



STATE OF CALIFORNIA

GAVIN NEWSOM, Governor **FILED**

PUBLIC UTILITIES COMMISSION

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TO PARTIES OF RECORD IN RULEMAKING 21-06-017:

This is the proposed decision of Commissioner Darcie L. Houck. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's **December 3, 2026** Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

/s/ MICHELLE COOKE
Michelle Cooke
Chief Administrative Law Judge

MLC: smt

Attachment

Decision **PROPOSED DECISION OF COMMISSIONER DARCIE L. HOUCK**
(Mailed 10/20/2026)

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

**DECISION ADDRESSING TRACK 3 ISSUES DIRECTING
LARGE INVESTOR-OWNED UTILITIES TO SUPPORT
AFFORDABILITY THROUGH FLEXIBLE SERVICE CONNECTIONS**

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**DECISION ADDRESSING TRACK 3 ISSUES DIRECTING
LARGE INVESTOR-OWNED UTILITIES TO SUPPORT
AFFORDABILITY THROUGH FLEXIBLE SERVICE CONNECTIONS**

Summary

This decision directs the three large electric Investor-Owned Utilities (IOUs), Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company, to expand the availability and use of flexible service connections (FSCs) for customers. Building on existing offerings, as well as directing new offerings, this decision expands the use of FSCs to enable customers to connect to the electrical grid using available distribution grid capacity while deferring or avoiding upgrades where feasible.

This decision directs the IOUs to implement and expand a range of offerings that reflect customer successes and advances in the evolution of power control systems (PCS) and technical standards. Implementation is sequenced according to the complexity of the FSC measures and the capabilities of each IOU's system, while also considering the technical infrastructure needed to support broader deployment.

This decision advances affordability by requiring the IOUs to evaluate lower-cost mitigations when these options meet the needs of a proposed connection and defer or avoid the need for a more costly upgrade. The IOUs must provide customers with sufficient information about available options and their associated operating limits to enable them to determine whether an FSC meets their needs. The decision further addresses the rules and procedures necessary to enable these options, including support for customer-managed power limits and updates to the IOUs' Electric Rule 2 provisions that govern the specifications of electric service such as the voltage range.

Expanding FSCs also requires technical capabilities, coordination, and appropriate safeguards. This decision addresses these technical capabilities, advances in interoperability, and customer choice requirements, and directs the IOUs to propose implementation of cybersecurity considerations. It also addresses customer education and data tracking related to enrollment in dynamic rates for flexible connection customers.

Finally, this decision establishes data reporting and affordability tracking requirements to document the use and outcomes of FSCs. This information will assist in assessing affordability impacts and informing future implementation. Taken together, these actions establish a framework for expanding FSCs. Expansion of FSCs allows for greater use of existing distribution capacity, additional customer connection options, reduction in infrastructure costs, and development of technical and operational capabilities needed to support these options over time.

This decision results in the following outcomes:

- Requires IOUs to evaluate customers for FSCs prior to a grid upgrade and directs the IOUs to propose criteria to narrow the requirement to avoid unnecessary evaluations.
- Directs IOUs to evaluate Limited Power as a mitigation for distribution transformer upgrades.
- Directs IOUs to update certain definitions in their Electric Rule 2 and Rule 3 to better account for Limited Power arrangements.
- Requires IOUs to provide and record certain information that is helpful to customers seeking to establish self-managed Limited Power arrangements.
- Extends to SDG&E the FSC Standard Offer that the Commission previously directed SCE and PG&E to establish.

- Directs SCE and SDG&E to implement Variable Operating Envelope FSC offerings modeled after PG&E's Flex Connect.
- Establishes a process for IOUs to communicate Operating Envelopes to customers in abnormal grid conditions based on PG&E's Flex Connect processes.
- Directs the IOUs to establish persistent non-bridging versions of the Standard Offer.
- Allows customers to elect to move between a bridging FSC solution to a persistent non-bridging, within a designated time period, if the bridging solution is meeting their needs.
- Directs PG&E to formalize its Flex Connect offering and expand its current non-bridging generation offering to load customers.
- Directs a workshop and further examination of the potential for durable non-bridging solutions.
- Requires PG&E to submit a proposal to scale its ChargeBoost and PanelBoost pilots, and for SCE and SDG&E to propose scaled implementations based off PG&E's ChargeBoost and PanelBoost.
- Directs IOUs to host a workshop to discuss customer choice.
- Requires IOUs to provide education on dynamic rates to FSC customers.
- Requires IOUs to host workshops and implement recommendations from the Smart Inverter Operationalization Cybersecurity Subgroup report.
- Directs IOUs to track and report data related to FSCs.

This proceeding is closed.

1. Background

The purpose of Rulemaking 21-06-017 is to prepare the electric grid for a high number of distributed energy resources (DERs). In establishing this

proceeding, the Commission recognized the need to enable the evolution of grid capabilities and operations to integrate DERs.¹

This track of the proceeding developed a robust record, which led to the Assigned Commissioner Proposal (ACP).² The ACP, comments on the ACP, and subsequent ruling responses provide the foundation for this decision.

1.1. Procedural Background

On July 2, 2021, the Commission issued 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 Track 3 focus on identifying priority uses for new technologies³ 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.

The OIR directed the formation of the Smart Inverter Operationalization Working Group (SIOWG), which focused on identifying priority uses for new

¹ California Public Utilities Commission's July 2, 2021 Order Instituting Rulemaking to Modernize the Electric Grid for a High Distributed Energy Resources Future at 14.

² Assigned Commissioner's and Administrative Law Judge's Ruling Requesting Comment on Assigned Commissioner's Proposal on Flexible Service Connections. July 7, 2026.

³ The proceeding has considered generation technologies operationalized by smart inverters and updated standards for power control systems that are capable of addressing both load and generation.

technologies⁴ and specifying the roadmaps for adopting these technologies. The Smart Inverter Operationalization Cybersecurity Subgroup (SIO-CS), also formed by the OIR, evaluated cybersecurity standards to ensure secure communications. These working groups began in 2022 and concluded in 2024, with each providing a report that included recommendations for Commission action.

On May 29, 2024, the Administrative Law Judge (ALJ) issued a Ruling entering the SIOWG and SIO-CS reports into the record of this proceeding and requested party comment to 35 questions. These questions focused on smart inverter operationalization use case prioritization, firm import and export limits and non-firm import and export capacity, smarter inverter use cases, regulatory issues, and technical and cybersecurity requirements. Both reports cite the Underwriters Laboratory (UL) standard 3141, which provides requirements for testing power control systems (PCS) export and import limiting, with the SIOWG report referencing it as an existing resource⁵ and including it in its technology roadmap table.⁶

On July 8, 2024, Pacific Gas and Electric Company (PG&E), California Community Choice Association (CalCCA), Public Advocates Office at the California Public Utilities Commission (Cal Advocates), California Solar and Storage Association (CALSSA), San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), Vehicle-Grid Integration Council

⁴ The proceeding has considered generation technologies operationalized by smart inverters and updated standards for power control systems that are capable of addressing both load and generation.

⁵ SIOWG Report at 114-116.

⁶ SIOWG Report at 120.

(VGIC), and Enphase Energy, Inc. (Enphase) filed comments in response to the ruling. On July 22 and July 24, 2024, Cal Advocates, Utility Consumers Action Network (UCAN), SDG&E, Clean Coalition, CalCCA, VGIC, PG&E, Enphase, SCE, and Small Business Utility Advocates (SBUA) filed reply comments in response to the ruling.

On October 23, 2024, the Commission adopted D.24-10-030. This decision implements near-term improvements to the Distribution Planning and Execution Process to address Track 1 of this OIR. In relevant part, D.24-10-030 directed PG&E, SCE, and SDG&E, collectively, the Investor-Owned Utilities (IOUs), to develop and report on bridging strategies that accommodate energization requests that trigger upstream distribution capacity work, as well as provide a preliminary capacity assessment.⁷

On December 16, 2024, the IOUs filed the Bridging Strategies Reports in R.21-06-017 and R.24-01-018, as ordered in D.24-10-030 Ordering Paragraph (OP) 18. In relevant part, these reports describe the technologies and strategies used by the IOUs to provide customers with Flexible Connections. Strategies in these reports include PG&E's Load Limit Letter (LLL), PG&E's Flex Connect pilot (Flex Connect),⁸ SCE's Load Control Management System (LCMS),⁹ and other solutions.

On February 7, 2025, the assigned Commissioner and ALJs issued a ruling seeking additional information from parties and modifying the schedule for Track 3. The ruling clarified that Track 3 would address medium- and longer-term mechanisms for the implementation of non-firm flexible grid connections,

⁷ D.24-10-030 OP 18.

⁸ PG&E's Bridging Solutions Strategies Compliance Report at 2-3.

⁹ SCE Plan and Compliance Report and Bridging Strategies and Solutions at 6-7.

and that Track 2 would address operational aspects to facilitate more efficient use of these mechanisms within the distribution system. Thirteen parties filed opening comments responding to the ruling on March 13, 2025, and nine parties filed reply comments on March 27, 2025. A separate ruling was simultaneously issued in R.24-01-018 to clarify next steps for that proceeding to consider near-term solutions for flexible service connections (FSCs) related to firm capacity import limits.

On February 28, 2025, PG&E filed the Op Flex Pilot Report (Op Flex Report) in R.17-07-007¹⁰ in accordance with D.21-06-002 OP 18 and Resolution E-5260 OP 2. The Op Flex Report detailed PG&E's learnings from PG&E's Distributed Energy Resource Management System (DERMS) rollout in 2024 to use Flexible Connections to mitigate operational flexibility constraints on the grid for distribution-connected customers.¹¹

On November 3, 2025 an Assigned Commissioner's Ruling Seeking Additional Information on DER Enabled Near-Term Flexible Connections (Flexible Connections Ruling) modified the proceeding schedule, directed IOUs to provide information on the readiness of technologies needed to support flexible grid connections, invited party comment on recommendations of the SIOGW related to the development of FSCs, and provided definitions of terms. The Flexible Connections Ruling focused on the areas of the record where meaningful progress could be made towards better leveraging the electric system to allow for DERs or load to unlock existing capacity. The IOUs filed responses on November 25, 2025. Eleven parties filed opening comments responding to the

¹⁰ Order Instituting Rulemaking to Consider Streamlining Interconnection of Distributed Energy Resources and Improvements to Rule 21.

¹¹ PG&E Op Flex Pilot Report at 2.

ruling on December 19, 2025, and six parties filed reply comments on January 2, 2026.

On February 5, 2026, the Commission adopted D.26-02-025, establishing a Standard Offer process within the design and engineering step of PG&E and SCE's energization process that establishes an optional FSC agreement for customers affected by distribution capacity constraints. In relevant part, D.26-02-025 also directed PG&E and SCE to create a Static Operating Envelope (SOE) providing firm bridging capacity for a single customer, established a consistent preliminary capacity assessment process, and provided reporting upon these efforts.

The February 6, 2026 Assigned Commissioner and ALJ Ruling (Workshop Ruling) provided workshop information for the all-party workshop and schedule modifications for Track 3. The Workshop Ruling further focused this proceeding on FSCs, modified the schedule to incorporate workshop activities, set forth eight discrete topics for discussion, and took official notice of relevant documents. The topics of discussion that the Workshop Ruling identified include use of Distributed Energy Resource Management System (DERMS)/Advanced Distributed Management System (ADMS) to enable Variable Operating Envelopes (VOEs), tools for characterizing low voltage networks and generating operating envelopes via Advanced Metering Infrastructure (AMI) data, aggregator-mediated operating envelopes for shared secondary constraints, aggregator definitions, communications protocols, dynamic rate alignment, and non-bridging solutions.

The February 20, 2026 All-Party Workshop hosted presentations by the IOUs, IREC, CalCCA and VGIC. The discussion and slides are documented in a

report filed by SCE on March 20, 2026 (All-Party Workshop Report), with comments upon that report received on April 3, 2026.

On July 7, 2026, the Assigned Commissioner's and ALJ's Ruling (ACP Ruling) requested comment on the Assigned Commissioner's Proposal on FSCs (ACP). This proposal enumerated 17 discrete recommendations, building on demonstrated IOU abilities and offerings to propose the advancement of bridging and non-bridging FSCs that provide firm- and non-firm capacity. The IOUs provided a timely response on July 14, 2026. SCE, SDG&E, PG&E, IREC, Cal Advocates, UCAN, EDF, Clean Coalition, CALSSA, SPAN, CalCCA, TMH, Terawatt, WeaveGrid, CALSTART, Critical Loop, and Advanced Energy United (AEU) provided opening comments on July 27, 2026. Tesla provided opening comments on July 28, 2026. SCE, SDG&E, PG&E, IREC, Cal Advocates, UCAN, EDF, Clean Coalition, CALSSA, SPAN, TURN, PACT, SBUA, Terawatt, Mainspring, WeaveGrid, Universal Devices, VGIC, Critical Loop, and Voltera Power provided reply comments on July 31, 2026.

The assigned ALJ issued a ruling on August 13, 2026 (August 2026 ALJ Ruling) taking official notice of materials identified in the Workshop and ACP Rulings and directed PG&E and SCE to file additional information about engineering standards. On August 24, 2026, SCE filed additional information in response to the August 2026 ALJ Ruling. On August 24, 2026, PG&E filed a motion to file under seal a confidential response to the August 2026 ALJ Ruling. On September 3, 2026, IREC filed a response opposing the PG&E motion. On September 22, 2026, PG&E filed a reply to IREC's response. On September 29, 2026, IREC filed a reply to PG&E's response.

1.2. Submission Date

This matter was submitted on September 29, 2026 upon the filing of IREC's reply to PG&E's motion to file under seal its response to the August 2026 ALJ Ruling.

2. Issues Before the Commission

This decision addresses Track 3 of Phase 1 of the proceeding. The Amended Scoping Memo from August 11, 2023 identifies the following Track 3, Phase 1 issues to address Smart Inverter Operationalization and Grid Modernization Planning, with Phase 1 specifically addressing Smart Inverter Operationalization.

1. Which smart inverter operationalization use cases should be prioritized and implemented to leverage the capabilities of smart inverters to provide value to grid operators and ratepayers? Parties should consider, but are not limited to, the smart inverter operationalization use cases identified in the Rule 21 Working Group Four Report.
 - a. What technical, regulatory, functional, and operation guidelines or requirements for high-priority smart inverter operationalization use cases should the SIOGW develop for Commission consideration?
 - b. For each priority use case, what are the specific communications and DERMS requirements (e.g., real-time or near-real-time communications, DERMS power flow assessment capabilities)?
 - c. For priority use cases what are the policies, rules, and guidance on how Utilities should schedule or dispatch aggregators and/or DERs and how aggregators/DERs must respond to utility signals?
2. What technology roadmaps or other relevant Commission directives related to DERMS and smart inverter operationalization should be adopted to ensure the utilities are able to implement the Working Group's recommendations?

3. What existing cybersecurity standards should be applied for smart inverter operationalization and DERMS to ensure communications between the equipment and management systems are secure [e.g., Institute of Electrical and Electronics Engineers (IEEE) 1547.3]?

This decision addresses all of the issues set forth in the scoping memo for Track 3 of the proceeding. It is reasonable to close this proceeding.

3. Format of This Decision

While the ACP identifies recommendations for Commission action in an order that corresponds to the sections of the ACP, this decision addresses each recommendation in a different order. The decision aims to address the recommendations in order of increasing implementation complexity. The sections are organized as follows.

Section 4 provides an overview of the ACP and background on technical topics, including addressing the connection between the SIOWG and PCS, PCS standards, usage of IEEE 20.30.5, and types of operating envelopes.

Section 5 addresses FSCs, utilization, and affordability and other elements that are common across FSCs. Here, ACP recommendation 3.4 (Flexible Connection Evaluation Requirements) is addressed.

Section 6 addresses Limited Power mitigations, self-managed Limited Power, and updates to Electric Rules to enable these offerings. ACP recommendations 4.1 (Large IOUs to Provide Limited Power Arrangements as the Default Mitigation for Distribution Transformer Upgrades), 3.3 (Rule 2 – Updating Definition of Controlled Load and Alignment Language Between Large IOUs), and 3.2 (Large IOUs to Record and Provide Values Helpful to Dedicated Infrastructure Customers Independently Implementing Operating Limits) are addressed in Section 6.

Section 7 focuses on expanding bridging options for mainline customers. This section includes discussion of ACP recommendations 3.1 (Extension of Standard Offer to SDG&E Customers), 4.2 (SCE and SDG&E to Implement Variable Operating Envelope Bridging Solutions Modeled After PG&E's Flex Connect), and 4.3 (Leveraging Enterprise DERMS-based Variable Operating Envelope for Centralized Dynamic Operating Envelopes to Address Abnormal Grid Conditions).

Section 8 discusses implementation of persistent non-bridging solutions that build upon the established bridging solutions. The section discusses ACP recommendations 6.4 (Large IOUs Should be Required to Implement a Non-Bridging Version of the Standard Offer), 6.2 (Clarification that Current Static and Variable Operating Envelope Customers Can Elect to Transition from a Bridging to a Persistent Non-Bridging Solution), and 6.3 (PG&E Should Formalize its Flex Connect Offering and Expand its Non-Bridging Flex Connect Generation Option to Load Customers).

Section 9 addresses durable non-bridging solutions and discusses ACP recommendation 6.1 (Establish Durable Non-Bridging Solutions for New Flexible Connections).

Section 10 discusses Grid Edge DERMS and includes ACP recommendations 4.4 (SCE and SDG&E Should Implement Grid Edge DERMS for 100 A Residential Customers whose Electric Vehicle Charging Would Normally Require an Upgrade) and 4.5 (Establish a Series of Energy Division-led Workshops with Reports to Further Develop Grid Edge DERMS Solutions).

Section 11 addresses ACP recommendation 7.1 (Interoperability and Customer Choice Requirements).

Section 12 addresses dynamic rates, ACP recommendations 8.1 (Real-Time Pricing Rate Enrollment) and 8.2 (Data Tracking).

