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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future	Rulemaking 21-06-017

ASSIGNED COMMISSIONER'S RULING SEEKING ADDITIONAL INFORMATION ON DER ENABLED NEAR TERM FLEXIBLE CONNECTIONS

This ruling modifies the proceeding schedule for Track 3 of Rulemaking 21-06-017, provides definition of terms, and requests additional party comment on recommendations of the Smart Inverter Operationalization Working Group as to the development of flexible connections between Distributed Energy Resources (DER) customers and the electrical grid.

Two rulings on Track 3 issues provide sufficient record on what issues parties see as priorities and which are technically feasible to move forward. This ruling focuses on the areas that stand out in the record where we anticipate meaningful progress can be made towards better leveraging the electric system to allow for DERs or load to unlock existing capacity.

This ruling requests party comment on:

a. Current and projected readiness of technologies needed to support flexible connections, including Advanced Distributed Management Systems (ADMS) and Distributed Energy Resources Management Systems (DERMS) and related communications technologies, to support and implement flexible connections,

b. Implementation of high priority use cases for flexible connections under normal grid operations,

c. Implementation and probable use cases for DERs to provide operational flexibility under abnormal grid conditions,

d. Potential for flexible connections to be used as a long-term solution, in addition to a bridging solution, without customer compensation.

The Large IOUs shall file and serve responses to the two directed sections below no later than November 25, 2025. Party responses to all portions of this ruling, including those directed to the Large IOUs, may be filed and served no later than December 10, 2025. Replies may be filed and served no later than December 20, 2025.

Background

The California Public Utilities Commission (Commission) issued, on July 2, 2021, an Order Instituting Rulemaking (OIR) to Modernize the Electric Grid for a High Distributed Energy Resources (High DER) Future.

The Assigned Commissioner's Amended Scoping Memo and Ruling (Amended Scoping Memo) issued on August 11, 2023, articulated three scoped issues in Track 3, Phase 1 of this proceeding. The scoped issues for Phase 1 focus on identifying priority uses for new technologies[1] based on the value they may provide to operators and ratepayers, specifying the roadmaps for adopting these technologies, and evaluating cybersecurity standards to ensure secure communications.[2]

As directed by the OIR, the Smart Inverter Operationalization Working Group (SIOWG) was formed to address the first two scoped issues; and the

[1] The SIOWG report considered both generation technologies operationalized by smart inverters and updated standards for power control systems that are capable of addressing both load and generation.

[2] Amended Scoping Memo at 7-8.

Smart Inverter Operationalization Cybersecurity Subgroup (SIO-CS) to address the third scoped issue. These working groups began in 2022 and concluded in 2024, with each providing a report including recommendations for Commission action. These reports are collectively referred to as the SIO Reports. The SIO Reports identified "export limiting" for DERs as a high priority supported by ongoing work in the Interconnection proceeding on Limited Generation Profiles at that time and also identified "import limiting" as a high priority, highlighting that it would require additional work.

On May 10, 2024, the Commission adopted Resolution E-5260. In relevant part, this resolution directs PG&E, SCE, and SDG&E to submit comprehensive reports on their Operational Flexibility Pilots.

On May 29, 2024, the Administrative Law Judge (ALJ) issued a Ruling entering the SIO Reports into the record of this proceeding and requested party comment to 35 questions. These questions focused on prioritization, concepts of firm import and export limits and non-firm import and export capacity, use cases, regulatory issues, technical requirements and cybersecurity requirements.

On July 8, 2024, nine parties filed comments in response to the ruling. On July 22, 2024, eight parties filed reply comments in response to the ruling, and on July 24, 2024, two parties filed reply comments.

On October 9, 2024, UL published version two of standard 3141, covering power control systems used in DER systems (UL 3141). UL 3141 allows a Power Control System to be evaluated for Power Import Limiting and/or Power Export Limiting where the control is exerted at the point of common coupling.[3]

[3] https://www.shopulstandards.com/ProductDetail.aspx?productId=UL3141_2_O_20241009; referenced on October 17, 2025.

On February 7, 2025, the assigned Commissioner and ALJs issued a Ruling (Further Direction Ruling) seeking additional information from parties, setting forth further direction, and modifying the schedule for Track 3. That Ruling included seven questions for parties addressing issues such as DER implementation strategies for Track 3, project types that would benefit from flexible connections, appropriate communications between DERs and DERMS, new developments and technologies to be considered, and the cost-effectiveness of implementing these technologies. Thirteen parties filed opening comments responding to the ruling on March 13, 2025, and nine parties filed reply comments on March 27, 2025.

