrollment, opt-outs, customer characteristics, and the applicable FSC offering.[37] Those requirements would provide useful program information, but they would not require the IOUs to quantify the ratepayer benefits produced by each FSC offering and compare those benefits with the offering's reported implementation and operating costs.

[36] Proposal at 54.

[37] Proposal at 55-56.

1. Bridging FSCs should use the reporting and cost-efficiency framework already established by D.26-02-025.

The Commission should apply the reporting and cost-efficiency framework established in D.26-02-025 to Section 3 Recommendation 1: *Extension of Standard Offer to SDG&E customers* and Section 4 Recommendation 2: *SCE and SDG&E to implement Variable Operating Envelope bridging solutions modeled after PG&E's Flex Connect*.

D.26-02-025 already establishes both ongoing reporting and a later cost-efficiency evaluation for PG&E and SCE's Standard Offer.[38] The decision requires the IOUs to track initial program-establishment costs, ongoing administration costs, and the additional energy consumption enabled for each customer at an hourly level.[39] In addition, D.26-02-025 requires PG&E and SCE to report Standard Offer data through the existing biannual reporting process and to file a report by January 15, 2029 that summarizes costs and enabled energy and evaluates the Standard Offer's cost-efficiency and effect on revenue requirements.[40] The Commission should apply both requirements to SDG&E's Standard Offer. This is consistent with the Proposal's express recommendation that SDG&E's implementation follow Ordering Paragraphs 1 through 5 of D.26-02-025.[41]

The Commission should use this same reporting framework for Variable Operating Envelope bridging offerings, while requiring the IOUs to separately identify:

- the capacity and hourly energy available under the variable operating profile;
- the customer's actual hourly consumption;
- the capacity and energy that would have been available under a lower-cost static limit; and

[38] D.26-02-025 at 55-57.

[39] D.26-02-025 at 55-57.

[40] D.26-02-025, Ordering Paragraphs 4-5 at 84-85.

[41] Proposal at 44.

- the incremental utility and customer costs required to provide the variable profile.

The Commission should require the IOUs, in the later evaluation, to compare the incremental energy and capacity made available by the variable profile with the incremental communications, controls, customer-equipment, engineering, and administration costs needed to provide that profile. This comparison is necessary because the principal new benefit of the variable offering is not simply that it provides earlier service, but whether varying the limit over time unlocks enough additional usable capacity.

2. The Commission should require the IOUs to evaluate each non-bridging FSC against the specific wires upgrade it is intended to replace.

The Commission should apply the reporting and cost-efficiency framework established in D.26-02-025 to Section 3 Recommendation 4: *Flexible connection evaluation requirements*, Section 4 Recommendation 1: *Large IOUs to provide Limited Power arrangements as the default mitigation for distribution transformer upgrades*, and Section 6 Recommendations 1 through 4.

The Proposal requires the non-bridging Standard Offer Advice Letters to include a plan for tracking customer interest, participation, and impacts on customer and ratepayer costs.[42] Those data are useful, but they do not expressly require the IOU to identify and value the specific traditional upgrade that the FSC is intended to avoid, defer, or resize. Without that comparison, the Commission cannot determine whether the FSC produced net ratepayer savings.

For each non-bridging FSC, the Commission should require the IOU to establish a wires baseline when it evaluates the customer's service request. The wires baseline should identify the distribution upgrade the IOU would otherwise pursue absent the FSC, including:

- the upgrade's scope and capacity;

[42] Proposal at 54.

- its estimated capital cost and expected in-service date; and
- the customer load or capacity request that would trigger the upgrade.

The Commission should require the IOUs to then track:

- the incremental IOU costs of evaluating, implementing, monitoring, and administering the FSC;
- customer equipment, installation, and third-party costs;
- the capacity provided through the FSC;
- the operating limits and expected duration of the arrangement; and
- whether the baseline upgrade was ultimately avoided, deferred, resized, or constructed.