Section 13 discusses cybersecurity implementation, ACP recommendation 5.1 (Direct IOUs to Propose Implementation of Baseline Cybersecurity Considerations from the SIO-CS).

Section 14 discusses data reporting and affordability tracking.

Section 15 discusses outdated deferral reporting requirements for the Grid Needs Assessments and Distribution Upgrade Project Reports.

Implementation timing and next steps are addressed in Section 16.

Lastly, section 17 discusses public comments on the docket card of this proceeding.

4. Assigned Commissioner's Proposal on Flexible Service, Decision Structure, and Relevant Technical information to Inform Decision

The July 7, 2026 ACP stems from the Smart Inverter Operationalization Working Group (SIOWG) Report, which identifies high-priority use cases. The use cases presented in the SIOWG Report focus on the ability of a power system to respond reliably and safely to changes in electricity demand and generation.¹² The IOUs' Bridging¹³ Solutions and Operational Flexibility Reports also informed the ACP. These reports detailed early implementation solutions that utilize PCS, as well as the bridging solution directed by Decision (D.) 26-02-025.

The ACP proposes 17 enumerated recommendations for Commission action aimed at supporting affordability for customers through enabling and scaling FSCs to the distribution grid. The ACP supports affordability by

¹² SIOWG Report at iii.

¹³ "Bridging" solutions enable customers to receive service while needed infrastructure upgrades to provide service are designed, permitted, and constructed.

maximizing the efficient use of existing distribution capacity and reducing or deferring infrastructure capital investment through:

- Enabling and scaling FSCs¹⁴ to the distribution grid with non-firm capacity in a manner that adapts to changing needs.
- Proposing offerings that safely and reliably increase the utilization of existing infrastructure.
- Building utility capability in managing centralized and Grid Edge non-firm load and generation capacity as a foundation to enable more advanced use cases in the future involving DER orchestration and DER grid services.

The ACP discusses the primary distribution grid as two classes of circuits according to their level of modeling and deployed offerings: Mainline circuits and Lateral circuits.¹⁵ Mainline circuits are the portions of the primary distribution grid that directly convey power from substations through three large phase conductors to the service transformers that serve most of the system demand. Mainline circuits are routinely modeled in power flow software, and their customers are served without the use of smaller medium-voltage primary lateral conductors.¹⁶ Lateral circuits are the portions of the primary distribution grid that are fed from the Mainline circuits through smaller conductors. Lateral circuits serve the majority of distribution customers.¹⁷

¹⁴ Flexible Connection is defined as a means of connecting a customer to a utility's distribution system under specific capacity limits. 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.

¹⁵ ACP at 15.

¹⁶ ACP at 15.

¹⁷ ACP at 16

The ACP addresses three forms of FSCs: bridging, persistent non-bridging, and durable non-bridging. Bridging solutions provide temporary access to capacity while an upgrade proceeds upon its original schedule. Bridging solutions do not alter the schedule or scope of planned upgrades but allow the customer to increase their load within the limits of the existing infrastructure until such time as it can be upgraded. Non-bridging solutions alter the timing, scope, or necessity of the upgrade and therefore create additional opportunities for ratepayer savings through deferral or avoidance of capital expenditures. A non-bridging solution that persists until a piece of equipment is replaced through normal utility operations unrelated to the solution (e.g., end of useful life, organic load growth from other customers, etc.) is called a persistent non-bridging solution. A durable non-bridging solution is one where the IOU and customer agree contractually to an arrangement in which a customer operates their equipment in a manner that resolves the capacity constraint using a control device and no upgrade is planned.

The ACP notes that bridging and non-bridging solutions are triggered when the utility forecast of customer demand indicates that there is insufficient capacity for the IOU to perform that upgrade on the customer's requested timeline or when a customer and the IOU come to a mutual agreement that a solution involving a mitigation rather than an upgrade is acceptable.

While the Energization proceeding, R.24-01-018, remains focused primarily on bridging solutions, the ACP complements and builds upon the energization work. The ACP recommends expansion of bridging solutions and examines circumstances where FSCs may provide value beyond the period traditionally associated with energization delays, recommending that existing bridging

offerings be provided as non-bridging¹⁸ mitigations rather than automatically requiring an upgrade. The ACP addresses affordability issues by using FSCs as tools to defer or avoid those upgrades and their associated ratepayer costs while advancing the distribution system to meet the needs of a high DER future, including development of a more flexible grid to accommodate load flexibility and automation.

The ACP draws a distinction between infrastructure for the Mainline circuits that supply large load customers and on the Lateral circuits¹⁹ that supply a majority of customers, noting that current FSC options may only be designed for Mainline customers. The ACP notes that compared to the costs of performing distribution upgrades, FSC solutions may be cheaper and could enable deferral or avoidance of upgrades and proposes offerings applicable to both Mainline and Lateral customers. The ACP aims to advance initiatives that use FSCs to provide customers capacity in a manner that increases the utilization of existing grid infrastructure and provides more affordable options that will benefit ratepayers.

This decision addresses each of the ACP's enumerated recommendations in response to party comment,²⁰ including providing dedicated ALs where topics are sufficiently distinct and aligning topics within the ALs where appropriate.

Additionally, this decision sequences the deliverables to ensure that straightforward topics can be timely implemented, that topics requiring sharing

¹⁸ The key distinctions between bridging and non-bridging solutions are whether the FSC arrangement affects the timing or need for the planned upgrade.

¹⁹ Mainline circuits are large capacity, well-modeled circuits that serve large customers and Lateral circuits tap off the Mainline circuits to provide smaller capacity service to the majority of customers.

²⁰ SDG&E Opening Comments at 41, SDG&E Reply Comments at 24, PG&E Opening Comments at 23, 29, SCE Opening Comments at 15, IREC Opening Comments at 24, Cal Advocates Opening Comments at 14, EDF Opening Comments at 8.

of best practices have workshops that allow for stakeholder education and feedback prior to the filing of an AL, and that currently available offerings are formalized before they are expanded to new IOU offerings or non-bridging configurations.

4.1. Technical Background

To deploy FSCs safely and at scale, several supporting technologies must be considered. FSCs provide grid benefits only when overall reliability and safety are preserved. In many cases, this requires load limiting or export limiting capabilities, often managed through PCS, to ensure appropriate operating conditions. Advanced FSCs with communicated capacity limits also depend on customers who can receive and comply with scheduled limits, and on a distribution system operator capable of determining and dispatching those limits, such as through a DERMS.

4.1.1. SIOWG and Power Control Systems

Track 3 Phase 1 of the High DER Proceeding tasked the SIOWG with addressing which smart inverter operationalization use cases should be prioritized and implemented to leverage the capabilities of smart inverters to provide value to grid operators and ratepayers. Further, it asked what technical, regulatory, functional, and operational guidelines or requirements for high-priority smart inverter operationalization use cases should the SIOWG develop for Commission consideration.

The SIOWG Report, introduced to the High DER Proceeding record on May 29, 2024, identified operational flexibility and the ability of a power system to respond reliably and safely to changes in electricity demand and generation as the highest priority use case for smart inverters and DERs. The SIOWG Report additionally provided information on the technologies expected to be necessary

for large scale implementation. The SIOGW argued that operational flexibility was achievable through firm capacity²¹ and non-firm capacity.²² Together these formed the conceptual basis for FSCs. To support its goals, the SIOGW identified PCS, particularly with the capabilities proposed in the UL 3141 Outline of Investigation as an essential tool.²³ Similarly, the SIOGW identified IEEE 2030.5 as a reasonable communications protocol.²⁴

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

4.1.2. Evolution of PCS Standards

In May 2024, when the SIOGW Report was entered into the record of this proceeding, UL 3141 existed in draft form and was identified as a resource for achieving use cases.²⁵ Its subsequent publication provided a standardized means of certifying that a PCS will limit import, export, or both at the point of common coupling. D.26-02-025 relied upon the UL 3141 standard in establishing safe harbor treatment for controlled load.²⁶ The availability of a certification standard for load-side power control, which did not exist when this proceeding was

²¹ Firm Capacity is load or generation capacity that is contractually obligated and remains in place.

²² 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.

²³ SIOGW Report at 77-78.

²⁴ SIOGW Report at 74.

²⁵ SIOGW Report at 114-116.

²⁶ D.26-02-025 Finding of Fact 30.

opened, is one of the developments that allows the mitigations addressed in this decision to be offered at scale.

4.1.3. Usage of 2030.5 to Provide Schedule of Values and Obtain Site Telemetry

IEEE 2030.5 has been the default communications protocol under Electric Rule 21, a direction the Commission confirmed in Resolution E-5038 shortly after this proceeding opened.²⁷

Over the pendency of this proceeding the IEEE 2030.5 protocol moved into production, first for telemetry and then for control. PG&E deployed an IEEE 2030.5 interface with the first phase of its enterprise DERMS in 2023²⁸ and has used that same interface to control customer load and generation in production since October 2024.²⁹ PG&E's Flex Connect uses IEEE 2030.5 to deliver day-ahead, hourly-interval operating limits to the customer's technology provider, to send real-time updates by exception, and to receive site telemetry.³⁰ SCE, as part of a demonstration project in 2021, used IEEE 2030.5 to dispatch customer inverters.³¹ IEEE 2030.5 is supported by both PG&E and SCE DERMS.³² SDG&E reported in 2024 that it remained still early in its development of the IEEE 2030.5

²⁷ Rule 21 section Hh.5, Resolution E-5038.

²⁸ PG&E Grid Modernization Report at 5.

²⁹ Workshop Report at 53, Op Flex Report at 12.

³⁰ Track 3 All-Party Workshop Report at 53, ACR at 5 fn.4 (Nov. 3, 2025), PG&E Op Flex Report at 26.

³¹ SCE EASE Report at 5.

³² Op Flex Report at 8; PG&E Opening Comments on SIOGW ACR (July 8, 2024) at 14, SCE Comments on DER ACR at 5, SCE Grid Mod Report at 4.

head end system.³³ SDG&E's Enterprise DERMS procurement and integration is planned for 2027–2028.³⁴

The ability to have a schedule of values delivered in advance, telemetry returned to the utility, and a fail-safe, are the functional elements that support the VOE offerings directed in this decision.

4.1.4. Types of Operating Envelopes Used for FSCs

Currently available FSCs allow for five different tiers of capacity control, differentiated by temporal granularity. Limited Power, Static Operating Envelopes (SOEs), VOEs, Dynamic Operating Envelopes (DOEs), and Grid Edge DOEs represent a continuum of increasing operational sophistication that enables progressively greater utilization of distribution infrastructure, as well as greater technological requirements to unlock capacity while maintaining safe and reliable operation.³⁵ These tiers are summarized in Figure 1 below.

Figure 1: Characteristics and Requirements of FSC Tiers

Tier of Capacity Control	Source and Frequency of Directed Non-Firm Capacity	Communication Requirements	Level of Required Customer Flexibility
Limited Power	None (firm)	None	Low, fixed setpoint
Static Operating Envelope	None (firm)	None	Low, fixed setpoint

³³ SDG&E Grid Mod Report, Enterprise DERMS Section (PDF page. 8–9).

³⁴ SDG&E Opening Comments at 6, 16.

³⁵ ACP at 22.

Variable Operating Envelope	Forecast-based, directed at approx. daily frequency	Moderate	Moderate, day- ahead envelope
Dynamic Operating Envelope	Utility Enterprise DERMS based, directed based on emergent circumstances	Near real-time	High, near real- time envelope
Grid Edge Dynamic Operating Envelope	Autonomous sensing from AMI, locally refreshed every 15 minutes or less	Very high- communication between contiguous infrastructure and site load/storage	High, near real- time envelope

Limited Power provides a flexible connection solution using a single unchanging operating limit, rather than a schedule of values that make up an Operating Envelope. Thus, while Limited Power is technically a single value subset of a SOE, it is considered separately in the ACP and this decision – in part because SOEs are designed to serve Mainline customers, while Limited Power could be more widely scaled.³⁶

A SOE establishes a predetermined schedule of fixed import or export limits based on system constraints and remains unchanged unless updated through utility review. SOEs are most appropriate where constraints are well understood or infrequent and offer a low-cost, deployable option that does not require advanced operational systems or real-time customer responsiveness. SOEs therefore include two forms: a single-value limit (Limited Power) and a

³⁶ ACP at 23.

schedule of time-varying limits, the latter representing most current utility offerings.³⁷

A VOE expands upon a SOE by introducing a non-firm capacity component in addition to a fixed level of firm capacity. The firm capacity portion is a SOE, comprising a constant schedule that is always available to the customer. The non-firm capacity portion is additional capacity on top of the firm capacity that could be available based on forecasted grid conditions. When additional capacity is available, it is communicated to the customer and scheduled for operation in advance..³⁸ This firm and non-firm capacity structure can reduce the need for immediate infrastructure upgrades, and can provide customers with access to additional capacity and operational flexibility without waiting for distribution upgrades to be completed.³⁹

A DOE provides the most advanced FSC functionality by adjusting non-firm capacity in real time based on evolving system conditions. Under a DOE, customers receive a schedule of available capacity that may change throughout the day as system and/or local conditions evolve.⁴⁰ While DOEs offer the greatest potential utilization of distribution infrastructure, they require continuous communication and coordination between customer equipment and utility operational platforms, creating scalability challenges..⁴¹

DOEs may also be applied to secondary distribution constraints through Grid Edge DERMS technologies. Under this approach, devices located at

³⁷ ACP at 25-26

³⁸ ACP at 26.

³⁹ ACP at 26-27.

⁴⁰ ACP at 29.

⁴¹ ACP at 30.

customer sites exchange information regarding aggregate loading conditions and calculate DOEs for customers that have limited site capacity, share constrained infrastructure, or both. In contrast to Enterprise DERMS-based DOEs, Grid Edge DERMS-based DOEs may provide a scalable pathway for increasing secondary-system hosting capacity while reducing the need for service transformers and secondary conductor upgrades.⁴²

5. FSC Mitigations Support Greater Grid Utilization and Affordability

This section addresses FSCs, utilization, affordability, and other elements that are common across FSCs. Here, recommendation 3.4 from the ACP (FSC Evaluation Requirements) is addressed.

The ACP states that FSCs “offer an opportunity to provide customers with needed electric capacity more quickly and at a lower cost than traditional infrastructure upgrades in many circumstances.”⁴³ It also states that by increasing the use of existing grid assets and deferring or avoiding capital investments, FSCs “can reduce upward pressure on rates while maintaining reliability and safety.”⁴⁴ This section of the proposed decision addresses the benefits provided by FSCs, and what is expected of the IOUs as to evaluating the feasibility of using an FSC mitigation before initiating a ratepayer funded upgrade.

When distribution grid capacity is deemed insufficient, the measures taken to remedy the capacity shortfall can be categorized as either low-cost mitigations or grid upgrades. Mitigations, sometimes referred to as “no-to-low-cost

⁴² ACP at 30-31.

⁴³ ACP at 9.

⁴⁴ ACP at 9.

mitigations," are characterized by being minor in nature, and historically performed within months.⁴⁵ These upgrades are expected to cost in the range of thousands to tens of thousands of dollars, falling into maintenance functions for the purposes of general rate case classification.⁴⁶

Grid upgrades, in contrast, require significant design and procurement, several months to years in advance to implement.⁴⁷ Grid upgrades could cost hundreds of thousands to millions of dollars to implement.⁴⁸

Mitigations support utilization because they increase the load and total energy consumption that already installed infrastructure can safely serve. An FSC mitigation such as Limited Power, a Static or VOE, or another PCS-enabled arrangement, resolves the constraint by keeping the customer's demand bounded rather than by upgrading the infrastructure. This allows the incremental load to be carried on existing equipment. Because distribution facilities are sized to infrequent peak conditions that "may occur only rarely,"⁴⁹ bounding that customer's demand within that peak converts headroom that existed only on paper into energy actually delivered and increases utilization.

⁴⁵ Examples of such mitigations include reconfiguring circuits, installing or relocating voltage regulation equipment, adjusting existing equipment settings, enabling capacitor banks, or using smart inverter volt/var and volt/watt capabilities.

⁴⁶ Resolution E-5296 at 36-37.

⁴⁷ Examples of grid upgrades include primary line reconductoring, substation transformer replacement, and protective equipment replacement.

⁴⁸ Resolution E-5296 at 41-42.

⁴⁹ ACP at 13.

No party disputes that the addition of new load without the need to also provide an upgrade supports affordability. Parties dispute, however, whether the use of an FSC mitigation to defer an upgrade supports affordability.⁵⁰

The main mechanism by which deferral supports ratepayer affordability is by allowing what would have been multiple sequential upgrades to be addressed in a single upgrade project. This allows the upgrade, when built, to be sized to load that has materialized rather than to load that was forecast. It also allows the execution of a single bundled project rather than two or more sequential projects.

Secondarily, deferral supports affordability by delaying the upgrade asset's additional revenue requirement and its associated return, depreciation, taxes, and cost of service, which allows the current undepreciated asset to serve that load without an increase in revenue requirement.

Based on these two factors, we find that FSC mitigations that defer upgrades, while maintaining both safety and reliability, support affordability and should be adopted.

5.1. ACP Section Three, Recommendation Four – IOUs Should Evaluate the Feasibility of Using an FSC Mitigation Before Initiating a Ratepayer Funded Upgrade

Recommendation 3.4 of the ACP proposes requiring an IOU to evaluate whether an FSC mitigation can address customer needs prior to initiating a ratepayer-funded upgrade. ACP recommendation 3.4 specifies that the mitigation option from this evaluation would be documented and presented to the customer prior to an IOU moving forward with engineering and design of

⁵⁰ PG&E Opening Comments at 3-4, 17, SDG&E Opening Comments at 11-12.

the upgrade. Further, the ACP recommends directing the IOUs to describe how they would implement this requirement in the HDER FSC Implementation AL, including descriptions of (a) proposed criteria to identify eligible customers for the appropriate FSC that is consistent across the large IOUs, (b) the evaluation process, (c) the documentation process, and (d) the customer communication process. The ACP recommends that after the initial approval of the HDER FSC Implementation AL, any updates to this process be included in the IOUs' annual Distribution Planning and Execution Process proposals.⁵¹

This section addresses the steps that the IOUs must take to evaluate an appropriate FSC mitigation, clarifies that the customer has the discretion to accept or decline a FSC mitigation, and describes requirements for customer education and communication.