Definitions

For clarity, we use the following definitions in this ruling:

- **Bridging** refers to temporary solution(s) put in place to allow a customer to operate on a limited basis until grid upgrades can be completed.
- **Flexible Connection** is defined as a means of connecting a customer to a utility's distribution system under specific capacity limits that vary over time.
    - **Flexible Service Connection** is a Flexible Connection provided for the purpose of serving customer load.
    - **Flexible Generation Connection** is a Flexible Connection provided for the purpose of serving customer generation.
- **Firm Capacity** is load or generation capacity that is contractually obligated and remains in place.
- **Non-Firm Capacity** is additional capacity above the Firm Capacity that the operator obligates to a customer based on updates to the operator's forecast or measured grid conditions. These capacity values are provided to the customer through periodic communications.

- **Unlocked Capacity** is the difference between the capacity provided to a customer under traditional planning methods and the capacity safely enabled by new methods or technologies.
- **Operating Envelope** is the series of operational limits, based on firm and non-firm capacities, within which customers may import and/or export power over a specified time frame (e.g., one day).
    - **Temporary Operating Envelope** is an Operating Envelope that remains in effect for a specific amount of time (e.g., bridging solutions).
    - **Static Operating Envelope** is an Operating Envelope whose collection of operational limits is predetermined to reflect known firm capacity and may not be modified without altering the contract between customer and operator.
    - **Variable Operating Envelope** is an Operating Envelope whose collection of operational limits is persistent, based on known firm and non-firm capacity over a predetermined period and modified periodically (e.g., day-ahead). The new collection of limits supersedes the old collection and becomes effective at an agreed upon time.[4]
    - **Dynamic Operating Envelope** is a Variable Operating Envelope whose operational limits may be updated in near-real time to reflect an updated understanding of additional non-firm capacity.
- **Power Control System** is a system that monitors the output of power from sources and/or power consumption of loads and regulates or limits power exchange between the customer and operator within predefined limits.

[4] An example of a variable operating envelope is what PG&E provides to FlexConnect customers. Customers are given a 72 hour schedule of values that defines their capacity and remains in effect until the next set of 72 hour values is transmitted to the site.

- **Polyphase Grid** refers to the set of locations where a connection to the electric grid with more than one phase[5] of service is available without necessitating a line extension. These are the locations where standard connections with a capacity greater than 100kW are available.
- **Near-Real Time Communications** are communications that achieve a change in operational limits in no more than one hour, but typically fifteen minutes or less, from the operator's signal.

Providing Value to Operators and Ratepayers

Party feedback on the SIOWG report indicates that the greatest value from new technologies is likely to come from the use of flexible connections.[6] These flexible connections have the potential to 1) provide additional load and generation capacity over existing grid infrastructure and to 2) enhance the ability of grid operators to stabilize the grid during abnormal operations. These uses were referenced in the SIOWG report under Business Cases A and B.

All of the known current deployment of flexible connections has occurred on the polyphase grid. The larger power levels, higher degree of instrumentation for this portion of the grid, and significant communications infrastructure cost lead us to believe that most near-term activities related to abnormal operations will also be deployed on the polyphase grid.

This ruling focuses on flexible connections providing non-firm capacity on the polyphase grid, on flexible connections' potential to support reliability by

[5] Equipment that gets plugged into a standard outlet runs on one phase of power, but larger loads (e.g., EV fast chargers, large motors, data centers) get served by three phases. Polyphase refers to these three phase services.

[6] Examples of currently available flexible connections include the Limited Load Letters and the FlexConnect pilot from PG&E, the Load Control Management Systems Pilot from SCE, and the Limited Generation Profiles provided by the Large IOUs.

limiting load during abnormal grid operations, and adapting strategies used to provide flexible connections for the polyphase grid to single phase customers.

This focus is driven by the exploration of topics that are both likely to provide value to operators and ratepayers, and that are likely to be mature enough for inclusion in a decision by the Commission.