The claimed benefit should reflect the actual change from the wires baseline. If an upgrade is avoided, the Commission should require that the IOU quantify the corresponding reduction in the ratepayer revenue requirement. If it is deferred, the Commission should require the IOU to report the duration and present-value benefit of the deferral rather than claim the entire project cost as an avoided benefit. If it is resized, the benefit should reflect the difference between the original and revised upgrade. If substantially the same upgrade proceeds on its original schedule, the Commission should not permit the IOU to claim an avoided-upgrade benefit. This distinction is consistent with the Proposal's recognition that benefits differ depending on whether an upgrade proceeds, is deferred, or is entirely avoided.[43]

The Commission should require the IOUs to report both project-level and aggregate results. Project-level data are necessary to connect each FSC to a specific infrastructure outcome. Aggregate reporting is necessary to determine whether the verified benefits of the offering exceed its total implementation and administration costs.

[43] Proposal at 6.

3. The Commission should evaluate technology-intensive recommendations before directing deployment or scaling.

The Commission should apply the reporting and cost-efficiency framework established in D.26-02-025 to Section 4 Recommendation 3: *Leveraging Enterprise DERMS-based Variable Operating Envelope infrastructure for centralized Dynamic Operating Envelopes to address abnormal grid conditions*, and Section 4 Recommendation 4: *SCE and SDG&E should implement Grid Edge DERMS for 100 A residential customers whose EV charging would normally require an upgrade*.

For Section 4 Recommendation 3, the proposed workshop report should identify the specific abnormal-condition use cases, incremental utility and customer costs, expected operational benefit, and performance thresholds that would justify later deployment. The report should also consider the performance and cost results of lower-complexity static and variable FSCs before recommending more dynamic capabilities. This is appropriate because the Proposal already recognizes that Dynamic Operating Envelopes require ongoing utility-customer coordination and that it is not yet clear whether the benefits outweigh the implementation challenges.[44]

For Section 4 Recommendation 4, the immediate evaluation should focus on PG&E's existing ChargeBoost pilot.[45] The Commission should require that PG&E's pilot evaluation report provide:[46]

- the number of customers enrolled, approved, and successfully commissioned;
- the flexible load and capacity successfully managed;
- communications, control, and fallback performance;
- customer equipment and installation requirements;

[44] Proposal at 29-30.

[45] Proposal at 31-32.

[46] As discussed in response to Question 2, the Commission should not direct SCE and SDG&E to implement ChargeBoost-like programs or direct PG&E to scale beyond the initial pilot population before the Commission receives and evaluates pilot results.

- total utility costs, including meters, software, integration, communications, cybersecurity, administration, and ongoing operation;
- customer-side costs;
- the specific upgrades avoided, deferred, or resized and their verified value;
- cost per participant, per kilowatt of managed capacity, and per upgrade avoided or deferred; and
- the systems and costs that would be required for broader deployment.

PG&E's 2025 EPIC Annual Report shows meaningful deployment progress, including procuring more than 1,100 advanced meters, launching enrollment, beginning participant screening, supporting the first charger installation, and completing initial meter-agent testing.[47] However, the report continues to identify the project as open and does not yet provide realized avoided-upgrade value, lifecycle cost-effectiveness, or completed performance results sufficient to support broad scaling.

The Commission should also require that PG&E's evaluation identify which results depend on PG&E-specific infrastructure. ChargeBoost relies on AMI 2.0 meters communicating with neighboring meters and aggregating information to the transformer level.[48] PG&E stated that its AMI 2.0 meters can operate on the same existing Itron GenX radio-frequency mesh network as its AMI 1.0 meters without modifications to access points, relays, or other network infrastructure.[49] The Commission needs to understand what additional infrastructure and costs SCE and SDG&E would require before it determines whether PG&E's results can be transferred cost-effectively to those IOUs.

[47] PG&E EPIC 2025 Annual Report at 26-27.

[48] Proposal at 31-32.