5.1.1. Summary of Party Comments

UCAN strongly supports this recommendation, characterizing it as the "single most consequential reform in the Proposal".⁵² UCAN emphasizes that this recommendation should serve as the first alternative each IOU must evaluate. UCAN also states that no customer should be steered toward non-firm service as their only timely option.⁵³ UCAN asserts that auditable documentation standards and customer-facing disclosures should be included and supports subsequent updates to the IOU annual distribution planning processes.⁵⁴

⁵¹ ACP at 46.

⁵² UCAN Opening Comments at 5.

⁵³ UCAN Opening Comments at 27-28.

⁵⁴ UCAN Opening Comments at 5.

EDF, Clean Coalition, TURN, and AEU support this recommendation.⁵⁵ EDF and TURN find the recommendation consistent with the Commission's broader objective of pursuing lower-cost, non-wires solutions where feasible.⁵⁶ Clean Coalition notes implementation of the recommendation will make flexible capacity part of the utility's routine engineering and capacity-evaluation process.⁵⁷ Clean Coalition, TURN, and PACT stress the need to provide the FSC option without requiring a customer request.⁵⁸ Clean Coalition emphasizes that the need for timing of the FSC option be early enough to inform the customer's project design.⁵⁹

Further, party comment broadly supports the use of non-certified PCS or other technical means⁶⁰ under mutual agreement between the customer and IOU to effectuate an FSC.

PG&E recommends that both UL 3141 and non-UL 3141 certified controls be acceptable for any FSC Standard Offer, when mutually agreed upon.⁶¹ EDF recommends that, in cases where a PCS solution does not exist or is not feasible, the customer should not be excluded from participating in a non-bridging solution if an alternative the customer and utility can agree on exists.⁶² Tesla

⁵⁵ AEU Opening Comments at 11.

⁵⁶ EDF Opening Comments at 5-6, Clean Coalition Reply Comments at 3-4.

⁵⁷ Clean Coalition Opening Comments at 3.

⁵⁸ Clean Coalition Opening Comments at 3, TURN Reply Comments at 5, PACT Reply Comments at 2-3.

⁵⁹ Clean Coalition Opening Comments at 3.

⁶⁰ Technical means may include relay-based alternatives, timer control, properly sized protective main service device, onsite storage, etc.

⁶¹ PG&E Opening Comments at 27.

⁶² EDF Opening Comments at 7.

recommends that the Commission not require UL 3141 for implementation of a “Limited Power” setpoint type FSC arrangement. It notes that a UL 3141 requirement may be more appropriate in the future when more certified equipment is available for the more sophisticated FSC tiers.⁶³ Mainspring comments that several service option sub-types are not compatible with UL 3141 certification, and thus requiring UL 3141 certification may stymie the growth of flexible solutions.⁶⁴ Terawatt asserts that requiring that Limited Power arrangements use UL 3141-certified equipment imposes unnecessary cost and complexity on EV fleet charging customers, and recommends not mandating UL 3141 certification.⁶⁵ PACT and Critical Loop agree with opening comments from Terawatt and PG&E to not require UL 3141 certification.⁶⁶

Qualified support for this recommendation is provided by Cal Advocates, IREC, CALSSA, CALSTART, TMH, and Critical Loop.

Cal Advocates qualifies its support upon clarification of the implementation methodology, identification of the baseline upgrade that was avoided or deferred, and cost and timing data tracking sufficient to determine reductions in ratepayer costs.⁶⁷ Until ratepayer cost reductions can be confirmed, Cal Advocates opposes any incentives, rebates, compensation mechanisms, or

⁶³ Tesla Opening Comments at 5.

⁶⁴ Mainspring Reply Comments at 6.

⁶⁵ Terawatt Opening Comments at 4.

⁶⁶ PACT Reply Comments at 4, Critical Loop Reply Comments at 9.

⁶⁷ Cal Advocates Opening Comments at 7-8.

new ratepayer-funded technology investments.⁶⁸ This cost and timing data tracking is supported by TURN.⁶⁹

IREC supports ACP recommendation 3.4 while recognizing that it would introduce a new IOU-controlled step in an already-slow energization process. This, according to IREC, may only be useful for a limited number of customers with flexible demand.⁷⁰ IREC urges the Commission to require IOUs to provide information sufficient to facilitate customer decisions,⁷¹ allow customers to indicate interest in FSCs at the time of the energization request, and be presented FSC mitigation options when they will be responsible for upgrade costs.⁷²

CALSSA supports creating a standardized process that includes alternative flexibility mechanisms as a first option before traditional grid upgrades. CALSSA also recommends that this standardized evaluation process apply to all distribution upgrades, not just those that are directly funded by ratepayers.⁷³

CALSTART supports the provision of flexible connection mitigations in the form of Limited Power or a SOE upon customer request.⁷⁴ However,

⁶⁸ Cal Advocates Reply Comments at 3-4.

⁶⁹ TURN Reply Comments at 5.

⁷⁰ IREC Opening Comments at 20-21.

⁷¹ *Ibid* at 21: “the likely upgrade schedule, expected curtailment as determined by a curtailment study, the equipment the customer would need, and basic time ranges;” IREC reply at 13: “At a minimum, a customer who may benefit from a flexible service connection should receive an expected schedule both for implementation of the flexible solution and for completion of the triggered upgrade, together with the static or variable options available at that site and the equipment each would require.”

⁷² IREC Reply Comments at 13.

⁷³ CALSSA Opening Comments at 4.

⁷⁴ CALSTART Opening Comments at 3.

CALSTART recommends that a default mitigation be provided upon customer request, as a first offer rather than a final determination. CALSTART also recommends that an upgrade or bridging solution be the default option unless and until the customer requests a mitigation.⁷⁵

TMH also supports a mitigation evaluation requirement only when a customer affirmatively opts in to a flexible connection by checking a box on their load request.⁷⁶

Critical Loop and AEU emphasize that a certified PCS should be a presumptively accepted option. Both support the IOUs establishing that approval for both certified and uncertified technical means be transferrable between the IOUs, absent a documented material system difference.⁷⁷

Tesla raises concerns that forcing the utility to provide an evaluation for every single service request may slow down and overwhelm IOU resources and lead to reduced service levels.⁷⁸

Voltera asks that evaluations run concurrently with conventional capacity pathways without causing delay.⁷⁹

The IOUs oppose a requirement to evaluate FSC alternatives for every service request, arguing that this effort may overwhelm IOU resources and reduce service levels. The IOUs recommend that alternatives be provided upon customer request instead of for all applications.

⁷⁵ CALSTART Opening Comments at 4.

⁷⁶ TMH Opening Comments at 5.

⁷⁷ Critical Loop Reply Comments at 9, AEU Opening Comments at 20.

⁷⁸ Tesla Opening Comments at 10.

⁷⁹ Voltera Reply Comments at 3.

PG&E argues for modifications to the recommendation aimed at avoiding unnecessary delay.⁸⁰ It warns that some loads are too large relative to their constraint for a flexible connection option to be meaningful.⁸¹ PG&E recommends modifications including introducing a customer size threshold and screening criteria and clarifying that evaluations should be performed where they provide value and where there is a realistic opportunity to defer or avoid an upgrade.⁸²

SCE recognizes that FSCs can provide meaningful benefits in appropriate circumstances.⁸³ SCE agrees with PG&E that flexible service arrangements are not appropriate for every customer. SCE recommends further modifications that include assessing both the technical feasibility and the likelihood that the flexible service arrangement is more cost-effective than other available mitigations SCE recommends that the Commission establish a framework that preserves customer choice while allowing IOUs to develop appropriate eligibility criteria, evaluation processes, documentation requirements, and customer communication protocols.⁸⁴

SDG&E contends that evaluating a flexible connection for every service request is overly burdensome. It recommends modification of the proposal to require such an evaluation only if SDG&E determines that it will be unable to construct the needed distribution upgrades in time to fully satisfy the customer's

⁸⁰ PG&E Opening Comments at 7.

⁸¹ PG&E Opening Comments at 8.

⁸² PG&E Opening Comments at 8.

⁸³ SCE Opening Comments at 7.

⁸⁴ SCE Opening Comments at 7-8.

energization request.⁸⁵ SDG&E also states that the evaluation only be done where the customer has indicated their willingness to consider the possibility of a flexible connection bridging solution on its load energization application.⁸⁶

5.1.2. Discussion

In response to party comments described above, first, we clarify that FSC participation is voluntary. No Flexible Connection offering, at this time, shall be implemented unless and until that customer agrees to such an offering and that offering's terms. Second, implementation of the FSC offerings are intended to shorten and not lengthen the timeline for energization consistent with D.24-09-020.

As noted above, the ACP proposes directing the IOUs to provide consistent criteria to identify customers eligible for an FSC mitigation evaluation. We recognize the points provided by Tesla and the IOUs regarding constraints on resources if universal evaluations were required. In response to such concerns, this decision directs the IOUs to propose criteria to determine which customers should receive FSC mitigation evaluations. The criteria will be included as part of the IOUs Tier 3 High DER Implementation AL.

We are persuaded by TMH, CALSTART, IREC, and SDG&E that the IOUs should collect information on the customer's willingness to consider an FSC during the energization application process, consistent with existing Standard Offer FSC practices.⁸⁷

However, several of the FSC offerings are contingent on factors besides willingness (e.g., size, secondary infrastructure, EV charging, etc.). We agree with

⁸⁵ SDG&E Opening Comments at 30-31.

⁸⁶ SDG&E Opening Comments at 30-31.

⁸⁷ D.26-02-025 at 21.

TURN that there may be situations where requiring a customer to indicate interest will result in missed savings opportunities.⁸⁸ We also agree with TURN and IREC that there may be missed savings opportunities if customer interest is the sole trigger for an FSC solution evaluation. Existing FSC offerings do not rely on indicated customer interest. IOUs independently assess suitability and present these offerings to the customer. We therefore find it reasonable that the IOUs not limit the FSC evaluation to only those customers that identify early interest.

While we see value in an FSC evaluation requirement that goes beyond customers expressing early interest, we also find merit in the IOUs' and Tesla's arguments that such an approach for all customers could be inefficient. We are persuaded by PG&E and SCE that some customers may not benefit from an FSC in terms of deferral or avoidance of an upgrade. We thus find it reasonable to narrow the scope of the FSC evaluation requirement. The IOUs must propose in the Tier 3 HDER FSC Implementation AL a common set of criteria for determining which customers will receive an FSC mitigation evaluation. The criteria must still include conducting evaluations for FSC offerings to customers beyond those who ask for an evaluation, as the purpose of this requirement is to enable expansion of flexible service.

We are additionally persuaded by SCE's comment that other mitigations beside FSCs, when more cost-effective, may be considered.⁸⁹ IOUs have historically used low- or no-cost mitigations (e.g., switching phase, voltage regulation, etc.) that allow for full capacity. We find it reasonable to allow IOUs

⁸⁸ TURN Reply Comments at 5.

⁸⁹ SCE Opening Comments at 7, ACP at 7.

to implement these mitigation measures instead where such measures are technologically and cost-effectively appropriate.

A customer may have more than one feasible FSC mitigation. When a customer has more than one feasible FSC option, the option that is likely to provide the greatest ratepayer benefit should be offered. The ACP notes that Limited Power, SOEs, VOEs, and DOEs represent a continuum of increasing operational sophistication that enables progressively greater utilization of distribution infrastructure.⁹⁰ To the extent reasonable, using their best engineering judgment, IOUs should prioritize FSCs that skew towards dynamic and variable first, given their potential to maximize utilization. We leave this ultimate decision up to the IOUs and customers.

Recommendation 3.4 of the ACP proposes that the IOUs be directed to describe their evaluation process in the High DER FSC Implementation AL. We agree with CALSSA as to the concept of a persistent screen.⁹¹ We also agree with Clean Coalition that flexible capacity evaluations should be part of the utility's routine engineering and capacity-evaluation process.⁹² We agree in concept with Cal Advocates and Clean Coalition that there is benefit to a comparison of the FSC option against the traditional wires option.⁹³ We also conceptually agree with TURN's recommendation that the ALs establish all the cost and timing impacts to be considered compelling.⁹⁴ However, we find it is premature to make this requirement. While establishing a cost comparison is important, we must

⁹⁰ ACP at 22.

⁹¹ CALSSA Opening Comments at 4.

⁹² Clean Coalition Opening Comments at 3.

⁹³ Cal Advocates Opening Comments at 7, Clean Coalition Reply Comments at 4.

⁹⁴ TURN Reply Comments at 5.

first gather data to inform the development of any cost comparison. An uninformed cost comparison may not appropriately capture all costs and benefits.

We find comments from Critical Loop on the evaluation process to be helpful and incorporate this input into the HDER FSC Implementation AL requirements as set forth below.⁹⁵

Recommendation 3.4 of the ACP proposes that the IOUs be directed to describe the customer communication process for presenting FSC mitigation options within the HDER FSC Implementation AL. IREC and UCAN support standardized customer communication of FSC solutions beyond a bare list of options.⁹⁶ IREC and UCAN recommend including specific communications elements such as: operating limits, the conventional upgrade option, the term of the offering, the exit rights of the offering, customer rate options, the expected schedule for both the flexible solution and upgrade, the options available at the customer site, and the equipment that would be required by these options.⁹⁷ We find the specific elements identified by IREC and UCAN for standardized customer communications to be reasonable.

We direct each IOU to file a HDER FSC Implementation AL by the deadline set forth in Section 16 below. We direct the IOUs to include the following elements in the HDER FSC Implementation AL:

- a. **Eligibility Criteria:** A consistent eligibility proposal across IOUs that sets forth criteria and a process governing customer notification of flexible connection options, even

⁹⁵ Critical Loop Opening Comments at 13-14.

⁹⁶ IREC Reply Comments at 13, citing Critical Loop Opening Comments at 11, UCAN Opening Comments at 23.

⁹⁷ UCAN Opening Comments at 31, IREC Reply Comments at 13.

absent an expressed interest. These eligibility criteria shall include metrics to narrow the scope of the requirement. The proposed eligibility criteria shall be consistent with the following requirements:

- i. Each criterion is objective and can be applied using information available to the IOU at the conclusion of the Engineering and Design steps;
 - ii. Each criterion is tied to an identified engineering, operations, or cost reason why a Flexible Connection could not reasonably defer or avoid an upgrade;
 - iii. The criteria are consistent across the IOUs, or the AL explains with specificity the system difference that justifies divergence;
 - iv. No customer is excluded solely by customer class or size without a showing that customers of that class or size lack a realistic opportunity to defer or avoid an upgrade;
 - v. The IOU will record, for each customer screened out, the criterion applied.
- b. **Evaluation Process:** The process to evaluate customer projects for flexible service. The process should include the following:
- i. The appropriate Flexible Connection option shall be presented to the customer during the Engineering and Design step at the same time as the conventional upgrade option and costs presented;
 - ii. The conventional energization process should proceed without delay until and unless the customer elects a Flexible Connection offering;
 - iii. The time taken by the customer to elect either a conventional or Flexible Connection shall not be counted against the IOU steps' time for the purposes of the timekeeping directed in D.24-09-020.
- c. **Documentation Process:** The process to document whether the IOU offered an FSC option to the customer, whether

the customer took service under an FSC option, and if so what the details of the arrangement are. This process should include tracking of how and when the evaluation occurs.

- d. **Customer Communication Process:** The process to communicate to customers about the available FSC options. This process should include the following:
- i. Change application forms to include information on the benefits of FSCs;
 - ii. Allow a customer to indicate their interest in FSCs; and
 - iii. Provide customers with information to facilitate decision making, including upgrade schedule, expected curtailment, customer equipment needed, and basic time ranges in sufficient detail.

5.1.2.1. Incorporation into Annual Distribution Planning Proposals

Recommendation 3.4 of the ACP proposes that after initial approval of the FSC Implementation AL, IOUs should include any updates to the process in their annual distribution planning proposals. This recommendation is supported by UCAN, while Clean Coalition also supports the IOUs reporting FSC implementation outcomes. No party opposed this recommendation. UCAN's support is explicit, arguing that subsequent updates should flow through the annual distribution planning proposals, consistent with the ACP recommendations.⁹⁸ Clean Coalition asserts that incorporating FSCs into formal planning processes will make their value consistent, predictable, and replicable, and that the corresponding infrastructure outcome should be reflected in the annual distribution planning filings, among others.⁹⁹ UCAN and Clean Coalition

⁹⁸ UCAN Opening Comments at 23.

⁹⁹ Clean Coalition Reply Comments at 4.

provide persuasive arguments on this issue. We find it reasonable for the IOUs to include any necessary process updates to the flexible connection evaluation requirement in the annual distribution planning proposals.

6. Evaluation of Limited Power Mitigations, Support for Self-Managed Limited Power, and Update Rules to Enable These Offerings

This section addresses the recommendations that the ACP makes regarding Limited Power arrangements. ACP recommendation 4.1 proposes that Limited Power arrangements should be provided as the default mitigation for distribution transformer or secondary conductor upgrades when appropriate. ACP recommendation 3.2 proposes directing IOUs to support customers implementing a self-managed Limited Power arrangement by recording and providing information computed in the engineering and design energization step as defined in D.26-02-025. ACP recommendation 3.3 proposes updates to the IOUs' Rule 2 to support Limited Power and to make the Rules consistent between the IOUs.

As described above, Limited Power provides FSC mitigation using a single unchanging operating limit.¹⁰⁰ This allows the customer to operate their equipment in a manner that ensures they do not exceed the given operating limit. This mitigation does not require power flow modeling or instrumentation and is appropriate for customers of all sizes, located on both Mainline and Lateral primary grids.