Solutions Applicable to Customers Located on the Polyphase Grid

Available flexible service and generation solutions operate on the polyphase grid. This network has more robust sensors and capacity, and the IOUs have existing computer models that allow them to quickly understand how this grid will respond to any changes. The discussion and questions in this section apply to customers on the polyphase grid.

Traditional Approach for Establishing Capacity

A customer's available grid capacity fluctuates significantly over the year, depending on the power use by the other customers that are on that circuit. The worst case hour of the year occurs when all other customers on that circuit are maximizing their use of the circuit. Traditional planning assumes that there is no way to predict or measure what the available grid capacity will be at any given hour, so the amount of capacity that a customer is allowed can't be more than would be supported in the worst-case hour of the year.

Informal, Pilot, and Tariffed Offerings Currently Unlocking Firm Capacity on the Primary Polyphase Grid

PG&E and SCE have launched bridging solutions that allow them to predict grid conditions and provide more firm load capacity than the traditional worst-case approach would allow. In these offerings, the safe limit for capacity is expressed in a profile of maximum values by season and hour, and that limited

load profile defines the static operating envelope of load that a customer can add to the grid during times when it is safe to do so. These static operating envelopes are being provided through PG&E's Load Limit Letter offering and SCE's Localized Autonomous Load Control Management Systems Pilot.

Many polyphase grid customers can also access flexible connections providing firm generation capacity from PG&E, SCE, and SDG&E (Large IOUs) Limited Generation Profiles, a static operational envelope that provides generation capacity in excess of what would be available under traditional methodologies.

Firm capacity offerings for polyphase customers and their associated static operating envelopes are being addressed through the Energization (R.24-01-018) and Interconnection (R.25-08-004) proceedings, respectively, and we will not address them further here.

Offerings Unlocking Non-Firm Capacity on the Polyphase Grid

Both PG&E and SCE have proposed offerings that leverage their DERMS and ADMS capabilities as a bridging solution that unlocks non-firm capacity for customers dealing with upstream capacity constraints. These offerings are a part of the FlexConnect and Communications Based Load Control Management Systems pilots, respectively. They build on the firm capacity offerings detailed above by providing customers with a variable operating envelope comprised of day-ahead non-firm capacity values that exceed their previously authorized firm capacity values. This variable operating envelope stays in effect unless there is a loss of communication or abnormal grid operations.

PG&E has implemented this capability to provide variable operating envelopes for non-firm load in real world installations with paying FlexConnect

customers.[7] It is not clear whether this capability has been deployed by SCE in its Communications Based Load Control Management Systems pilot, which is due to conclude by January 2026. SCE has, however, developed a short-term forecasting engine that can prepare next-day profiles on both a cost- and loss-optimized basis.[8]

Technologies that enable new approaches

In their efforts to modernize the grid and in response to growth in load and generation, PG&E, SCE, and SDG&E (Large IOUs) have each implemented IEEE 2030.5 systems allowing them to communicate in near real time with DERs. PG&E and SCE have started implementing DERMS and ADMS, allowing them to measure or predict what capacity is likely to be available at locations on the primary polyphase grid at any given time.

Since the publication of the SIO reports, industry has developed and published a standard, UL 3141, which allows a customer to control both load and generation to ensure that the power exchanged with the grid does not exceed a programmed value.

Demonstrated Response of Deployed Systems to Near Real Time Communications

PG&E has demonstrated the ability for a deployed system to respond to near real time IEEE 2030.5 communications and drop approximately 100kW of

[7] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/rule21/smart-inverter-working-group/pge_opflex_report_2025.pdf, accessed on October 20, 2025; PG&E February 28, 2025 OpFlex Pilot Report at 14.

[8] https://www.energy.ca.gov/sites/default/files/2024-06/CEC-500-2024-064.pdf, accessed on October 20, 2025; SCE Electric Access System Enhancement report at 6.

load in approximately 30 seconds,[9] but it is unclear as to whether this communication has been successfully deployed to similarly control generation.

SCE has shown the ability to compute and optimize the dispatch of 31 customer inverters in a field demonstration and provision up to 1,000 DER on a 15-minute basis[10] in a digital twin simulation by grouping them into nodes on the same switchable segment.[11] It is unclear, however, if these communications have been used to control load and what response time is supported by these communications.