[49] Attachment A, PG&E Response to Cal Advocates Data Request 025-Q008, March 20, 2026 at 2; and see also Attachment B, PG&E Response to Cal Advocates Data Request 025-Q001, March 20, 2026 at 2.

4. RTP tracking should measure whether the price signal provides incremental benefits beyond the operating envelope.

For Section 8 Recommendation 1: *Real-Time Pricing Rate Enrollment*, the Proposal already requires the IOUs to track customer and service characteristics, the applicable FSC program, bridging or non-bridging status, RTP enrollment, the applicable rate, and opt-out reasons.

The Commission should require the IOUs to supplement those fields with:

- customer load response;
- use of automated controls;
- customer bill impacts;
- export-compensation impacts;
- identifiable cost shifts to non-participants; and
- whether observed load changes are attributable to the operating envelope, the RTP price signal, or both.

Where feasible, the IOUs should compare similarly situated operating-envelope customers who remain enrolled in RTP with customers who opt out. An operating envelope already limits or shapes customer demand. The Commission should therefore determine whether RTP produces an incremental response or ratepayer benefit beyond the response required by the FSC itself.

F. Questions 6: *How should IOUs ensure the existence of bridging solutions, non-bridging solutions, or the change from a bridging solution to a non-bridging solution are timely communicated with the California Energy Commission for forecasting purposes?*

D.24-10-030 already requires the IOUs to report all known load projects to the CEC, including the associated circuit and substation, geographic designation, customer-type load shapes, and information needed to track when known loads become actual

projects.[50] The Commission should use this existing reporting process rather than establish a separate FSC reporting system.

However, the existing requirements do not expressly require the IOUs to identify whether a known-load project is taking bridging or non-bridging flexible service or explain how that arrangement changes the expected load and associated upgrade. This distinction is necessary for forecasting because a bridging FSC temporarily limits load while the upgrade remains planned, whereas a non-bridging FSC may change or eliminate the customer-driven need for the upgrade.

The Commission should therefore require the IOUs to supplement their existing CEC submissions with the project's FSC status, the operating limit or load profile that the CEC should use, and whether the associated upgrade remains planned. The IOUs and CEC should establish a standardized update protocol tied to the CEC's forecasting schedule so that new FSC arrangements and transitions from bridging to non-bridging are reflected before the applicable forecast is finalized.

G. Questions 7.a: *The proposal recommends the Commission direct SDG&E to stand up a static FSC offering that is aligned with the requirements directed in D.26-02-025 for PG&E and SCE. For SDG&E to implement this proposal, what, if any, modifications to the requirements directed in D.26-02-025 should the Commission consider?*

The Commission should not modify the requirements established in D.26-02-025 for SDG&E. Applying the same core Standard Offer requirements to all three large IOUs will promote consistent customer eligibility, implementation, customer protections, and reporting. SDG&E should make only the conforming tariff and administrative changes necessary to apply those requirements within its service territory.

[50] D.24-10-030, *Decision Adopting Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps*, October 17, 2024, Ordering Paragraph 27 at 201-202. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M544/K154/544154869.PDF.

H. Questions 9: *Are there any safety concerns that should be highlighted?*

FSC implementation should continue to require applicable equipment certification, utility engineering review, commissioning, cybersecurity protections, and fail-safe operation when communications or customer controls fail.

III. CONCLUSION

The Commission should ensure IOUs prioritize lower-cost options that rely on existing capabilities, require transparent measurement of actual costs and benefits, and defer broader deployment of less-developed technologies until the record demonstrates that those technologies will produce verifiable net ratepayer savings.