The simplest form of FSCs is where a customer served by dedicated secondary infrastructure places a portion of their electric utilization equipment within a certified PCS, which is set up to limit the operation of that equipment

¹⁰⁰ ACP at 23.

such that the customer keeps their total power level below a single capacity value. This single capacity value is based upon information provided by the IOU or derived according to IOU processes. Self-managed FSCs that were adopted for PG&E and SCE customers by D.26-02-025 are referred to as self-managed Limited Power,¹⁰¹ as established via provisions within Electric Rules 2 and 3.

**6.1. ACP Section Four, Recommendation One – IOUs
Should Evaluate Limited Power as the Default
Mitigation Before Initiating a Distribution
Transformer or Secondary Conductor Upgrade**

ACP recommendation 4.1 proposes that in order to enable flexible service offerings for Lateral primary customers, the Commission should direct the large IOUs to incorporate Limited Power implemented by certified UL 3141 devices as the default mitigation for distribution transformer or secondary upgrades.

Existing IOU practices and Electric Rules already allow a utility to use mitigations to provide service. The IOUs can implement this change without additional Electric Rule modification. The ACP proposes that this mitigation option be offered to the customer after the engineering or initial study process establishes the available capacity, but before the upgrade design process is initiated.¹⁰² The ACP recommends the IOUs implement this change and detail the workflow and customer communications through an AL.¹⁰³

This section discusses modifications to this recommendation including detailing the information the IOUs are to include in the HDER FSC Implementation AL.

¹⁰¹ Limited Power and Limited Operation were used interchangeably in the ACP to describe this FSC. We use Limited Power to refer to this FSC for Load Customers and for Generation customers not utilizing existing Rule 21 FSC.

¹⁰² ACP at 47.

¹⁰³ ACP at 47.

6.1.1. Summary of Party Comments

The ACP recommendation 4.1 proposal has support from AEU, UCAN, Cal Advocates, Clean Coalition, and CalCCA. AEU and UCAN state that a Limited Power mitigation is an appropriately low-cost, low-complexity offering that works in all IOU territories.¹⁰⁴ UCAN supports designating Limited Power arrangements through the use of certified UL 3141 devices as the default mitigation for distribution transformer and secondary conductor upgrades, due to the equipment readiness of Limited Power arrangements in all IOU territories.¹⁰⁵ Cal Advocates recommends Limited Power arrangements as the default mitigation for distribution transformer upgrades.¹⁰⁶ Clean Coalition states that IOUs should be mandated to consider Limited Power arrangements and other flexible connection solutions prior to implementing ratepayer-funded distribution upgrades.¹⁰⁷ CalCCA supports IOUs providing Limited Power arrangements as the default mitigation for distribution transformer upgrades.¹⁰⁸

CALSTART, EDF, CALSSA, IREC, Terawatt, Tesla, TMH, and PACT provide qualified support. CALSTART identifies a risk that, absent a clear statement that a mitigation is provided only upon request, an IOU could delay or displace a needed upgrade. CALSTART further recommends offering Static Operating Envelopes alongside Limited Power arrangements as default mitigation options, due to these arrangements being well-suited for fleet duty

¹⁰⁴ AEU Opening Comments at 11, UCAN Opening Comments at 6.

¹⁰⁵ UCAN Opening Comments at 6.

¹⁰⁶ Cal Advocates Opening Comments at 5.

¹⁰⁷ Clean Coalition Opening Comments at 3.

¹⁰⁸ CalCCA Opening Comments at 7.

vehicles.¹⁰⁹ EDF supports Limited Power arrangements as the default mitigation for distribution and secondary transformer upgrades. However, EDF also recommends requiring the IOUs to propose a cost allocation framework for UL 3141-certified PCS costs through an AL.¹¹⁰ CALSSA supports Limited Power arrangements as the default mitigation while expressing that the Commission should expect Limited Power to be almost always a bridging approach.¹¹¹ IREC notes that most of the apparent disagreement in the record is largely due to the unhelpful term “default” rather than the substance of a customer’s choices.¹¹² IREC states that customers should have the option to adopt a Limited Power arrangement when energization would otherwise be delayed, but customer benefits should be meaningful. IREC believes that customers will incur costs from Limited Power arrangements, and these costs must be weighed as a potential barrier to adoption.¹¹³ Terawatt supports offering Limited Power arrangements as a default mitigation option before capital-intensive upgrades and further argues that Static Operating Envelopes should be a default mitigation option as well.¹¹⁴ Tesla supports Limited Power arrangements but does not support requiring UL 3141-certified devices for all FSC arrangements.¹¹⁵ TMH recommends that Limited Power arrangements be included as an option

¹⁰⁹ CALSTART Opening Comments at 4.

¹¹⁰ EDF Opening Comments at 6.

¹¹¹ CALSSA Opening Comments at 5.

¹¹² IREC Reply Comments at 11-12.

¹¹³ IREC Opening Comments at 22.

¹¹⁴ Terawatt Opening Comments at 6.

¹¹⁵ Tesla Opening Comments at 10.

for default mitigation rather than a requirement.¹¹⁶ PACT states that IOUs should be required to evaluate and present Limited Power and Static Operating Envelope arrangements and other FSC options whenever a customer request might trigger a distribution upgrade. PACT also states that participation must remain voluntary.¹¹⁷

The IOUs oppose this recommendation. PG&E argues that Limited Power arrangements should not be the default mitigation option for distribution transformer and secondary conductor upgrades, as energization delays would occur.¹¹⁸ SCE does not support Limited Power arrangements as the default mitigation option and states that these arrangements might not be cost-effective and should remain voluntary.¹¹⁹ SDG&E states that Limited Power arrangements should be an option but not the default mitigation option for distribution transformer and secondary conductor upgrades.¹²⁰

SDG&E identifies conditions in which a flexible arrangement would be infeasible and requests to preserve IOU discretion to decline an arrangement under transparent criteria where grid conditions or customer characteristics pose heightened risk.¹²¹ SCE states that the IOUs should retain discretion to choose between flexibility and upgrades based on safety, reliability, customer needs, economics, and system conditions.¹²²

¹¹⁶ TMH Opening Comments at 5.

¹¹⁷ PACT Reply Comments at 3.

¹¹⁸ PG&E Opening Comments at 9.

¹¹⁹ SCE Opening Comments at 10.

¹²⁰ SDG&E Opening Comments at 31.

¹²¹ SDG&E Opening Comments at 32, SDG&E Reply Comments at Appendix A-3.

¹²² SCE Opening Comments at 4.

AEU raises the issue that the prioritization of which Flexible Connection offering should be offered is not clear (e.g., should a residential 100 amp EV customer be offered ChargeBoost or Limited Power).¹²³

CALSSA, the IOUs, and PACT view a distribution transformer or secondary conductor Limited Power mitigation as a bridging solution.¹²⁴ IREC, however, asserts this is a use case where a non-bridging arrangement may work.¹²⁵

6.1.2. Discussion

We find merit in IREC's observation that most of the disagreement in the record here is due to the term "default." We are additionally persuaded by the IOUs' position that they maintain discretion to decline a Limited Power arrangement under transparent risk-based criteria. This decision makes clear that the IOUs are required to evaluate whether an FSC is appropriate where the customer agrees to the terms of service.

We are also persuaded by CALSTART's position as to the risk of delay. We recognize that the initiation of an upgrade design process is undefined in the ACP. As discussed in Section 5 of this decision, the conventional energization process should proceed without delay until the customer elects an FSC offering. In order to avoid delay, a mitigation will only be implemented upon a customer's agreement to the terms of service. The mitigation offering will be presented to the customer at the same time as the conventional upgrade option

¹²³ AEU Opening Comments at 10.

¹²⁴ CALSSA Opening Comments at 5, PG&E Opening Comments at 9-10, SDG&E Opening Comments at 32-33, SCE Reply Comments at 5.

¹²⁵ IREC Reply Comments at 14.

and costs are presented, rather than before the upgrade design process is initiated.

We note that parties address both whether a UL 3141 certified PCS should be required and whether there should be a cost allocation framework established for these systems.

No currently offered IOU FSC requires the use of a UL 3141 certified PCS. In that context, we are persuaded that the use of non-certified PCS or other technical means under mutual agreement between the customer and IOU should be allowed in addition to UL 3141-certified PCS. We encourage the IOUs to establish a method for ensuring that the approval of the technical means of capacity control at one IOU can be honored with the other two IOUs, absent a documented material system difference.

Accordingly, we find it reasonable for the IOUs to evaluate Limited Power as a mitigation, rather than the default, for distribution transformer and secondary conductor capacity constraints.

The following items are to be included in the IOUs' HDER FSC Implementation AL: proposed workflow, customer communications, and transparent risk-based criteria used to evaluate Limited Power as a mitigation for distribution transformer and secondary conductor capacity constraints.

6.2. ACP Section Three, Recommendation Three – Rule 2 Updates

ACP recommendation 3.3 proposes updates to the IOUs' Electric Rule 2 to support Limited Power arrangements and to make the Rules consistent between the IOUs. The purpose of this recommendation is to address technical definitions associated with calculating customer load and the load that is controlled on a customer's premises to better support the customer's ability to manage Limited

Power arrangements. The ACP recommends the addition of demand load¹²⁶ and secondary conductor rating, when available, as criteria to the controlled load definition to better align the customer's Limited Power setpoint with utility demand assumptions and expectations. The ACP recommends that the IOUs modify their Rule 2 Section H.7 to reflect that the PCS limit for controlled load shall be the lesser of connected load, demand load, or secondary conductor rating. In addition, the ACP recommends that SCE and SDG&E cite IEEE 519 as the basis of its definition for harmful waveforms and harmonics (in alignment with PG&E's Rule 2 language), and the excising of gendered language.¹²⁷ The ACP recommends that the IOUs make these changes through an AL.

Controlled load is the customer load that is subject to modulation or disconnection by a PCS. Load, when defined as "controlled load," ensures that equipment load within a UL 3141 certified PCS will not be included in the computation of demand load when an IOU assesses the capacity needed to serve a site.

When an existing customer served by dedicated secondary infrastructure determines that their operations require additional electrical equipment and does not wish to go through the IOU energization process, they are permitted to use self-managed Limited Power to install this additional equipment under the control of a certified PCS as controlled load. The customer's ability to use self-managed Limited Power, however, relies upon having the correct capacity value to input into that PCS.

¹²⁶ Joint Standard Offer AL at 5: "The portion of the connected load estimated to operate simultaneously, expressed in kW or kVA, and which imposes increased demand on the utility distribution system."

¹²⁷ ACP at 45-46.

D.26-02-025 directed¹²⁸ that the capacity value input into the PCS be based upon the customer's connected load.¹²⁹ SCE states that it is technically incorrect to use the connected load value as a basis for calculating the PCS capacity limit supporting controlled load.¹³⁰

To ensure a technically correct controlled load definition, the ACP recommends an update to the method used for determining the value of the PCS capacity limit. Instead of basing this capacity limit on connected load, the ACP recommends that it be updated to the lesser of the capacity values of connected load, demand load,¹³¹ or secondary conductor rating.¹³²

6.2.1. Summary of Party Comments

Both D.26-02-025¹³³ and party comment in response to ACP recommendation 4.3 support alignment between the IOUs' description of service (Rule 2) and application for service (Rule 3) energization rules.

The ACP recommendation to update the definition of controlled load is supported by SDG&E, UCAN, CalCCA, Cal Advocates, and AEU.¹³⁴ This support is based on the recommendation's potential to address the overloading

¹²⁸ D.26-02-025 at Appendix D.

¹²⁹ PG&E Rule 2 at sheet 20: Connected Load is the sum of the rated capacities of all of the Customer's electric utilization equipment that is served through one metering point and that may be operated at the same time.

¹³⁰ SCE Opening Comments at 13-14.

¹³¹ Joint Standard Offer AL at 5: "The portion of the connected load estimated to operate simultaneously, expressed in kW or kVA, and which imposes increased demand on the utility distribution system."

¹³² ACP at 45, footnote 66.

¹³³ D.26-02-025 at 40 - "We encourage PG&E and SCE to utilize common terminology and consistent processes within their Tariff Rule 2 where possible."

¹³⁴ SDG&E Opening Comments at 29, UCAN Opening Comments at 6, CalCCA Opening Comments at 5, 7, AEU Opening Comments at 11.

concern raised in the all-party workshop¹³⁵ by IREC. SDG&E, UCAN, Cal Advocates, and AEU also support the recommendation based on an updated definition's ability to provide consistency among the IOUs.¹³⁶

CalCCA supports this recommendation without qualification.¹³⁷

SDG&E supports the harmonization of Rule 2 language on connected load, demand load, secondary conductor rating, and harmful wave and harmonics.¹³⁸ SDG&E recommends that the Commission adopt definitions consistent with existing utility engineering and design standards.¹³⁹

PG&E supports this recommendation and suggests further refinements of the Electric Rules for service and customer energization "consistent with the aims of this proposal."¹⁴⁰ PG&E states that nameplate capacity,¹⁴¹ and therefore connected load as defined by the IOUs' Rule 2 documents, may be a misleading indicator for equipment load values. PG&E further recommends that Rule 2 language regarding the derivation of PCS limitations should allow PG&E to determine the limited factor, and PCS devices should be located at the service termination point to account for multi-meter configurations.¹⁴² PG&E

¹³⁵ Track 3 All party workshop report Appendix C at 115-118.

¹³⁶ IREC Opening Comments at 18, Critical Loop Opening Comments at 21, SCE Opening Comments at 7.

¹³⁷ CalCCA Opening Comments at 7.

¹³⁸ SDG&E Opening Comments at 29.

¹³⁹ SDG&E Opening Comments at 28-29.

¹⁴⁰ PG&E Opening Comments at 6-7.

¹⁴¹ PG&E Reply Comments at 4.

¹⁴² PG&E Reply Comments at 3-4.

additionally recommends that the connected load term is replaced with demand load in Rule 2 Section H.7.¹⁴³

IREC supports the ACP's proposed updates to Rule 2 language with "minor modifications."¹⁴⁴ IREC states that removing connected load as a determinant of PCS setpoint, as per the ACP recommendation, "mitigates the risk of secondary conductor and shared infrastructure overload caused by an Operating Limit that is too high."¹⁴⁵ IREC notes that because the connected load is always equal to or greater than the demand load, the definition of controllable load in Rule 2 Section H.7 should remove "connected load" for clarity because it is unnecessary.¹⁴⁶ IREC also recommends including a new term – "continuous secondary equipment rating," rather than "secondary conductor rating."¹⁴⁷

SCE recommends that any modifications to Rule 2 not establish an obligation for a customer to install or operate under PCS or other flexible connection arrangements.¹⁴⁸

6.3. Discussion

This decision adopts definitions for controlled load consistent with existing utility engineering and design standards as recommended by SDG&E. Thus, this decision utilizes demand load in the place of connected load to define controlled load. PG&E and SCE's joint AL (SCE AL 5790-E/PG&E AL 7868-E) to implement a Standard Offer in compliance with D.26-02-025 (Joint Standard

¹⁴³ PG&E Reply Comments at 3-4.

¹⁴⁴ IREC Opening Comments at 18.

¹⁴⁵ IREC Opening Comments at 20.

¹⁴⁶ IREC Opening Comments at 20.

¹⁴⁷ IREC Opening Comments at 19-20.

¹⁴⁸ SCE Opening Comments at 7.

Offer AL) defined a “Load Determination Process” to determine demand load. We direct the IOUs to use this definition of demand load as a basis for defining controlled load as shown in Appendix B and C to this decision.

6.3.1. Rule 2 Definition of Harmful Wave Form

PG&E’s Rule 2 Section F.2 uses the IEEE 519 standard to define Harmful Wave Form.¹⁴⁹ SCE and SDG&E do not explicitly use this standard in their Rule 2 tariff.¹⁵⁰

SCE has proposed the adoption of the IEEE 519 standard¹⁵¹ in AL 5848-E.¹⁵² SDG&E supports aligning its Rule 2 Harmful Wave and Harmonics language with PG&E’s Section F.2.¹⁵³

We agree that the IOUs should use a common definition for the harmonics that comprise Harmful Wave Form. We also agree that utilization of IEEE standard 519 is the most appropriate standard. We direct the IOUs to include this definition in their Rule 2 and to include this update within the Limited Power AL ordered in this decision.

6.3.2. Gendered Language

Gendered language is currently present within SCE and SDG&E’s Rule 2.¹⁵⁴

¹⁴⁹ PG&E Rule 2 at sheet 15.

¹⁵⁰ SCE Electric Rule 2 at Sheet 9, SDG&E Electric Rule 2 at Sheet 10; SCE Opening Comments at 7, SDG&E Opening Comments at 29.

¹⁵¹ SCE Opening Comments at 7.

¹⁵² SCE filed AL 5848-E on August 6, 2026 and it is currently suspended pending staff review.

¹⁵³ SDG&E Opening Comments at 29, SDG&E Reply Comments Appendix A at 3; PG&E Electric Rule 2, Sheet 15.

¹⁵⁴ SCE AL 5848-E, Appendix A, *passim*, SDG&E Opening Comments at 29; SDG&E Rule 2 at sheets 1,5,7.

SCE notes that changes proposed in AL 5848-E corrects the gendered language in Rule 2.¹⁵⁵ Other parties support the IOUs' removal of gendered language from Rule 2.¹⁵⁶

While we acknowledge a pending SCE AL proposes to address this issue, this decision directs the IOUs to excise gendered language from their Rule 2. We direct SCE and SDG&E to make these changes to their Rule 2 and include the update in their Limited Power AL.

6.3.3. Rule 2 Language on Intolerable or Detrimental Voltage Fluctuation

ACP recommendation 3.3 states that Rule 2 would benefit from modifications that better align customer actions with utility expectations.¹⁵⁷ The IOUs Electric Rule 2 language currently places the responsibility to avoid intolerable or detrimental voltage fluctuation on the customer,¹⁵⁸ but does not provide any criteria defining that fluctuation. This lack of criteria does not provide a customer self-managing Limited Power or operating within an Operating Envelope with the certainty needed to specify and set a PCS.