The limited number of customers utilizing variable operating envelopes and limited occurrences of deployed systems responding to the near real time communications that are necessary for both operational flexibility during abnormal operation and the implementation of dynamic operating envelopes limits our understanding of current IOU capabilities. Accordingly, we direct PG&E, SCE, and SDG&E to file and serve responses to the following questions regarding the current state of their ADMS and DERMS technology and associated communications that can facilitate the two goals described above—1) unlocking non-firm capacity as a bridging solution by providing customers with variable or dynamic operating envelopes and 2) being capable of signal direction to participating sites that establishes import limits under abnormal conditions.

[9] PG&E February 28, 2025 OpFlex Pilot Report at 15-16.

[10] This computation and provisioning occurred in a digital twin simulation environment.

[11] SCE Electric Access System Enhancement report, passim.

Questions and Direction for Large IOU Response Regarding ADMS/DERMS Capabilities that Unlock Non-Firm Capacity for Polyphase Customers

No later than November 25, 2025, each of the large IOUs are directed to respond to the following questions regarding ADMS/DERMS and their current technical capabilities. All other parties are also invited to provide responses to these questions, as they would like, no later than December 10, 2025. Response to these questions will allow us to gauge the status of capabilities that are foundational to establishing operating envelopes that provide non-firm capacity.

1. Are IOU ADMS and DERMS currently capable of providing short-term (e.g., day-ahead or week-ahead) load and generation capacity forecasts suitable for variable operating envelopes for all locations on the polyphase distribution grid?
    e. If ADMS and DERMS are currently capable of providing short-term forecasts for variable operating envelopes, what is the maximum number of locations that can be forecast at the normal duration (e.g., day-ahead or week-ahead) with the current or planned level of resources?
    f. For ADMS and DERMS that are not currently capable of providing short-term forecasts, what other systems or manual processes have been used (e.g., in research projects, pilots, or demonstrations) to provide this capability?
    g. For ADMS and DERMS that are not currently capable of providing short-term forecasts, what is the planned timeline for developing this capability? Please note if this timeline differs from the timeline presented in the most recent IOU filing (e.g., Operational Flexibility or Bridging report, GRC work paper, etc.).
2. Are IOU ADMS and DERMS currently capable of rapidly providing load and generation forecasts suitable for

dynamic operating envelopes (e.g., hour ahead values) for all locations on the polyphase distribution grid?

   a. If ADMS and DERMS are currently capable of rapidly providing forecasts suitable for dynamic operating envelopes, what is the maximum number of locations that can be forecast at the normal duration (e.g., hour ahead) with the current or planned level of resources?

   b. For ADMS and DERMS that are not currently capable of rapidly providing short-term forecasts suitable for dynamic operating envelopes, what is the planned timeline for developing this capability? Please note if this timeline differs from the timeline presented in the most recent IOU filing (e.g., Operational Flexibility or Bridging report, GRC work paper, etc.).

3. Please articulate with specificity, as needed, any additional functionalities that must be developed for ADMS and DERMS to be capable of providing short-term load and generation capacity forecasts to all customers located on the polyphase grid of the Large IOUs.

   c. If needed, please articulate with specificity any planned or anticipated resources that will be required for these additional ADMS and DERMS functionalities.

4. With the understanding that the Large IOUs are at different stages of implementing their ADMS and DERMS capabilities, how can the Commission ensure that near-term solutions are provided to customers in a timely fashion?

   d. Please provide an estimated timeline for how long it would take to implement these solutions.

5. If needed, what solutions should the Large IOU(s) at an earlier stage of ADMS/DERMS capabilities employ as interim measures as their ADMS/DERMS capabilities are building up?

   a. Please provide an estimated timeline for how long it would take to implement these solutions.

6. Is there a limitation on the number of customers that can be provided day ahead variable operating envelopes (based on these short-term forecasts) through the Large IOUs' IEEE 2030.5 communications servers?
7. Is there a limitation on the number of customers that can be provided dynamic operating envelopes (based on an assumption of hour ahead forecasts) through the Large IOUs' IEEE 2030.5 communications servers?
8. Are there any communication functionalities required to provide variable or dynamic operating envelopes to customers on the polyphase electric grid that are not provided by the IOU CSIP/IEEE 2030.5 infrastructure?
9. Please detail with specificity any plans, including projected timelines, to bring down the customer cost to receive variable or dynamic operating envelopes via direct communications12 with IOU IEEE 2030.5 servers.
10. Are there any existing arrangements with aggregators that would allow those aggregators to coordinate the response of multiple customers?
11. Please detail with specificity any plans, including projected timelines, for IOUs to enter into agreements with aggregators13 that would reduce the per customer cost to receive variable or dynamic operating envelope data from IOU ADMS and DERMS.
12. Please detail with specificity the level of data that is provided to Community Choice Aggregators about large customers within your service territory.
13. Should Rules, Tariffs, or policies be modified in order to allow for the implementation of variable or dynamic operational envelopes for customers on the polyphase grid?