Respectfully Submitted,

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July 27, 2026

Attachment A

PG&E Response to Cal Advocates Data Request 025-Q008,
March 20, 2026

PACIFIC GAS AND ELECTRIC COMPANY
DER Modernize Electric Grid OIR
Rulemaking 21-06-017
Data Response

PG&E Data Request No.:	CalAdvocates_025-Q008
PG&E File Name:	DER-ModernizeElectricGridOIR_DR_CalAdvocates_025-Q008
Request Date:	March 6, 2026
Requester DR No.:	PG&E-01-AA
Requesting Party:	Public Advocates Office
Requester:	Anthony Abi Abdallah
Date Sent:	March 20, 2026
PG&E Witness(es):	David Console – Customer and Enterprise Solutions Chris Moris – Engineering, Strategy and Planning

At the February 20, 2026 High DER proceeding (Rulemaking 21-06-017) *Track 3 Flexible Connections All Party Workshop*, PG&E stated that it can operate AMI 1.0 and AMI 2.0 next to each other, and that AMI 2.0 meters can interface with and obtain data from AMI 1.0 meters without having to upgrade those AMI 1.0 meters to AMI 2.0.

QUESTION 008

Communications Architecture:

a. Identify whether PG&E's AMI 1.0 and AMI 2.0 deployments utilize mesh communications, cellular communications, or a hybrid approach (if hybrid please estimate the percent split between AMI 1.0 and 2.0 meters).

b. State whether the AMI 2.0 communications approach identified in 8.a. is the same as or different from PG&E's AMI 1.0 communications approach, and explain the reason for any change.

c. Describe how the communications approach that PG&E identified in 8.a. enables or constrains the mixed-fleet interoperability that PG&E described in response to questions above (i.e. AMI 2.0 meters interfacing with AMI 1.0 meters without upgrading all surrounding AMI 1.0 meters).

d. Identify the primary considerations that PG&E evaluated when selecting its communications approach for AMI 2.0 (e.g. total lifecycle cost, coverage/performance, maintainability, scalability), and state whether PG&E performed any cost comparison between mesh and cellular approaches. If so, produce such analysis.

ANSWER 008

PG&E's Electric AMI plans were included in its 2027 GRC filed to the Commission in May 2025 in Exhibit (PG&E-6), Chapter 9. At the time of this data response, the Company is also drafting its Rebuttal Testimony that addresses intervenor comments. Please also reference this forthcoming Rebuttal Testimony, Exhibit (PG&E-18), Chapter

9 for additional details and information. PG&E welcomes a discussion with interested parties at their convenience to discuss further if required.

a. Both PG&E's AMI 1.0 and planned AMI 2.0 electric meter deployments utilize Radio Frequency (RF) mesh communications exclusively. PG&E's AMI 1.0 meters operate on the Itron GenX fixed RF mesh network, which has served as the utility's sole communications platform for first-generation meters. PG&E's AMI 2.0 planned meter deployment with distributed intelligence (DI) network interface cards (NICs) will continue to operate on that same existing GenX RF mesh network. PG&E has not made any changes to the GenX network infrastructure as part of its current Electric AMI 2.0 Program, and none are planned as both meter generations operate exclusively on the same RF mesh network. A hybrid communications approach does not apply to PG&E's current deployment and a percent-split estimate between mesh and cellular is not applicable at this time as AMI 2.0 meters with cellular capabilities are currently not available and will be evaluated as appropriate in the future.

b. The communications approach for PG&E's current AMI 2.0 electric meter deployment is the same as the approach for its AMI 1.0 electric meters. Both meter generations operate on the Itron GenX RF mesh fixed network using backward-compatible protocols, managed through the same UIQ Head-End System. There is no change in the underlying communications infrastructure between the two meter generations.

   This continuity is intentional and reflects PG&E’s deliberate decision to preserve the substantial customer investment already made in PG&E's GenX network infrastructure. Rather than replacing or supplementing the existing network, PG&E's Electric AMI 2.0 Program takes advantage of the GenX platform's native design capabilities to support multiple meter generations simultaneously. This enables the deployment of AMI 2.0 meters and their DI applications at scale without requiring any changes to the field communications network, access points, micro-APs, relays, or back-office systems.

   Material changes between AMI 1.0 and the current AMI 2.0 deployment are limited to the meter endpoints - specifically the AMI 2.0 meter hardware and its DI NIC capabilities, which introduce edge computing, high-frequency data collection, and distributed intelligence application capabilities that are not available in AMI 1.0 electric meters. These capabilities operate over the same GenX mesh network that AMI 1.0 meters use today.