SCE's AL 5848-E identifies the IEEE 1453 standard as the basis for defining intolerable voltage fluctuation. It is consistent with the ACP recommendations, our treatment of Harmful Wave Form above, and with the direction in D.26-02-

¹⁵⁵ SCE Opening Comments at 7.

¹⁵⁶ AEU Opening Comment at 11, SCE Opening Comments at 7, SDG&E Reply Comments Appendix A at 3.

¹⁵⁷ ACP at 45.

¹⁵⁸ PG&E Rule 2 section F.4.b: "...suitable means must be employed, at the Customer's expense, to limit the voltage fluctuations to a tolerable level..."; SDG&E Rule 2 section E.1: "Customers who operate equipment that causes detrimental voltage fluctuations...must reasonably limit such fluctuations upon request by the Utility; SCE Rule 2 section E.1: "Customers who operate equipment which causes detrimental voltage fluctuations...must reasonably limit such fluctuations upon request by SCE."

025 that the IOUs use common terminology and consistent processes as to Rule 2 where possible so that the customer can base their actions on a defined criteria.¹⁵⁹

We therefore direct the IOUs to propose language that defines intolerable or detrimental voltage fluctuation by reference to IEEE standard 1453 within the Limited Power AL.

6.4. ACP Section Three, Recommendation Two – Supporting Self-Managed Limited Power Through the Provision of Information

This section discusses information regarding service conductor capacity and demand load values to be recorded and provided by the IOUs upon request by customers, the process to be used for tracking and providing access to this data, and the process by which the IOUs will update their Electric Rule 2 to include this requirement.

Recommendation 3.2 of the ACP recommends directing the IOUs to record the service conductor capacity and demand load values for each site as they are computed in the Engineering and Design energization step. The ACP recommends that the process for requesting and receiving this information should be consistent across the IOUs. The ACP suggests the IOUs provide these values, or confirmation that the IOU does not have recorded values for the requested site, within 30 days of customer request.¹⁶⁰

This ACP recommendation builds off D.26-02-025 in the Energization Rulemaking. That decision allowed customers served by dedicated infrastructure to add controlled load to an operating limit independent of large IOU

¹⁵⁹ D.26-02-025 at 40.

¹⁶⁰ ACP at 44-45.

involvement.¹⁶¹ This process is not currently included in the IOUs' tariffs or Electric Rules. The ACP recommends this process be formalized and made consistent across IOUs via an AL.

6.4.1. Summary of Party Comments

This ACP recommendation receives unqualified support from UCAN, CalCCA, Tesla, and Cal Advocates. UCAN notes that this recommendation "closes an information asymmetry" around demand load values being provided to customers.¹⁶² CalCCA provides general support of this recommendation.¹⁶³ Tesla supports this recommendation, noting that "customers should be provided the data that the utility has used to determine their available capacity for a specific service request."¹⁶⁴ Cal Advocates supports this proposal as being ready for near-term adoption.¹⁶⁵

IREC, Terawatt, Critical Loop, AEU, PG&E, and SDG&E provide qualified support for the recommendation. IREC qualifies its support on recording dedicated service transformer capacity and defining "demand load values."¹⁶⁶ AEU qualifies its support on the extension of the disclosure right to authorized third parties.¹⁶⁷ Terawatt qualifies its support on the provision of these values in conjunction with the initial engineering study.¹⁶⁸ PG&E qualifies its support on

¹⁶¹ ACP at 44.

¹⁶² UCAN Opening Comments at 5-6.

¹⁶³ CalCCA Opening Comments at 7.

¹⁶⁴ Tesla Opening Comments at 9.

¹⁶⁵ Cal Advocates Opening Comments at 5.

¹⁶⁶ IREC Opening Comments at 17-18.

¹⁶⁷ AEU Opening Comments at 4, 11.

¹⁶⁸ Terawatt Opening Comments at 5.

the inclusion of guardrails against energization process delay.¹⁶⁹ Critical Loop qualifies its support on ensuring that the customer is provided information as to which value or consideration is the capacity limiting factor.¹⁷⁰ SDG&E qualifies its support on the alignment with the service line data already collected under the Building Decarbonization proceeding.¹⁷¹

SCE opposes the recommendation as drafted, citing limited incremental customer value against significant process and administrative cost, and a lack of clarity as to what information must be recorded, where maintained, to whom disclosed, and at what cost.¹⁷²

6.4.2. Discussion

We adopt the ACP's proposal and require the IOUs to enumerate the specific data fields as set out below. We agree with UCAN that directing the IOUs to record the service conductor capacity and demand load values for each site as they are computed in the Engineering and Design energization step will close an information asymmetry around data load values provided to customers. We also take into consideration the concerns raised by SCE around administrative burden. Thus, we further clarify that in order to reduce administrative burden these values should be provided to the customer or customer representative upon request.

¹⁶⁹ PG&E Opening Comments at 5.

¹⁷⁰ Critical Loop Opening Comments at 10.

¹⁷¹ SDG&E Opening Comments at 27-28, SDG&E Reply Comments Appendix A at 2.

¹⁷² SCE Opening Comments at 6-7.

6.4.2.1. Data Fields to Support Self-Managed Limited Power

Consistent with party comment, we find it reasonable to require the IOUs to provide the following data fields to customers upon request: demand load, metered demand, secondary transformer capacity, capacity limiting factor, and service conductor capacity.

The customer's decision about whether to self-manage Limited Power and what equipment to place within a PCS relies on their understanding of their current demand relative to the IOUs' forecasted demand load. Thus, we find it reasonable to require the IOUs to disclose both the demand load and the customer's metered demand, when available.

A customer's decision whether to implement self-managed Limited Power or go through the energization process may hinge on longer-term capacity needs. Thus, it is reasonable to require the IOUs to disclose to customers the secondary transformer capacity and to disclose the capacity limiting factor. As noted by Tesla, customers should have access to the data that the utility has used to determine their available capacity for a specific service request.¹⁷³ This capacity limiting factor denotes the most limiting element (e.g., service conductor, secondary transformer, protection,¹⁷⁴ or primary system constraint) that constrains the capacity available to serve the customer.

PG&E's presentation at the all-party workshop¹⁷⁵ included information showing that it is common for the service conductor to be rated for a smaller capacity value than the main service protective device rating. As the main service

¹⁷³ Tesla Opening Comments at 9.

¹⁷⁴ SCE Opening Comments at 7.

¹⁷⁵ Track 3 All-Party Workshop Report Appendix D at 63.

protective device is not a reliable indicator of the service conductor's capacity, it is reasonable to require the IOUs to disclose the service conductor's capacity value.

This decision also omits connected load from the data fields as this value is no longer part of the computation of controlled load pursuant to the changes to Rule 2 in this decision.

6.4.2.2. Authorized Third Parties

We are convinced by AEU's comment that authorized third parties should also be able to request the data listed in Section 6.4.3 on behalf of a customer. Each IOU already maintains an "Authorization to Receive Customer Information or Act on a Customer's Behalf" (CISR) form,¹⁷⁶ which could be used to allow third party access to customer data. We note that the IOUs have created abbreviated CISR forms that require a single signature. Therefore, allowing access to this data by a third party through customer authorization will not create additional administrative challenges as the same form can be utilized by a customer to authorize the third party access to data.¹⁷⁷

6.4.2.3. Process for Provisioning and Retaining Data

The IOUs shall each add information to their websites detailing the information they will provide. Customers should have the ability to enter their account information, authorize any additional party that should receive this data upon their behalf, and make an existing service data request. The IOUs' websites

¹⁷⁶ PG&E's CISR Form is 79-1095; SCE's CISR Form is 14-796, last modified by 5642-E; SDG&E's CISR Form is 185-1000.

¹⁷⁷ SDG&E Form 180-100; SCE Form 14-929; PG&E Form 79-1147, approved by Resolution E-4599.

should also include information on the method they will employ to allow customers to authorize third parties to access the data listed in Section 6.4.3.

Within 30 days of a valid request, an IOU shall provide to the customer and any authorized party the data listed in Section 6.4.3 or confirm that the data is unavailable for each of the fields. The IOU, at its discretion, may perform site inspections or computations according to standard engineering practices to re-establish values that cannot be retrieved from existing records.

We recognize that the IOUs' secondary network records have not always been maintained in a manner that allows these values to be readily retrieved.¹⁷⁸ To remedy this deficiency, we find it reasonable for IOUs to retain the data on a prospective basis. We direct the IOUs to maintain this data in an internal location that is most aligned with their current processes. No customer costs are to be associated with this request.

6.4.2.4. Customer Calculation of Controlled Load

This decision allows a dedicated secondary infrastructure customer to independently establish their appropriate controlled load value after making a good faith effort to obtain existing IOU values. A customer needs demand load data and the secondary conductor rating to establish their controlled load. If the IOU's reply to the dedicated secondary customer's data request is to indicate that they have none of the data requested, the customer's ability to self-manage Limited Power would be blocked. Allowing a secondary infrastructure customer to independently establish that controlled load value in such a circumstance would resolve the data gap.

¹⁷⁸ SDG&E Opening Comments at 31.

We note that SDG&E's distribution design manual provides both power per square foot values and demand factors that can be applied to nameplate values to provide a better indicator of equipment load values. These methods align with the methods articulated by PG&E and SCE in the Joint Standard Offer AL.

If the IOU fails to respond to a customer's request for data listed in Section 6.4.3 in the required 30 days, the customer may also calculate their demand load. Once calculated utilizing established IOU processes, the customer may use this demand load value to establish connected load and self-manage Limited Operation.

The IOUs are thus directed to detail the information they will provide on their website to allow customers to request the data fields specified. The IOUs will also provide on their website the method they will employ to allow customers to authorize third parties to access this data, and the method they will prospectively use to track these data fields within the HDER FSC Implementation AL. We note that SDG&E's distribution design manual provides both power per square foot values and demand factors that can be applied to nameplate values to provide a better indicator of equipment load values. These methods align with the methods articulated by PG&E and SCE in the Joint Standard Offer AL.¹⁷⁹

The IOUs are also directed to update their Electric Rule 2 via a Tier 1 AL (Limited Power AL) filed within 45 days of the adoption of this decision. This decision grants the IOUs discretion in selecting which section of its Rule 2 is most appropriate to house the definition of controlled load and to modify the Rule 3

¹⁷⁹ Joint Standard Offer AL, Attachment A at 5.

language directed in D.26-02-025 Appendix E so that it points to the appropriate Rule 2 section. Each IOU shall include, as an appendix to the Limited Power AL, the full set of demand factor tables by equipment class, diversity schedules by customer count, demand per square foot values for each climate zone, and method selection rules available to its internal engineers. As this information is periodically updated by the IOUs, each IOU shall include this full set of information in any reply to a dedicated secondary customer's request for the information specified in this section that does not include demand load.

If there is a need for divergence among the IOUs as to values, schedules, factors, or selection rules provided, the IOUs shall provide, within the body of the Limited Power AL, a description and justification of the need for divergence among their service territories.

7. Expanding Bridging Options Available to Mainline Customers

7.1. ACP Section Three, Recommendation One – SDG&E Should Establish a Standard Offer for FSCs

ACP recommendation 3.1 proposes extending the Standard Offer provided by PG&E and SCE to SDG&E customers. Specifically, the ACP proposes that SDG&E should be directed to implement a SOE Standard Offer FSC in the same manner as required of PG&E and SCE by D.26-02-025 OPs one through five. D.26-02-025 found that PG&E and SCE customers had experienced constraints that prevented timely energization but there was no record of SDG&E customers being unable to be energized in a timely fashion.¹⁸⁰ To capture the benefits associated with FSCs' effect on ratepayer savings and effective usage of grid infrastructure, the ACP recommends that SDG&E be directed to implement a

¹⁸⁰ D.26-02-025 at 12-13.

SOE Standard Offer. The ACP recommends that SDG&E's implementation plan and timeline should be described in an AL within 120 days of the issuance of this decision.¹⁸¹

Under the D.26-02-025 framework, SCE and PG&E retain the discretion to establish transparent criteria determining whether a customer is a candidate for the Standard Offer, rather than imposing technological requirements to ensure customer compliance.¹⁸² As a result of the customer's flexibility, the Standard Offer has in practice been used by a curated subset of Mainline customers.¹⁸³ Based largely on PG&E's non-tariffed Load Limit Letter offering,¹⁸⁴ the Standard Offer requires only standard engineering power flow tools to generate its operating envelope(s) and only standard AMI 1.0 data to verify compliance.¹⁸⁵

The Standard Offer provides for safe harbor treatment of load under the control of a UL 3141-certified PCS. This safe harbor treatment allows a customer to add load that is not counted against the distribution system's available capacity so long as the total load seen by the distribution system does not exceed the demand load that is forecast due to the non-controlled load.

The Standard Offer requires that the IOUs provide customer education as the first remediation step for a customer exceeding the load they are allowed under the Standard Offer.¹⁸⁶ The only exception to the requirement to provide customer education as the first remediation step is if the customer's exceedance

¹⁸¹ ACP at 44.

¹⁸² D.26-02-025 at 17.

¹⁸³ Joint Standard Offer AL, Attachment A at 35.

¹⁸⁴ D.26-02-025 at 10, SCE's January 16, 2026 Opening Comments on the Proposed Decision Establishing a Standard Offer for Flexible Service Connections, R.24-01-018 at 6.

¹⁸⁵ D.26-02-025 at 48.

¹⁸⁶ D.26-02-025 at 84.

is severe enough that the IOU deems the use of the customer's equipment unsafe¹⁸⁷ or must interrupt service due to a shortage of electrical supply.¹⁸⁸

7.1.1. Summary of Party Comments

This recommendation is supported by UCAN, EDF, IREC, Cal Advocates, Clean Coalition, CALSTART, Terawatt, Critical Loop and AEU.¹⁸⁹ EDF, Critical Loop, and AEU agree that there is a ratepayer and customer benefit basis for directing SDG&E to establish a Standard Offer that does not rely upon current energization timeliness concerns.¹⁹⁰ UCAN notes that the ratepayer benefit of a flexible connection depends on whether a ratepayer-funded upgrade can be avoided or deferred.¹⁹¹

Aside from supporting this ACP recommendation, multiple parties recommend additional requirements and refinements.

In addition to the Standard Offer, UCAN and CALSTART advocate for SDG&E to provide a preliminary capacity assessment offering pre-application visibility into power availability.¹⁹² This is one of the additional elements that D.26-02-025 directs PG&E and SCE to implement.

¹⁸⁷ Discontinuance of service due to unsafe equipment is addressed in the IOUs' Electric Rule 11.

¹⁸⁸ Interruption of service due to shortage of electric supply is addressed in the IOUs' Electric Rule 14.

¹⁸⁹ EDF Opening Comments at 5, IREC Opening Comments at 16, CALSTART Opening Comments at 9, Terawatt Opening Comments at 11, Critical Loop Opening Comments at 20–21, 27, AEU Opening Comments at 11, Clean Coalition Opening Comments at 3.

¹⁹⁰ EDF Opening Comments at 4, Critical Loop Opening Comments at 27, Critical Loop Opening Comments at 27, AEU Opening Comments at 11.

¹⁹¹ UCAN Opening Comments at 34–35.

¹⁹² UCAN Opening Comments at 37, CALSTART Opening Comments at 9.

UCAN recommends requiring SDG&E to commence biannual data reporting following the launch of its Standard Offer.¹⁹³

Cal Advocates and Critical Loop note their support for consistency between IOUs in forms, reporting, cost-efficiency evaluations, and required timeframes (delivery clocks).¹⁹⁴

Terawatt, EDF, and CALSTART emphasize the importance of retaining a Standard Offer pathway that does not rely upon certified control systems or DERMS.¹⁹⁵

While the recommendation to require an SDG&E Standard Offer is supported by the majority of responding parties, SDG&E and IREC voice reservations on D.26-02-025's deliverable timing¹⁹⁶ given SDG&E's lack of an existing FSC pilot.

PG&E and SDG&E assert that the record here does not support requiring the establishment of a Standard Offer by SDG&E, which they note would not be consistent with D.26-02-025.¹⁹⁷ TURN, however, points out that SDG&E's filings have requested over \$300 million in incremental capital funding for additional energization-related distribution capacity projects. These requests indicate high

¹⁹³ UCAN Opening Comments at 36-37.

¹⁹⁴ Cal Advocates Opening Comments at 16, Critical Loop Opening Comments at 20-21, 27.

¹⁹⁵ Terawatt Opening Comments at 7-8, EDF Opening Comments at 5, CALSTART Opening Comments at 5.

¹⁹⁶ SDG&E Opening Comments at 46, 53, IREC Reply Comments at 10, SDG&E Reply Comments at 9-10, Appendix A at 3.

¹⁹⁷ PG&E Opening Comments at 5, SDG&E Opening Comments at 49-50.

potential future load growth.¹⁹⁸ Additionally, Critical Loop notes that customers may need a Standard Offer before a visible backlog can be documented.¹⁹⁹

SDG&E recommends an alternative - a two-step process utilizing either demand tracking or demonstrated energization issues prior to imposing a Standard Offer obligation only if customer interest is demonstrated and sustained.²⁰⁰ SDG&E notes that PG&E and SCE designed their Standard Offer based on a comprehensive record and established process. SDG&E asserts that it would be designing from a standing start and should be permitted to leverage the PG&E/SCE joint AL as a template.²⁰¹

7.1.2. Discussion

We are persuaded by comments from EDF, Critical Loop, AEU, and UCAN that there is ratepayer benefit to SDG&E establishing a Standard Offer. We are further persuaded by comments from TURN and Critical Loop noting the incremental energization needs indicated by filings. This need could grow before a visible backlog is noted.