[12] PG&E February 28, 2025 OpFlex Pilot Report at 23, "generally it is expected these costs to be in the $20k-$50k range."

[13] https://www.pge.com/assets/pge/docs/about/doing-business-with-pge/TD-2306P-01.pdf, accessed on October 12, 2025; PG&E's COT lists the cost of integration with their 2030.5 system as $4,000, not including the customer side hardware, installation, and communications costs.

a. If yes, please provide suggestions regarding the specific Rules, Tariffs, or policies, and any suggested modifications.
b. If no, what Commission guidance and IOU action is needed in order to implement variable or dynamic operational envelopes?

Operational Flexibility during Abnormal Grid Conditions

In the case of suddenly emergent conditions, the near real-time communications and ability of polyphase customers operating within a dynamic operating envelope[14] to reply to signaled maximum import values may be useful to the operator's ability to maintain reliable service. This signaling would trigger a contractually obligated customer response within a certain amount of time.

For emergent conditions that allow for advance planning, the adjustment of the future values in a customer's variable operating envelope may support the operator's ability to maintain reliable service during planned abnormal operations. In this case, best practices would dictate that the operator provide the affected customers notice of its plan to adjust these future values with as much notice as practicable.

The operator's ability to judge whether it is able to receive or deliver electric energy through its electric distribution system and its obligation to exercise this judgement in a non-discriminatory manner is established in Rule 14 for the respective IOUs. We are inclined to restrict IOUs ability to reduce the non-firm capacity available through signaled maximums to these customers to the rationales that have historically been used to direct Rule 14 curtailment.

[14] SDG&E Opening Comments to Further Direction Ruling at 8.

Questions for Large IOUs Regarding Directed Maximum Capacity Values during Abnormal Grid Operation

No later than November 25, 2025, the large IOUs are directed to respond to the following questions regarding abnormal grid operations.

14. Please estimate the annual number of abnormal grid operations due to emergent situations which utilize operational flexibility actions such as switching or curtailment to ensure reliable operation.
15. Please estimate the annual number of abnormal grid operations due to planned events which require utilize operational flexibility actions such as switching or curtailment to ensure reliable operation.

Questions for Parties Regarding Directed Maximum Capacity Values during Abnormal Grid Operation

No later than December 10, 2025, parties are directed to respond to the following questions regarding abnormal grid operations.

16. Does the value provided by the ability to signal maximum import values via IEEE 2030.5 to sites on the polyphase grid during emergent abnormal grid operation justify the technical and contractual effort necessary to develop this ability?
    c. How could such customer import direction be developed and implemented to maximize value and produce significant net benefit to the system?
17. Does the value to the system provided by the ability to signal maximum import values via IEEE 2030.5 to sites on the polyphase grid in anticipation of potential or planned abnormal grid operation justify the technical and contractual effort necessary to develop this ability?
18. Should Rules, Tariffs, or policies be modified in order to allow for operator signaled maximum import capacity limits under abnormal grid operation?

d. If yes, please provide suggestions regarding the specific Rules, Tariffs, or policies, and any suggested modifications.

e. If no, what Commission guidance and IOU action is needed in order to allow for operator signaled maximum import and export capacity limits under abnormal grid operations?

f. Please describe what implementation considerations may differ between signaled response to emergent abnormal conditions and operating envelope adjustment in response to planned abnormal conditions.

Solutions Applicable to Single Phase Customers

Existing solutions have focused upon serving the needs of customers located on the polyphase grid. In proposing solutions for single phase customers, there may be efficiency and speed advantages to modeling solutions on existing approaches, despite differences in customer power levels[15] and infrastructure.[16] We request party input on the situations for which adapting approaches currently used for polyphase customers to single phase customers is feasible and desirable, and on those where technical or economic realities dictate that an approach other than adaptation of polyphase approaches is likely to be required.