   PG&E will address any communications architecture or associated network changes for the next generation AMI 2.0 meter deployment as needed.

c. The use of a single shared Itron GenX RF mesh network as the communications platform for both AMI 1.0 and AMI 2.0 electric meters is the primary technical enabler of mixed-fleet meter interoperability. Because both meter generations communicate through the same network infrastructure — the same access points, micro-APs, and relays — there is no requirement to segment the network, create parallel communications paths, or upgrade AMI 1.0 meters or surrounding network infrastructure before deploying AMI 2.0 meters in any given area.

   This is made possible by the GenX platform's backward compatibility by design that supports AMI 1.0 NICs and AMI 2.0 DI NICs meters that both communicate natively on the GenX mesh without protocol conflict or hardware modification. The network's

gear-shifting capability further enables this coexistence by dynamically adjusting data rates and modulation schemes for each connected device - allowing higher-speed communication with AMI 2.0 DI NICs while simultaneously maintaining compatibility with the lower-speed NICs in AMI 1.0 meters, all on the same access point and relay infrastructure and without manual reconfiguration.

At the system management layer, both meter generations are managed through the same Itron UIQ HES platform. The UIQ HES normalizes data from both meter types before passing it to downstream systems - including the MDMS, OMS, and billing platforms - ensuring a unified data environment with no operational gaps or disruption during the mixed-fleet transition period. Because all communication dependencies are resolved at the network and HES layers, PG&E can deploy AMI 2.0 meters incrementally across its service territory on a geographic and programmatic basis, independent of whether adjacent meters have been upgraded.

d. PG&E's selection of the existing Itron GenX RF mesh network as the communications platform for AMI 2.0 meter deployment is based on an evaluation of several interconnected factors spanning total lifecycle cost, infrastructure investment preservation, operational continuity, and program scalability.

   From a cost and investment perspective, continuing with the existing GenX network eliminates the substantial capital expenditure that would be required to deploy new communications infrastructure. The GenX network is comprised of access points, micro-APs, relays and represents a significant past ratepayer investment with remaining useful life. Replacing or significantly supplementing that network for the Electric AMI 2.0Program would strand that investment prematurely. Leveraging the existing AMI network for the AMI 2.0 electric meter deployment maximizes asset utilization and minimizes total program cost.

   From a technical and operational perspective, the backward compatibility of PG&E’s GenX platform is clearly beneficial. It enables PG&E to deploy AMI 2.0 electric meters at scale without requiring concurrent upgrades to AMI 1.0 electric meters or AMI network infrastructure supporting a phased deployment strategy and helping to reduce program deployment risk. The existing AMI network also provides proven, utility-owned coverage across PG&E's service area with well-understood performance characteristics.

   PG&E also considered DI application readiness as the AMI 2.0 DI NIC is fully compatible with the GenX mesh network for all planned DI application deployments. None of the DI applications planned for deployment require cellular connectivity to operate as designed, making the RF mesh network sufficient for the current program scope.

   PG&E’s cellular communications approach is designed to evolve alongside the Itron platform roadmap and with the anticipated introduction of the next generation AMI 2.0 meter platform with cellular capability. This will give PG&E the option to introduce cellular communications in future deployment phases without disrupting or retiring the current mesh-based infrastructure. PG&E plans to complete cost comparisons between cellular and RF mesh devices once the next generation AMI 2.0 meters with cellular connectivity are available.