The existing record characterizes this type of solution as having no or low cost.²⁰² As there is benefit and no to low cost required to secure this benefit, we find it reasonable to direct SDG&E to establish a Standard Offer FSC consistent with the direction provided to PG&E and SCE in D.26-02-025 OPs 1-5. D.26-02-025 ordered PG&E and SCE to file ALs establishing a tariffed Standard Offer FSC

¹⁹⁸ TURN Reply Comments at 4-5.

¹⁹⁹ Critical Loop Reply comments at 11.

²⁰⁰ SDG&E Opening Comments at 49-50, 52-53.

²⁰¹ SDG&E Opening Comments at 49-50, 52-53.

²⁰² PG&E Bridging Strategies Report at 8.

Form Agreement, to modify their Electric Rule 2 and 3 language, to file a report assessing their Standard Offer Static FSC, and to collect and report data.

While consistency between IOUs is beneficial for customer experience, SDG&E does not currently have an FSC offering. Given that SDG&E will be initiating a new program, SDG&E should be provided additional time to file the AL that establishes a Standard Offer FSC Form Agreement.

SDG&E is also permitted to leverage the Joint Standard Offer AL that PG&E and SCE filed.²⁰³ The Joint Standard Offer AL is still pending approval. Leveraging the disposition of the Joint Standard Offer AL will reduce the workload for SDG&E and create consistency across the three IOUs. We therefore direct SDG&E to file a separate Tier 2 Standard Offer AL within 75 days after the disposition of the Joint Standard Offer AL consistent with the schedule set out in Section 16 of the decision.

We are persuaded that customers will benefit from consistency between SDG&E's newly established Standard Offer and the implementation of PG&E and SCE's Standard Offer in forms, reporting, cost-efficiency evaluation, required timeframes, and preliminary capacity assessment. We also agree with UCAN and CALSTART that SDG&E should establish a preliminary capacity assessment consistent with D.26-02-025 OP 7, which states that "Pacific Gas and Electric Company and Southern California Edison Company shall file, no later than 75 days from the issuance of this decision a Tier 2 advice letter formalizing their preliminary capacity assessment offerings as direction in Section Ten of this decision." The preliminary capacity assessment, sometimes referred to as a "power check" or Step 0 in the energization process, refers to an estimate of

²⁰³ SCE AL 5790-E/PG&E 7868-E, filed April 13, 2026.

capacity provided prior to a customer application. A preliminary capacity assessment is not required unless a customer requests it, and a customer must bear costs associated with the assessment.

While there is discrepancy between the level of existing FSC pilots offered by the IOUs, there is no record supporting any significant discrepancy in their ability to provide capacity assessments. We therefore find it reasonable to align the filing timing for SDG&E's formalization of the preliminary capacity assessment with that of SDG&E's Standard Offer.

Accordingly, this decision directs SDG&E to establish a preliminary capacity assessment consistent with the guidance provided in D.26-02-025. SDG&E shall file its Tier 2 Standard Offer AL to establish a tariffed Standard Offering FSC Form Agreement. SDG&E shall include all the required components for this filing as outlined in Appendix F.

While D.26-02-025 directs SCE and PG&E to file a separate AL to establish their preliminary capacity assessment, SDG&E should include its proposal to formalize its preliminary capacity assessment within its Standard Offer AL. Specifically, this proposal should formalize a preliminary capacity assessment and describe within its AL any current preliminary capacity assessment process. SDG&E shall provide the name of its assessment process, describe the analysis this process performs to arrive at a capacity estimate, and provide the historical average cost to the customer for performing these assessments. SDG&E shall formalize its process by providing a standardized form for collecting the required customer information and a standardized preliminary capacity assessment report. We encourage SDG&E to align its offering with PG&E and SCE to the extent practicable, and direct SDG&E to articulate the rationale for any divergence in its approach. SDG&E shall align its AL format with SCE and

PG&E so the three can be easily compared. Consistent with D.26-02-025, we establish a target timeline of 30 days from when SDG&E receives a request for a preliminary capacity assessment until they provide the customer with the full preliminary capacity assessment results.

D.26-02-025 requires PG&E and SCE to utilize normal capacity ratings without a buffer value when determining limited load profile capacity for the Standard Offer.^{204 205 206} SDG&E, however, may utilize an overload standard rather than emergency ratings, if none exists, to assess electrical distribution equipment and meet this requirement to utilize normal capacity ratings without a buffer value.

SDG&E shall use the Tier 2 SDG&E Standard Offer AL to fulfill the direction given in this decision, which is consistent with what PG&E and SCE were directed to do in D.26-02-025. SDG&E is provided additional time, as compared to PG&E and SCE, to establish its Standard Offer, and will have the benefit of learning from the joint filing from PG&E and SCE. SDG&E is to file an AL to establish a tariffed Standard Offer FSC Form Agreement and formalize its preliminary capacity assessment offering.

SDG&E shall use the Limited Power AL, consistent with Appendices B and C of this decision, to modify its Electric Rule 2 and 3 language. This is consistent with the direction D.26-02-025 provided SCE and SDG&E in OP 2.²⁰⁷

²⁰⁴ D.26-02-025 at 45.

²⁰⁵ IREC Opening Comments at 16-17, SDG&E Distribution Design Manual at DM5625.

²⁰⁶ D.26-02-025 at 45.

²⁰⁷ D.26-02-025 OP 2 states: "Pacific Gas and Electric Company and Southern California Edison Company shall file a Tier 1 Advice Letter modifying their Tariff Rule 2 and 3 language as specified in the appendices to this decision within 15 days of the issuance of this decision."

SDG&E shall commence its biannual Standard Offer FSC and preliminary capacity assessment data reporting as directed by this decision and consistent with the direction D.26-02-025 provided PG&E and SCE.²⁰⁸ SDG&E shall report on Standard Offer FSC data, as listed in Appendix F to this decision. SDG&E must additionally work with Energy Division to identify the appropriate date fields, consistent with those that SCE and PG&E are reporting, and propose their reporting as part of the SDG&E Standard Offer AL. All of this reporting shall be included in the biannual reports directed in D.24-09-020, *Decision Establishing Target Energization Time Periods and Procedure for Customers to Report Energization Delays*. SDG&E shall consult with Energy Division to finalize the list of Standard Offer data appropriate for inclusion in the biannual report, which should be consistent with the reporting requirements for SCE and PG&E. The first reporting period shall be the one after the disposition of the SDG&E Standard Offer AL.

Lastly, and also consistent with D.26-02-025, SDG&E shall file, in this proceeding, R.24-01-018, and any successor proceedings, by January 15, 2029 a report summarizing the costs, additional energy consumption enabled, assessment of the Standard Offer Static FSC's cost efficiency, and a quantitative assessment of the effect the Standard Offer has had upon its revenue requirement.

7.2. ACP Section Four, Recommendation Two – SCE and SDG&E Should Implement VOEs Modeled After PG&E's Flex Connect

The ACP notes the success of PG&E's Flex Connect, an operational tool that supports customers by providing bridging load and non-bridging

²⁰⁸ D.26-02-025 OP 5

generation connections to large customers dealing with mainline primary constraints. Based on this success and SCE and SDG&E's experience developing similar offerings (SCE's Load Control Management System pilot and SDG&E's Wholesale Distribution Access Tariff pilot), recommendation 4.2 of the ACP proposes that SCE and SDG&E implement an offer modeled after PG&E's Flex Connect within one year of the adoption of this decision. The ACP recommends SCE and SDG&E file Tier 3 ALs (Flex Connect ALs) to describe the implementation plan for this offering. The ACP also recommends that SCE and SDG&E provide quarterly updates on their progress implementing a VOE to the Energy Division staff. Finally, the ACP recommends SCE and SDG&E hold a joint workshop six months after issuance of this decision to preview for stakeholders their draft implementation plans.²⁰⁹

PG&E's Flex Connect offering, as described in the Op Flex Report, relies upon historical loading, weather, and Supervisory Control and Data Acquisition (SCADA) data²¹⁰ to provide customers with a capacity forecast. IEEE 2030 communications are used to provide the customer with the capacity forecast and to receive telemetry data from the customer.²¹¹

7.2.1. Summary of Party Comments

CalCCA, CALSSA, EDF,²¹² Tesla, and UCAN support this recommendation. CALSSA notes that a VOE gives greater flexibility and thus affordability benefits that can be unlocked if it is operational in all three IOU

²⁰⁹ ACP at 47-48.

²¹⁰ Op Flex Report at 18-19.

²¹¹ Op Flex Report at 8.

²¹² EDF Opening Comments at 7.

territories.²¹³ Tesla notes that implementing a VOE bridging solution should not delay SCE and SDG&E's other near-term offerings.²¹⁴ UCAN notes that SCE and SDGE's prior pilot experience demonstrates that implementing this recommendation is realistic.²¹⁵ UCAN strongly supports the updates and workshop, characterizing them as essential to preventing a recurrence of previous deadline slippage.²¹⁶

This recommendation receives qualified support from AEU, Cal Advocates, Critical Loop, and IREC. AEU suggests the Commission require consistent open communication protocols and direct the IOUs to use a consistent interoperability testing and certification procedure.²¹⁷ Cal Advocates recommends that the Commission require the IOUs to demonstrate that the benefits of providing additional capacity are expected to exceed implementation costs. Cal Advocates also requests that this decision clarify that the IOUs are not permitted to use these ALs to seek broad new ratepayer-funded investments.²¹⁸ Critical Loop suggests an optional tier that includes a permanent static capacity floor and the most granular profile available from existing planning models.²¹⁹ IREC raises concerns that moving from this high-level direction to an AL adoption process risks missing opportunities for customer and ratepayer savings. IREC believes this approach pushes a highly detail-intensive

²¹³ CALSSA Opening Comments at 5.

²¹⁴ Tesla Opening Comments at 10.

²¹⁵ UCAN Opening Comments at 7.

²¹⁶ UCAN Opening Comments at 7.

²¹⁷ AEU Opening Comments at 12.

²¹⁸ Cal Advocates Opening Comments at 8.

²¹⁹ Critical Loop Opening Comments at 21.

development effort into the wrong process. Additionally, IREC raises concerns over the need to further develop flexible connection options via a robust, on-the record process, rather than an AL.²²⁰

IREC supports this recommendation while also raising concerns that moving from this high-level direction to an AL adoption process risks missing opportunities for customer and ratepayer savings. IREC believes this approach pushes a highly detail-intensive development effort into the wrong process. Additionally, IREC raises concerns over the need to further develop flexible connection options via a robust, on-the record process, rather than an AL.²²¹

PG&E takes no position on this recommendation but objects to the ACP's low-cost characterization of the Flex Connect tool.²²²

SDG&E opposes the recommendation, stating it proposes an infeasible implementation timeline and that SDG&E does not have a demonstrated need for a Flex Connect-modeled VOE.²²³ Additionally, SDG&E states that the recommended AL and workshop schedule conflicts with the cybersecurity AL and workshop requirements set out in this decision.²²⁴

7.2.2. Discussion

We agree with the parties who support the recommendation for SCE and SDG&E to implement a VOE offering modeled off PG&E's Flex Connect. We find that the offering will provide more opportunities for FSCs and increasing

²²⁰ IREC Opening Comments at 23-25.

²²¹ IREC Opening Comments at 23-25.

²²² PG&E Opening Comments at 11.

²²³ SDG&E Opening Comments at 34-35.

²²⁴ SDG&E Opening Comments at 41.

utilization of grid infrastructure. We also address SDG&E's concerns about the implementation timeline in the subsection below.

PG&E's Flex Connect offering is on a development roadmap that scales its capabilities and technical complexity. This roadmap includes incorporating line-section constraints and multiple sites on the same constraint by the end of 2026,²²⁵ and contemplates adopting load flow state estimation by the end of 2030.²²⁶ IREC asks the Commission to recognize that recent expansions to PG&E's Flex Connect are not necessary to mirror in SCE and SDG&E's first offerings.²²⁷ We are persuaded by IREC's comment and find it reasonable for SCE and SDG&E to adopt the level of functionality specified by PG&E in its February 28, 2025 Op Flex report for their respective bridging VOE implementations, rather than matching PG&E's development roadmap.

Both IREC and SCE oppose using VOE implementations (e.g., Flex Connect) for addressing secondary distribution constraints. IREC cites a lack of liquidity of resources, and both SCE and IREC cite a need for further technical development and demonstration.²²⁸ We find these arguments persuasive and clarify that SCE and SDG&E's VOE offerings need not be applied to secondary distribution constraints at this time, pending technical development and demonstration and showing of liquidity of resources.

²²⁵ Track 3 All-Party Workshop Report at 58.

²²⁶ PG&E Opening Comments at 3-4.

²²⁷ IREC Opening Comments at 24.

²²⁸ IREC Opening Comments at 15-16, SCE Opening Comments at 9.

7.2.2.1. SCE and SDG&E Technical Functionality to Implement VOEs

SCE has implemented the necessary SCADA functionality²²⁹ to inform the forecasts needed for a VOE. Further, Phase 2 of its Grid Management System will provide short-term forecasting for both load and generation no later than 2027.²³⁰ SCE currently possesses the capability to provide operating envelope data over IEEE 2030.5,²³¹ and has established a gateway²³² within its basic DERMS implementation to provide customer communications. We note that the forecasting capability needed for VOE has been significantly delayed, as it was initially expected in 2024.²³³ Accordingly, we find it reasonable to direct SCE to provide an update on this effort within the joint IOU preview workshop and to take action to ensure that this functionality is delivered no later than the end of 2027.

With this functionality delivered by the end of 2027, the capabilities will be in place to support SCE providing a VOE offering equivalent to PG&E's initial Flex Connect offering on approximately the timeline given within the ACP. We direct SCE to file its Flex Connect AL no later than one year after the issuance of this decision. This AL shall align with PG&E's Flex Connect implementation, including both a Flex Connect Form Agreement and providing descriptive detail at a level equivalent to PG&E's Flex Connect informational report. SCE shall, within its Tier 2 Flex Connect AL, articulate any divergence between its Flex

²²⁹ Track 3 All-Party Workshop Report at 81.

²³⁰ Track 3 All-Party Workshop Report at 81.

²³¹ SCE Opening Comments Appendix at 5.

²³² Track 3 All-Party Workshop Report at 80.

²³³ EASE Report at 3.

Connect offering and PG&E's and describe with specificity the factors that require this divergence.

SDG&E's technology readiness is in a different state than both SCE and PG&E. While PG&E, and in the future SCE, rely upon SCADA data and a forecasting module to generate the operating envelope for Flex Connect, SDG&E's ability to generate an operating envelope may not require reliance upon SCADA data. While PG&E and SCE have the capability to utilize IEEE 2030.5 communications to establish site telemetry, SDG&E's ability to establish site telemetry does not rely upon these communications. SDG&E states that it is in the proof-of-concept stage for operating envelope enablement.²³⁴

SDG&E also states that the existing production environment that hosts their forecast tool cannot support the data processing and computational requirements that would be needed for short-term forecasting across the system without compromising core distribution operation functions.²³⁵

We thus find it reasonable for SDG&E to provide an implementation plan for a proof-of-concept VOE consistent with the structure of PG&E's Flex Connect on the timeline the ACP contemplates. A proof-of-concept approach addresses SDG&E's concerns around technology readiness, while ensuring meaningful progress on VOE development.

In addition to developing a proof-of-concept, we find it reasonable for SDG&E to share additional information about its technology readiness with both Energy Division and stakeholders at the preview workshop. Specifically, we

²³⁴ Track 3 All-Party Workshop Report at 98.

²³⁵ SDG&E Opening Comments at 7.

direct further information on SDG&E's forecast tool, SCADA devices, and development projects on IEEE 2030.5 gateway integration.

SDG&E has completed limited internal testing to understand how their forecast tool performs.²³⁶ We find it reasonable for SDG&E to assess the level of accuracy that their forecast tool provides in generating load and generation hosting capacity forecasts. SDG&E shall compute the approximate number of sites their forecasting tool can support on a day-ahead basis without materially compromising core distribution operation functions and share this figure both with Energy Division staff in their first quarterly update and with stakeholders in the joint IOU preview workshop.

SDG&E states that it does not have SCADA devices at all locations.²³⁷ We note that SCADA data is not strictly required for their forecasting module to run.²³⁸ We find it reasonable for SDG&E to provide more detailed SCADA device information to Energy Division staff, including to detail the grid locations which contain SCADA devices sufficient to support forecast accuracy for VOEs.

SDG&E states that it is currently developing projects on IEEE 2030.5 gateway integration and that production deployments could potentially begin in 2028.²³⁹ We note that if the IEEE 2030.5 gateway integration is not complete in time for SDG&E's proof-of-concept schedule, VOE data can be provided without IEEE 2030.5 automation, and customer site data can be provided via the serial device interface described in Resolution E-5038 or its replacement. We find it

²³⁶ SDG&E Opening Comments at 6-7.

²³⁷ SDG&E Opening Comments at 6.

²³⁸ SDG&E Opening Comments at 6.

²³⁹ Track 3 All-Party Workshop Report at 96.

reasonable that SDG&E articulate its plan to include VOE sites within its development projects on IEEE 2030.5 gateway integration.

SDG&E must provide an implementation plan for a proof-of-concept VOE consistent with the structure of PG&E's Flex Connect. A proof-of-concept approach addresses SDG&E's concerns around technology readiness, while ensuring meaningful progress on VOE development. SDG&E's proof-of-concept implementation plan shall include no less than two sites receiving VOEs and providing telemetry by June 1, 2028. SDG&E shall detail, within its Flex Connect AL, its implementation plan for this proof of concept. SDG&E shall additionally detail, within its Flex Connect AL, its plan to provide a VOE consistent with the structure of PG&E's Flex Connect as a formalized offering beyond these two sites by June 1, 2029. SDG&E shall file its Flex Connect AL by the date set forth in Section 16 below.