Due to single phase customers having smaller capacities, it is likely that the costs associated with provisioning near real-time communications will be a

[15] PG&E Rule 2 at 8: For any single-phase service, the maximum demand as determined by PG&E is limited to the capability of a 100 kVa transformer unless otherwise approved by PG&E. If the load requires a transformer installation in excess of 100 kVa, the service normally will be three-phase.

[16] Many polyphase services are "looped" with other circuits so they can be served by more than one power source. This can result in higher capacity.

barrier to customer adoption,[17] and that the operators will not see as much value from operational flexibility or capacity enabled by dynamic operating envelopes.

The availability to create variable or dynamic operating envelopes may be available to fewer customers than static operating envelopes, as they rely upon load forecasts which only work well in areas that have a history of direct measurement via supervisory control and data acquisition (SCADA) devices.[18]

For these reasons, we are inclined to focus on firm capacity provided by static operational envelopes and non-firm capacity provided by variable operational envelopes for single phase customers. This approach foregoes, at this time, the ability to provide dynamic operational envelopes or near real-time operational flexibility for single phase customers.

Parties have provided examples of other jurisdictions (e.g., Australia, Northern Europe, Colorado, Illinois, New York, and Texas) that are working to offer customers flexible capacity. We request party input on simplified modeling approaches that may be sufficient to characterize the safe level of firm and non-firm capacity on a single-phase feeder without incurring the cost or delay that is entailed by a dedicated engineering power flow analysis.

Single phase customers are responsible for the cost of Rule 15, 16, and 21 upgrades and may be motivated both to maximize their utilization of existing grid infrastructure and defer grid upgrades where possible. Parties note the potential for ratepayer and customer savings through non-bridging use of flexible connections to avoid or defer grid upgrades.[19]

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[17] PG&E Comments to Further Direction Ruling at 4.

[18] PG&E's February 28, 2025 OpFlex Pilot Report at 18.

[19] TURN reply comment to Further Direction Ruling at 1-2; Clean Coalition reply comment to Further Direction Ruling at 2-3.

Single phase customers also are likely to share secondary equipment (e.g., pole-mounted transformer) with other customers, further complicating the analysis of safe levels of capacity for flexible connections. In this ruling, we request party input on the desirability and feasibility of utilizing a single aggregator to coordinate the control of multiple customers' use of capacity on shared infrastructure.

Questions Regarding Flexible Capacity for Single Phase Feeder Customers

No later than December 10, 2025, parties are directed to respond to the following questions regarding flexibility capacity for single phase feeder customers.

19. Approximately what portion, in quartiles (e.g., 0-25%, 25-50%) of the Large IOU single phase customers have their service infrastructure modeled in power flow software?
20. Do parties favor adapting existing approaches (e.g., LLL, FlexConnect) to serve single phase customers, or taking a different approach?
    g. If parties favor a mix of adaptation and different approaches, please detail which elements (e.g., computing static operating profile, communicating day ahead values, etc.) should be adapted and which should use a different approach.
21. Are there any existing plans to expand ADMS and DERMS load and generation forecasting capabilities to single phase customers?
    a. If yes, please detail these plans.
    b. If no, what is the reason for not pursuing inclusion of these portions of the grid?
22. Is there a lower cost communication pathway that can be leveraged to provide lower frequency[20] and longer

[20] PG&E currently communicates with FlexConnect customers at least once per day.

response time21 communication of short-term profile values to DER customers taking single phase service?

23. Should the Commission pursue non-bridging flexible connections as a way for single phase customers to avoid or defer grid upgrades? Please provide details as to how this could be implemented.

24. What current models or methodologies (e.g., AusNet Approximation algorithm, Asset Capacity Operating Envelopes, LV network approximation with AMI data, etc.) have the potential to provide low-cost static or variable operating envelopes for the purpose of minimizing or deferring distribution line or service upgrades on single phase feeders?

25. Are there power control systems or smart inverter functions (e.g., voltage support or reactive power) that should be leveraged to maximize the available load and generation capacity for these low-cost options?

    a. If yes, are there existing solutions that can be quickly implemented without relying on ADMS/DERMS and communications?

    b. If yes, should we prioritize these solutions in addition to focusing on larger customers?