Attachment B

PG&E Response to Cal Advocates Data Request 025-Q001,
March 20, 2026

PACIFIC GAS AND ELECTRIC COMPANY
DER Modernize Electric Grid OIR
Rulemaking 21-06-017
Data Response

PG&E Data Request No.:	CalAdvocates_025-Q001
PG&E File Name:	DER-ModernizeElectricGridOIR_DR_CalAdvocates_025-Q001
Request Date:	March 6, 2026
Requester DR No.:	PG&E-01-AA
Requesting Party:	Public Advocates Office
Requester:	Anthony Abi Abdallah
Date Sent:	March 20, 2026
PG&E Witness(es):	David Console – Customer and Enterprise Solutions Chris Moris – Engineering, Planning and Strategy

At the February 20, 2026 High DER proceeding (Rulemaking 21-06-017) *Track 3 Flexible Connections All Party Workshop*, PG&E stated that it can operate AMI 1.0 and AMI 2.0 next to each other, and that AMI 2.0 meters can interface with and obtain data from AMI 1.0 meters without having to upgrade those AMI 1.0 meters to AMI 2.0.

QUESTION 001

In narrative terms, describe what it means for AMI 2.0 meters to interface with AMI 1.0 meters including whether that refers to:

a. Communications at the field network level (mesh network interoperability);

b. Data integration at the head-end level;

c. An AMI 2.0 meter functioning as a gateway/relay for AMI 1.0 meters; and/or

d. Any other mechanism

ANSWER 001

PG&E's Electric AMI plans were included in its 2027 GRC filed to the Commission in May 2025 in Exhibit (PG&E-6), Chapter 9. At the time of this data response, the Company is also drafting its Rebuttal Testimony that addresses intervenor comments. Please also reference this forthcoming Rebuttal Testimony, Exhibit (PG&E-18), Chapter 9 for additional details and information. PG&E welcomes a discussion with interested parties at their convenience to discuss further if required.

PG&E currently deploys and operates an AMI RF mesh-network from Itron which hosts AMI 1.0 meters from a handful of vendors. PG&E's AMI 2.0 electric meters can interface on that same RF mesh-network with existing AMI 1.0 electric meters across multiple layers of its AMI system with continued backward compatibility with previously deployed AMI 1.0 meters. This is possible due to the architecture of our AMI network which

supports backwards/forward compatibility between AMI 1.0 and 2.0 meters. These AMI technology layers include:

1) **Radio Frequency (RF) Mesh Network Topology:** AMI 2.0 electric meters can operate within the same RF mesh network as AMI 1.0 electric meters. Both meter generations use compatible communication protocols that allow them to exchange messages, participate in the same self-forming mesh network and dynamically route communications through neighboring devices without requiring replacement of existing AMI 1.0 meters. Deployment of AMI 2.0 meters does not require modifications to existing access points, relays or other network infrastructure.
2) **Head-End System (HES):** The HES supports simultaneous management of both AMI 1.0 and AMI 2.0 electric meters. The HES integrates data from both meter types and provides normalized outputs to downstream utility systems such as meter data management, outage management and billing platforms.

AMI 2.0 electric meters will additionally support new grid-edge intelligence capabilities that provide advanced device functionality. These grid-edge capabilities can operate alongside legacy AMI 1.0 system capabilities and do not interfere with the interoperability or backward compatibility of AMI 1.0 electric meters within the communications network or supporting systems. PG&E's AMI 2.0 meter deployments can be implemented incrementally while maintaining full operational compatibility with existing deployed AMI 1.0 meters, allowing PG&E to modernize the AMI platform without stranding prior AMI infrastructure investments.

For additional AMI 2.0 use cases which are based on an "application" type framework, meaning that numerous applications can be tailored to specific use cases as they are proven out and as the capability matures, there will be additional HES integrations to business systems on a per use case basis.

AMI 2.0 meters can function in a "hub" and "spoke" model in which an AMI 2.0 meter can directly communicate with neighboring AMI 1.0 meters without trafficking data back to the head-end. What this enables is the ability for the AMI 2.0 meters to use logic at the edge to make determinations or take actions without requiring additional capacity back to the centralized AMI HES. As a practical example, this is how the AMI 2.0 meter used for grid upgrade deferrals can communicate with its AMI 1.0 neighbors, read load and voltage, and then calculate a limit in near real-time for that group reflective of the secondary conductors and service transformers thereby deferring secondary grid upgrades.