7.2.2.2. Interoperability Testing and Certification Procedures

AEU requests that the Commission order the IOUs to use a consistent interoperability testing and certification procedure to avoid redundant vendor qualification processes.²⁴⁰ In making this request, AEU requests that SCE and SDG&E be held to PG&E's existing *Flex Connect Technical Requirements for Telemetry and Control* for the level of detail provided, specific parameters, and values in order to allow a single aggregator platform to serve customers in all three territories with minimal reconfiguration.²⁴¹ We find this request reasonable and direct SCE and SDG&E to utilize the same parameters and values as in the

²⁴⁰ AEU Opening Comments at 12.

²⁴¹ AEU Opening Comments at 17.

Flex Connect Technical Requirements for Telemetry and Control document for their VOE offering.

We note that many of the questions around the appropriate level of hardware, software, bandwidth, and measured quantity requirements for telemetry have already been established by the Commission in Resolution E-5038, and we reaffirm the direction given in that document. However, there may be additional questions that require discussion. Thus, we direct the IOUs to hold a joint workshop on consistent interoperability testing and certification procedures within 90 days of the issuance of this decision and then implement a consistent interoperability testing and certification procedure that incorporates input from the workshop within 180 days of the issuance of this decision.

We also note that PG&E currently has three vendors who have completed interoperability certification and that PG&E is on track to have eight vendors certified by the end of 2026.²⁴² SDG&E and SCE may utilize the vendors PG&E has certified without requiring recertification. If SDG&E and SCE seek to require recertification of these vendors, we direct SDG&E and SCE to propose in their Flex Connect AL, with specificity, the basis for such a requirement.

7.2.2.3. VOEs Workshop

The ACP recommends that SDG&E and SCE provide quarterly updates on their progress implementing VOEs modeled after PG&E's Flex Connect. It also recommends that they provide a preview workshop.²⁴³ We find UCAN's support of the updates and workshop persuasive.²⁴⁴ This process will ensure IOU accountability and allow for meaningful stakeholder input. We note SDG&E's

²⁴² Track 3 All-Party Workshop Report at 58.

²⁴³ ACP at 48.

²⁴⁴ UCAN Opening Comments at 7.

scheduling concerns, which have been addressed through modification of the cybersecurity activities schedule. We direct SDG&E and SCE to provide quarterly updates to Energy Division and to provide a preview workshop. We also direct SDG&E and SCE to commence updates in the first quarter of 2027 and continue until the disposition of their Flex Connect ALs. SCE and SDG&E shall provide a preview workshop by the date set forth in Section 16 below. The format and content of the quarterly updates and preview workshop shall be determined in consultation with Energy Division staff.

SDG&E and SCE shall coordinate with PG&E to incorporate lessons learned from their Flex Connect implementation within the preview workshop. SDG&E and SCE shall distribute any presentation materials no less than seven days prior to the preview workshop in order to facilitate stakeholder feedback.

**7.3. ACP Section Four, Recommendation Three –
Leveraging Enterprise DERMS-Based Flex
Connect VOE Infrastructure to Address
Abnormal Grid Conditions**

ACP recommendation 4.3 considers how existing VOE infrastructure might be leveraged to provide DOE capabilities to address abnormal grid conditions. The ACP notes that there may be value in developing these options further to create flexibility for customers situated at sensitive portions of the grid and for enabling the IOUs to address emergent situations.

The ACP addresses the use of Enterprise DERMS-based VOE infrastructure to provide DOEs in the case of abnormal grid conditions. This use is not contemplated to be regular or widespread, as there are significant operational and technical requirements associated with scaling DOEs that leverage Enterprise DERMS. Instead, this use is targeted to relevant sites and only in response to emergent situations. Enterprise DERMS-based DOEs may be

best suited for managing a relatively limited number of large and operationally significant resources, which would mitigate the significant operational burden associated with maintaining computational resources and high-speed communications networks.²⁴⁵

Given the need for additional research into whether existing VOE infrastructure can be repurposed to provide DOEs, the ACP recommends that the IOUs host a workshop to further discussion on DOEs and submit a workshop report within one year of this decision.²⁴⁶

7.3.1. Summary of Party Comments

PG&E, UCAN, AEU, and SDG&E support the ACP's recommendation of furthering the discussion on repurposing existing VOE infrastructure to provide DOEs in response to emergent grid conditions, including requiring the IOUs to host a workshop on DOEs.

CalCCA, IREC, Cal Advocates, and SCE provide qualified support for this recommendation. CalCCA states that the workshop should include discussion on a potential marketplace platform to expand the pool of available resources.²⁴⁷ IREC states that additional investigations are due in use cases independent of abnormal grid conditions and vice versa. IREC also recommends implementation of further stakeholder engagement on this topic.²⁴⁸ Cal Advocates is skeptical that the benefits of implementing DOEs outweigh its challenges and states that the Commission should identify abnormal-condition use cases, incremental utility and customer-side costs, expected avoided or deferred upgrade value, and

²⁴⁵ ACP at 29-30.

²⁴⁶ ACP at A-2.

²⁴⁷ CalCCA Opening Comments at 7.

²⁴⁸ IREC Opening Comments at 25-27.

performance data from other FSC tools.²⁴⁹ SCE supports further exploration through stakeholder workshops and technical discussions prior to the establishment of specific implementation requirements.²⁵⁰

No parties oppose this recommendation.

7.3.2. Discussion

We take note that PG&E's Flex Connect tool can determine when abnormal conditions are experienced and quickly send updated capacity limits to affected sites.²⁵¹ PG&E has safely and reliably administered variable limits utilizing the technical capabilities described in its Operational Flexibility Report and Customer-Owned Telemetry (COT) Procedure.

We find persuasive IREC's comment noting that the desired capability is already present in PG&E's Flex Connect offering and find the provisions that PG&E has implemented for utilizing Flex Connect VOE infrastructure to respond to emerging events to be a reasonable compromise between cost and response time.

As such, it is reasonable to limit the customer requirements for implementing VOEs to the technical capabilities described in the Op Flex Report and COT procedure. We direct the IOUs to implement VOEs based upon PG&E's Flex Connect, including the tool's Emergency Mitigations and Abnormal Grid Switching provisions.²⁵²

²⁴⁹ Cal Advocates Opening Comments at 9-10.

²⁵⁰ SCE Opening Comments at 11.

²⁵¹ Op Flex Report at 9.

²⁵² Op Flex Report at 8-9.

We also agree with PG&E, UCAN, AEU, and SDG&E that the IOUs should host a workshop to further discussion on DOEs and submit a workshop report within one year of this decision.

8. Persistent Non-Bridging Offerings That Build Upon Existing Bridging Offerings

The ACP makes three recommendations for IOUs to provide persistent non-bridging offerings that build upon existing bridging offerings. A persistent non-bridging solution is left in place until a piece of equipment is replaced through normal utility operations unrelated to the solution. ACP recommendation 6.4 proposes that IOUs implement a persistent non-bridging version of the Standard Offer. ACP recommendation 6.2 proposes that IOUs clarify that current Static and VOE customers can elect to transition from a bridging to a persistent non-bridging solution. ACP recommendation 6.3 proposes that PG&E should formalize its Flex Connect Program as a persistent non-bridging solution and expand its non-bridging Flex Connect Generation option to load customers.

The ACP recommendations addressed in this decision's Section 8 are all persistent non-bridging solutions. Durable non-bridging solutions are discussed in Section 9 of this decision.

8.1. ACP Section 6, Recommendation 4 – IOUs Should Implement a Persistent Non-Bridging Version of the Standard Offer

ACP recommendation 6.4 proposes that the IOUs establish a scaled process for providing non-bridging versions of the Standard Offer that differ from their bridging analogues in duration. Because the Standard Offers would be in place for three years (per D.26-02-025), the ACP notes that non-certified controls are an acceptable option. However, the ACP recommends that the non-

bridging Standard Offer be in place for 10 years, and therefore UL 3141 certified controls should be a requirement. The ACP recommends that the IOUs articulate their implementation of this non-bridging Standard Offer in an AL (Non-Bridging Solutions AL) that articulates at minimum the following:

- Whether the IOU proposes a cap on participation, and if so, what the initial cap should be and whether that will be established by number of customers or amount of load.
- Proposed plan for data tracking and evaluation in order to measure customer interest, participation, and impact on customers and ratepayer costs.
- How each IOU would plan to scale this offering to additional customers following evaluation.²⁵³

8.1.1. Summary of Party Comments

This recommendation has support or qualified support from the majority of respondent parties, with opposition from the IOUs, Tesla, and PACT.

CalCCA, Clean Coalition, and AEU support this recommendation generally.²⁵⁴

SCE requests greater distinction between the durable and persistent solutions.²⁵⁵ PG&E requests clarity that the participating persistent non-bridging customer will be converted to firm service once organic load growth or the next customer results in an upgrade.²⁵⁶ Cal Advocates notes that under a persistent non-bridging solution, the customer's project would no longer drive a future grid

²⁵³ ACP at 53-54.

²⁵⁴ CalCCA Opening Comments at 9, Clean Coalition Opening Comments at 3, AEU Opening Comments at 14.

²⁵⁵ SCE Opening Comments at 13.

²⁵⁶ PG&E Opening Comments at 19, 22-24, SCE Opening Comments at 13-14.

upgrade.²⁵⁷ PG&E also raises concerns that this recommendation may be repetitive of ACP recommendation 6.1 which would have the IOUs establish durable non-bridging solutions for new flexible connections.²⁵⁸

Clean Coalition's comment includes specific support for a standardized pathway and raises the point that non-bridging solutions are a lower-cost alternative to ratepayer-funded distribution investment.²⁵⁹ AEU echoes this theme, noting that FSCs are uniquely capable of translating load flexibility into real infrastructure avoidance through the distribution planning process.²⁶⁰ TURN also highlights the potential for infrastructure avoidance while noting that customers may be interested in non-bridging solutions in support of avoiding costs on their side of the meter.²⁶¹ Finally, TURN notes that the IOUs are unlikely to voluntarily reduce their capital spending.²⁶²

Several parties qualify their support by either supporting or rejecting the ACP recommendation that IOU non-bridging Standard Offer solutions require UL 3141 certified PCS. EDF supports a UL 3141 requirement only if there is sufficient demonstration of available PCS products²⁶³ while Mainspring, IREC, and Terawatt advocate for UL 3141 being supported but not a requirement for

²⁵⁷ Cal Advocates Opening Comments at 11.

²⁵⁸ PG&E Opening Comments at 26-27.

²⁵⁹ Clean Coalition Opening Comments at 3, Clean Coalition Reply Comments at 3.

²⁶⁰ AEU Opening Comments at 1.

²⁶¹ TURN Reply Comments at 1-2, 6, 7.

²⁶² TURN Reply Comments at 1-2, 6, 7.

²⁶³ EDF Opening Comments at 7.

non-bridging Standard Offer solutions.²⁶⁴ PG&E opposes a certified UL 3141 PCS requirement.

Cal Advocates qualifies its support²⁶⁵ with a request that the IOUs not be allowed to introduce customer payments or customer-equipment costs before the Commission verifies that a specific upgrade will be avoided, deferred, or resized.²⁶⁶ Similarly, IREC recommends that the Commission develop a record clearly showing how specific non-bridging solutions avoid customer upgrade costs at a rate higher than their flexible connection technology costs.²⁶⁷

SCE raises concerns about the maturity of non-bridging concepts and recommends that the pathway between bridging to non-bridging arrangements should not be presumed without further policy development and stakeholder engagement.²⁶⁸

PACT recommends that development of non-bridging offerings is not required unless the record demonstrates that they are likely to provide sufficient practical value to attract voluntary customer participation.²⁶⁹

Tesla recommends that FSCs remain bridging solutions based on rapid electrification requiring grid upgrades to continue as planned and opposes the requirement for certified UL 3141 PCS.²⁷⁰

²⁶⁴ Mainspring at 5, IREC Reply Comments at 7-8, Terawatt Opening Comments at 7.

²⁶⁵ Cal Advocates Opening Comments at 5-6.

²⁶⁶ Cal Advocates Reply Comments at 4-5.

²⁶⁷ IREC Reply Comments at 14-15.

²⁶⁸ SCE Opening Comments at 14.

²⁶⁹ PACT Reply Comments at 5.

²⁷⁰ Tesla Opening Comments at 8.

VGIC, IREC, and Critical Loop qualify their support with concern that there will be limited adoption of non-bridging SOE solutions in the absence of compensation.²⁷¹

UCAN supports SDG&E providing a non-bridging Standard Offer and recommends that SDG&E implement its non-bridging Standard Offer concurrently with the bridging offering.²⁷²

SDG&E opposes this recommendation based upon the limited time allowed between their implementation of both a bridging and non-bridging Standard Offer,²⁷³ and on their assertion that an uncompensated non-bridging approach will not be of interest to customers.²⁷⁴

PG&E and SCE recommend having the Persistent Non-Bridging Solutions AL requirement implemented after bridging solution proposals have been filed.²⁷⁵

8.1.2. Discussion

In response to SCE's request regarding clarification of durable and persistent non-bridging we clarify the following definitions. As described in Section 4, a persistent non-bridging solution stays in place until a piece of equipment is replaced through normal utility operations unrelated to the solution. A durable non-bridging solution is the result of a contractual agreement between an IOU and a customer that avoids an upgrade by allowing the

²⁷¹ VGIC Reply Comments at 4-5, IREC Opening Comments at 33, IREC Reply Comments at 14-15, Critical Loop Opening Comments at 15, 21.

²⁷² UCAN Opening Comments at 15-16, 22-23, 25.

²⁷³ SDG&E Opening Comments at 44, SDG&E Reply Comments at 21-22.

²⁷⁴ SDG&E Opening Comments at 20, 44.

²⁷⁵ PG&E Opening Comments at 22-24; SCE Opening Comments at 13, 14.

customer to operate their equipment in a manner that resolves the capacity constraint using a control device. To address PG&E's concern that this recommendation may be repetitive of ACP recommendation 6.1, we further clarify that the purpose of recommendation 6.4 is to establish a standard, streamlined approach to offering persistent non-bridging solutions.

In response to PG&E and Cal Advocates comments on a persistent non-bridging customer's role in future upgrades, we clarify that the option of firm service may be provided to a persistent non-bridging customer if organic load growth or the next customer's load results in the need for an upgrade.

We find CalCCA, Clean Coalition, AEU, and TURN's comments persuasive and find it reasonable to direct the IOUs to implement a persistent non-bridging version of the Standard Offer by filing the Persistent Non-Bridging Solutions AL. While we understand concerns around customer interest level, we find it is reasonable to establish the pathway to allow customers to accept a persistent non-bridging solution. Additionally, there are customer benefits to a persistent non-bridging solution including speed-to-power and avoiding the customer-side costs, like panel upgrades, and other customer-side site work. Data tracking requirements, as articulated in Section 14 of this decision, will allow IOUs, stakeholders, and Commission staff to evaluate participation levels and show the costs and benefits of non-bridging solutions. From this data, we can learn and address any identified challenges. As such, establishing these persistent non-bridging pathways through this decision is an important step forward, even though further work and evaluation may be needed. This decision clarifies that the non-bridging Standard Offer is a persistent non-bridging solution, and as such, declines to adopt the 10-year time period included in the ACP.

We find UCAN's support for SDG&E additionally providing a non-bridging Standard Offer persuasive. We note that the addition of the SDG&E Standard Offer AL directed in this decision and the timing of its submission 75 days after the disposition of PG&E and SCE's Standard Offer AL gives SDG&E substantial time to prepare their non-bridging Standard Offer.

We are persuaded by the party comments advocating for UL 3141 PCS being supported but not required. This means that the IOUs must allow usage of any UL 3141 PCS without additional testing or certification requirements, but the IOUs may also allow additional PCS through testing and certification. We note that this standardization and treatment of the UL 3141 PCS are features of the existing SCE and PG&E Standard Offer. We find it reasonable that the IOUs maintain the Standard Offer's requirement of a tariffed form agreement and treatment of UL 3141 PCS in their implementation of the non-bridging Standard Offer.

The IOUs shall articulate within the Non-Bridging Solutions AL any proposed caps on participation, and how they plan to scale the persistent non-bridging version of the Standard Offer to a larger number of customers following evaluation. The Persistent Non-Bridging Solutions AL shall include a tariffed form agreement implementing the non-bridging Standard Offer. The form agreement shall specify UL 3141 PCS provisions consistent with direction established in D.26-02-025 for the bridging Standard Offer.

We are persuaded by PG&E and SCE's comment recommending the Persistent Non-Bridging Solutions AL requirement be implemented after bridging solution proposals have been filed. We direct the IOUs to file the Persistent Non-Bridging Solutions AL as a Tier 2 AL by the date set forth in Section 16 below.

8.2. ACP Section Six, Recommendation Two – Customer Transition from a Bridging to a Persistent Non-Bridging Solution

ACP recommendation 6.2 proposes that the IOUs provide clarification that current customers utilizing bridging solutions (Load Limit Letter, LCMS, Standard Offer, and Flex Connection) who have found that this solution meets their operational needs should be allowed to elect to take service under their current terms without triggering an upgrade. This would enable the customer to move from a bridging to a non-bridging solution.

The ACP recommends setting a 45-day period after the IOU presentation of the upgrade design for the customer to elect to transition from a bridging to a persistent non-bridging solution. This is designed to avoid ratepayers being responsible for the cost of unnecessary infrastructure that may have already been built to serve the then-bridging customer's request. The ACP notes that this election would result in the rate basing of both engineering and design costs related to the upgrade incurred up to that point, as they were incurred in good faith by both customer and utility. The ACP proposes that the customer be prevented from requesting an upgrade for that load for a reasonable period of time.²⁷⁶ The ACP recommends the IOUs include a plan to implement this transition within their Tier 3 FSC Implementation ALs.

8.2.1. Party Comments

CalCCA provides unqualified support of the ACP recommendation.²⁷⁷ Clean Coalition states that it supports standardized pathways to persistent non-bridging services for customers whose needs can be met by a bridging

²⁷⁶ ACP at 52-53.