26. Are there aggregators/equipment manufacturers that have the capability to coordinate the power use of multiple single phase customer sites connected to shared infrastructure such that capacity can be safely shared within that infrastructure?

    c. If yes, what steps would be required to prove and scale the coordinated control of multiple sites for safe flexible connections?

[21] Operational Flexibility events triggered under the Operational Flexibility functionality of the FlexConnect pilot have demonstrated responses on the order of 30 seconds.

27. Should Rules, Tariffs, or policies be modified in order to allow for the implementation of static or variable operational envelopes for single phase customers?
    a. If yes, please provide suggestions regarding the specific Rules, Tariffs, or policies, and any suggested modifications.

Background on Dynamic Rates

The Commission has authorized dynamic rates[22] on a pilot basis and these pilots will remain in effect through the end of 2027 in PG&E[23] and SCE[24] territory. All Large IOUs will be required to offer an opt-in dynamic rate to all customers by January 1, 2027.[25] These rates will also be available to Community Choice Aggregator (CCA) customers within the respective Large IOU territories, contingent upon each CCA's decision to adopt them.

While those customers benefitting from unlocked firm capacity under static operating envelopes have a known upper bound to their capacity, those operating within variable or dynamic operating envelopes have a greater opportunity to shift operations in response to capacity opportunities. That opportunity may be beneficial to both the customer and to the grid, if the proper price signals are provided. Dynamic rates align the needs of the grid with the price signals provided to the customer, and this Ruling seeks to understand how best to align the policies here with the Commission's adopted policies on dynamic rates and demand flexibility.

[22] D.24-01-032 OP 1, OP 2.

[23] https://www.pge.com/en/account/rate-plans/hourly-flex-pricing.html, accessed October 17, 2025.

[24] https://www.sce.com/sce-expanded-flexible-pricing-rate-pilot, accessed October 17, 2025.

[25] California Code of Regulations section 1623(d)(2).

Parties are encouraged to provide comment on the enrollment of flexible connection customers utilizing variable or dynamic operating envelopes in dynamic rates.

Questions and Direction for Parties Regarding Dynamic Rates for Customers Utilizing Dynamic and Variable Operating Envelopes

No later than December 10, 2025, parties are directed to respond to the following question regarding alignment with dynamic rates.

28. Should existing and new customers utilizing variable or dynamic operating envelopes be required to enroll in dynamic rate pilots, when available in their territory, and then be defaulted to dynamic rates when the pilots are no longer available? Please provide rationale for your response.

Identification of Date and Personnel for All-Party Meeting

We find that an all-party meeting[26] is necessary to further explore directly with parties the issues scoped into this track of the proceeding and the responses submitted to the questions presented in this ruling. In order to develop an informed proposal and effectively resolve this phase of the rulemaking it will be important to address any questions or recommendations that are informed by these responses directly with the parties.

The Large IOUs are directed to confer with parties to identify dates of mutual availability between January 5-16, 2026. The Large IOUs are directed to ensure that personnel capable of responding to technical inquiry regarding the

[26] The all party meeting will be utilized as an interactive meeting where parties will have an opportunity to summarize their key recommendations from comments, respond to other parties, address questions from the assigned commissioner and assigned administrative law judges as well as engage in organized questions and dialogue between parties. This meeting will be organized differently than a traditional all party meeting and will function in a manner similar to a combined workshop, status conference, and traditional all party meeting.

topics of DERMS, ADMS, Limited Load Profiles, FlexConnect, Load Control Management Systems, and IEEE 2030.5 communications systems are made available for the all-party meeting. The Large IOUs are directed to submit a summary of party availability including identification of which persons are expected to represent each party along with their initial response to this ruling.

Any materials relied upon for presentation shall be distributed to the service list no later than one week prior to the all-party meeting.

Modification of Schedule

This Ruling amends the Track 3, Phase 1 schedule as follows:

EVENT	DATE
Large IOU Response on ADMS/DERMS and abnormal operation topics, summary of party availability	November 25, 2025
Opening Comments to this ruling	December 10, 2025
Reply Comments to this ruling	December 20, 2025
All Party Meeting/Workshop	Early January 2026
Issuance of Assigned Commissioner Proposal	Q2 2026
Proposed Decision on Track 3	Q3 2026

IT IS SO RULED.

Dated November 3, 2025, at San Francisco, California.

/s/ DARCIE L. HOUCK

Darcie L. Houck
Assigned Commissioner