²⁷⁷ CalCCA Opening Comments at 8.

solution.²⁷⁸ AEU "strongly supports" this proposal, noting the potential to reduce ratepayer and customer costs and allow for more optimized grid planning.²⁷⁹ UCAN supports this proposal, noting that it balances customer flexibility against concerns over stranded costs.²⁸⁰ TURN emphasizes, in its reply to comments from SDG&E, that compensation is not required for customer interest in non-bridging solutions, especially if they also avoid costs on the customer's side of the meter.²⁸¹ VGIC notes that "[n]early all parties agree with the Commissioner Proposal's assertion regarding the benefits of non-bridging solutions" and urges the Commission to prioritize these non-bridging solutions.²⁸²

Several parties provide qualified support for the proposal. PG&E recommends clarifying that the persistent non-bridging solution is optional and not a requirement.²⁸³ IREC notes that the Commission should recognize that customers are not likely to undertake this transition unless the non-bridging solution provides additional customer benefits.²⁸⁴ EDF, Tesla, Terawatt, and CALSTART support this proposal but recommend allowing more flexibility to transition to non-bridging solutions beyond 45 days after the presentation of design.²⁸⁵ For example, EDF describes a hypothetical situation where a customer elects a bridging solution, begins service under that solution, and ultimately

²⁷⁸ Clean Coalition Opening Comments at 3.

²⁷⁹ AEU Opening Comments at 14.

²⁸⁰ UCAN Opening Comments at 15-16.

²⁸¹ TURN Opening Comments at 6-7.

²⁸² VGIC Reply Comments at 3.

²⁸³ PG&E Opening Comments at 23-24.

²⁸⁴ IREC Opening Comments at 34-35.

²⁸⁵ EDF Opening Comments at 9-10, Tesla Opening Comments at 11, Terawatt Opening Comments at 9, CALSTART Opening Comments at 6.

determines they are able to continue service under that FSC indefinitely. EDF writes that the customer should be able to transition to a non-bridging FSC without paying their share of the grid upgrade.²⁸⁶ Critical Loop strongly supports non-bridging service and further recommends the development of a compensation framework.²⁸⁷

In opposition to the proposal, Tesla recommends FSCs remain bridging solutions as grid upgrades continue as planned.²⁸⁸ SDG&E contends that non-compensatory non-bridging solutions will not be of interest to customers, and the Commission should pursue compensatory non-bridging solutions instead.²⁸⁹ SCE states that the ACP overstates the maturity of non-bridging concepts, and that while these solutions may ultimately provide significant customer and system value, the straightforwardness of the transition from temporary to permanent arrangements may be overstated.²⁹⁰ PACT agrees with PG&E that bridging solutions should be prioritized, while non-bridging solutions should be developed separately and offered as voluntary options.²⁹¹

PG&E recommends that recommendations covered in this section be implemented within the Non-Bridging Solutions AL rather than the FSC Implementation AL.²⁹²

²⁸⁶ EDF Opening Comments at 9-10.

²⁸⁷ Critical Loop Opening Comments at 21.

²⁸⁸ Tesla Opening Comments at 8.

²⁸⁹ SDG&E Opening Comments at 42-43.

²⁹⁰ SCE Opening Comments at 14.

²⁹¹ PACT Reply Comments at 5.

²⁹² PG&E Opening Comments at 24 and Appendix A-2.

Cal Advocates cautions against unnecessarily short agreement terms or inconsistent rules for customers that later request firm capacity.²⁹³

Party comments agree with the need to establish a time window for the customer to elect to transition to a persistent non-bridging SOE to ensure that the upgrade work can continue without delay.²⁹⁴

8.2.2. Discussion

We are persuaded by the many parties in support of adopting the ACP recommendation to allow bridging customers to elect a non-bridging solution. We find this option will create an important pathway for customers who determine that their operational needs are met by their bridging solution. We disagree with parties who argue that compensation is necessary for implementing this option for electing a non-bridging solution. As discussed earlier in this decision, there are benefits to customers taking advantage of a non-bridging solution, including avoided construction and avoided customer-side costs.

ACP recommendation 6.2 specifies that when a party taking service under Load Limit Letter, LCMS, Standard Offer, or Flex Connect elects to transition to a persistent non-bridging version of that service, they do so under their current terms.²⁹⁵ We find persuasive comments from Critical Loop and Voltera asserting the need to maintain the firm capacity floor²⁹⁶ and liability provisions for customers transition from a bridging to a non-bridging solution.²⁹⁷ As such, we

²⁹³ Cal Advocates Opening Comments at 12.

²⁹⁴ PG&E Opening Comments at 23-24

²⁹⁵ ACP at 52.

²⁹⁶ Critical Loop Opening Comments at 15, Voltera Reply Comments at 4.

²⁹⁷ EDF Reply Comments at 2-3.

specify that a customer who elects a persistent non-bridging SOE maintains the firm capacity floor assigned under the Load Limiting Profile associated with the bridging service previously established. Similarly, we clarify that the customer liability and insurance requirements established in the previously governing bridging service form agreement remain in place after the customer has elected to take service under a persistent non-bridging operating envelope.

Party comment warns against unnecessarily short agreement terms or inconsistent rules for customers that later request firm capacity.²⁹⁸ We find this argument persuasive and do not adopt the provision that limits a persistent non-bridging customer from requesting firm capacity for that load “for a reasonable period” of time to dissuade that customer from alternating between bridging and non-bridging solutions. We clarify that a persistent non-bridging customer may submit a new application for firm capacity and that the allowance for the subsequent application will be reduced by any amount refunded at the termination of their prior bridging service agreement.

We find persuasive Tesla, Terawatt, and CALSTART’s concerns over setting an appropriate window of time in which a customer may elect a non-bridging SOE.²⁹⁹ We additionally agree with Terawatt’s comment requesting that the election window for transitioning to a persistent non-bridging solution should be extended to 90 days, and that an extension should be allowed upon a customer’s good faith request to the IOU. The 90-day time window will begin at the conclusion of the Engineering and Design energization step, after the IOU presents the customer with a non-bridging upgrade design and cost estimate.

²⁹⁸ Cal Advocates Opening Comments at 12.

²⁹⁹ PG&E Opening Comments at 23-24, Tesla Opening Comments at 11, Terawatt Opening Comments at 9, CALSTART Opening Comments at 6.

This time will be attributed to the Customer Dependencies energization step, and the IOUs shall continue their energization process without delay due to the customer election time window.

We direct the IOUs to allow for an extension of this time window upon a customer's good-faith request to the IOU. To ensure the utility and ratepayers are not responsible for the costs of unnecessary infrastructure, extensions should only be allowed prior to the start of construction. We find it reasonable for extensions to be granted through the end of the Customer Site-Readiness step of the energization process unless granting such an extension would be impractical or unjust to ratepayers.

We agree with PG&E's comments³⁰⁰ that the process for transitioning from a bridging to a non-bridging is better suited to the Non-Bridging Solutions AL rather than the HDER FSC Implementation AL. We find this recommendation persuasive and direct the IOUs to include a plan for implementing customer transitions between current bridging customers to an equivalent persistent non-bridging offer within their Persistent Non-Bridging Solutions AL.

We recognize that customers who are currently taking service within a bridging SOE offering may have already been presented with the IOU upgrade design. We therefore find it reasonable to provide them with a time window to elect to transition to a persistent non-bridging service under their current agreement terms. PG&E and SCE are directed to contact current Load Limit Letter, LCMS, Standard Offer, and Flex Connect customers who have not yet completed customer site readiness to apprise them of the option to elect a

³⁰⁰ PG&E Opening Comments at 24 and Appendix A-2.

persistent non-bridging solution within 15 days of filing their Persistent Non-Bridging Solutions AL.

8.3. ACP Section Six, Recommendation Three – Formalizing Flex Connect and Expanding Non-Bridging Flex Connect Generation Option to Load Customers

PG&E's Flex Connect program leverages DERMS and ADMS capabilities to provide a bridging solution that unlocks non-firm capacity for customers dealing with upstream capacity constraints.³⁰¹ The Flex Connect Program provides customers with 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.³⁰² PG&E's Flex Connect program has moved out of pilot status and is now a regularly utilized connection and operational tool.³⁰³

The value proposition of Flex Connect is to provide customers with accelerated access to power while allowing them to voluntarily take on the risk of potential power reductions that may affect day-to-day operations.³⁰⁴ This is available to customers located adjacent to a mainline primary circuit,³⁰⁵ as the SCADA data that is utilized for forecasting loading³⁰⁶ is generally unavailable outside the mainline primary system.

ACP recommendation 6.3 proposes two actions that PG&E should take with respect to its Flex Connect offering.

³⁰¹ Flexible Connections Ruling at 8.

³⁰² Flexible Connections Ruling at 5.

³⁰³ ACP at 53.

³⁰⁴ PG&E Opening Comments at 25.

³⁰⁵ Cal Advocates Opening Comments at 8.

³⁰⁶ PG&E Op Flex Report at 18.

The ACP recommends PG&E formalize the Flex Connect offering by codifying its customer agreement within a tariffed form offering. This change would enable greater customer awareness of the offering and address Public Utilities Code (Pub. Util.) Code Section 489(a), which requires that IOUs file schedules showing all rates, tolls, rentals, charges, and classifications collected or enforced, or to be collected or enforced.³⁰⁷

The ACP also recommends PG&E expand the current Flex Connect non-bridging option for generation customers to load customers. This would unlock non-bridging benefits, including speed to power, avoided upgrade costs, reduced site disruptions, and potential operational benefits.³⁰⁸ Additionally, the ACP recommends that the non-bridging Flex Connect for load offering may be an appropriate venue for Rule 29 customers interested in a flexible connection.³⁰⁹ The ACP recommends that PG&E file an AL (Non-Bridging Solutions AL) to establish this process and criteria associated with the Flex Connect offering and detail the customer outreach process.³¹⁰

8.3.1. Summary of Party Comments

No party opposes the ACP recommendation that PG&E formalize its Flex Connect offering. This recommendation receives unqualified support from CalCCA, CALSSA, EDF, AEU, and UCAN.³¹¹ EDF notes that this expansion would also build on an existing successful framework, provide customers with

³⁰⁷ ACP at 53.

³⁰⁸ ACP at 36.

³⁰⁹ ACP at 53.

³¹⁰ ACP at 53.

³¹¹ CalCCA Opening Comments at 8, CALSSA Opening Comments at 7, EDF Opening Comments at 10, AEU Opening Comments at 14, and UCAN Opening Comments at 22.

additional interconnection options, and further the Commission's goals of reducing infrastructure costs, accelerating customer access to service, and maximizing the use of existing distribution assets.³¹²

IREC, Cal Advocates, Critical Loop, and PG&E provide qualified support for this recommendation.³¹³

IREC encourages the Commission to solicit information from PG&E that enables stakeholder feedback on how Flex Connect should improve and exist as part of a tariff. IREC notes the lack of publicly available detail on the Flex Connect offering and requests a filing from PG&E that reflects recent updates, adds key missing information,³¹⁴ undeveloped parameters,³¹⁵ a clear implementation methodology,³¹⁶ and a showing of cost and benefit.³¹⁷ IREC requests that both the formalization and costs and benefits filing should be submitted within three months of this decision.³¹⁸

³¹² EDF Opening Comments at 10.

³¹³ IREC Opening Comments at 23-24, 35, Cal Advocates Opening Comments at 8, Critical Loop Opening Comments at 21, PG&E Opening Comments at 25.

³¹⁴ IREC Opening Comments at 35: "but key items are missing, such as the eligibility of solar PV, behind-the meter sites, and smaller resources, and the applicability of constraint types..."

³¹⁵ IREC Opening Comments at 23-24: "IREC identifies the undeveloped parameters as eligibility (including secondary constraints), bridging/non-bridging treatment, constraint types and locations, technology requirements (PCS, gateway, and standards), capacity allocation among multiple customers behind the same constraint, metrics, scaling and roll-out, energization process modifications, customer data sharing, tracking and reporting, queue management, curtailment studies, costs, timelines, cost responsibilities, DERMS capabilities, firm capacity guarantee and its granularity, and planning implications."

³¹⁶ IREC Opening Comments at 35-36, Cal Advocates Opening Comments at 5.

³¹⁷ IREC Opening Comments at 35-36, Cal Advocates Opening Comments at 8.

³¹⁸ IREC Opening Comments at 35-36.

IREC also requests clarification as to whether a UL 3141 certified PCS is required for Flex Connect and provides three options for the qualifying means of enforcing capacity limits.³¹⁹

CALSSA requests that the Commission acknowledge that Flex Connect has already been expanded to some generation and load customers.³²⁰

Cal Advocates supports both formalization and expansion of Flex Connect as a working structure for larger customers served by Mainline infrastructure and request two clarifications through the Flex Connect AL ordered by this decision. Cal Advocates would like PG&E to demonstrate, in the Flex Connect AL, that the additional capacity benefits are expected to exceed implementation costs and requests that the Commission make clear that the IOUs are not permitted to use the Flex Connect AL to seek broad new ratepayer-funded DERMS, communications, telemetry, or control investments.³²¹

Critical Loop suggests instituting a permanent floor to the firm capacity and that this floor be captured in binding terms before the customer elects Flex Connect.³²²

PG&E supports continued development of the Flex Connect program and recommends that formalizing the offering be accomplished in a manner similar to the adoption of a Standard Offer directed in D.26-02-025, with a refined program process and criteria. This recommendation is premised on Flex Connect

³¹⁹ IREC ACP reply at 7-8: “a UL 3141 certified PCS (which may or may not support day-ahead scheduling natively); a remote terminal unit paired with utility-grade mechanical relays; and an uncertified energy management system of the kind PG&E uses today for its Flex Connect.”

³²⁰ CALSSA Opening Comments at 7.

³²¹ Cal Advocates Opening Comments at 8.

³²² Critical Loop Opening Comments at 15.

being first-of-its-kind and needing more flexibility for it to evolve over time as learnings grow.³²³

AEU, CalCCA, EDF, UCAN, and CALSSA support the ACP's recommendation to expand Flex Connect to provide a non-bridging option for load customers.³²⁴

AEU strongly supports extending Flex Connect's proven, open IEEE 2030.5/CSIP architecture to non-bridging load customers.³²⁵

EDF notes that expansion of Flex Connect would build on an existing successful framework, provide customers with additional interconnection options, and further the Commission's goals of reducing infrastructure costs, accelerating customer access to service, and maximizing the use of existing distribution assets.³²⁶

Flex Connect expansion receives qualified support from IREC, Cal Advocates, and Critical Loop. IREC conditions its support on the non-bridging Flex Connect load offering remaining voluntary and customer initiated.³²⁷ IREC also recommends that the Commission include a requirement to further consider opportunities to offset costs during the implementation process for customers interested in a non-bridging variable envelope.³²⁸

³²³ PG&E Opening Comments at 25.

³²⁴ AEU Opening Comments at 14, EDF Opening Comments at 10, CalCCA Opening Comments at 8, UCAN Opening Comments at 22, CALSSA Opening Comments at 6-7.

³²⁵ AEU Opening Comments at 14.

³²⁶ EDF Opening Comments at 10.

³²⁷ IREC Reply Comments at 14.

³²⁸ IREC Reply Comments at 10.

Cal Advocates and Critical Loop believe further cost saving analysis is needed.³²⁹

While supporting continued development of Flex Connect, PG&E generally opposes the expansion of Flex Connect and states that ACP recommendation 6.1 already recommends offering non-bridging options to load customers.³³⁰ PG&E states that such non-bridging options for load customers need to be further developed rather than simply expanding the generation option to load customers.³³¹

PG&E expresses further opposition to expanding Flex Connect based on the risk of it undermining bridging program participation, while acknowledging that it may be appropriate under specific grid conditions. The grid conditions example cited are those where a customer would be responsible for the cost of the upgrade. PG&E notes that in this specific case, expanding Flex Connect may provide a cost-effective alternative that delivers potential ratepayer benefits while continuing to meet customer needs.³³²

Critical Loop provides a representative customer experience based on observed customer facts showing circumstances where a customer elected to utilize onsite storage despite the availability of a ratepayer-funded substation upgrade. This storage-based solution allowed the customer to achieve near-term operation without needing either on-site generation or to wait up to half of their lease term for PG&E to provide firm capacity.³³³

³²⁹ Cal Advocates Opening Comments at 8, Critical Loop Opening Comments at 21, 24.

³³⁰ PG&E Opening Comments at 26.

³³¹ PG&E Opening Comments at 26.

³³² PG&E Opening Comments at 24-26.

³³³ Critical Loop Opening Comments Appendix A.

IREC qualifies its support for the expansion of Flex Connect by requesting that the Commission include requirements to further consider opportunities to offset costs during the implementation process for customers interested in a non-bridging variable envelope.

Cal Advocates requests that PG&E provide an eligibility limit in its tariffed Flex Connect offer.³³⁴

8.3.2. Discussion

We are persuaded by party comment, which reflects widespread support for the formalization of the current Flex Connect offering. Many parties who supported formalization of the current Flex Connect offering request a formalization process that is modeled off the Standard Offer process. As such, we find it reasonable for PG&E to formalize its current Flex Connect offering, a bridging solution for load customers and non-bridging solution for generation customers.³³⁵ PG&E recommends that formalizing its Flex Connect offering be accomplished similar to the adoption of a Standard Offer directed in D.26-02-025, with a refined program process and criteria,³³⁶ which we find to be reasonable.

While the ACP recommends the use of the Non-Bridging Solutions AL, we direct PG&E to file a stand-alone Tier 2 AL sooner to formalize Flex Connect in its current form. We address the requests for clarification as follows.

We are persuaded by IREC's comment requesting an informational filing on Flex Connect prior to formalization and adoption by SDG&E and SCE, as set out in Section 7.2 of this decision. We agree that there are gaps in information on Flex Connect, and there are undeveloped parameters identified by IREC that

³³⁴ Cal Advocates Opening Comments at 8.

³³⁵ As stated above this would also be a voluntary election by a participating customer.

³³⁶ PG&E Opening Comments at 25.

could be further developed through an informational report. We address reporting and evaluation of Flex Connect's costs and benefits in Section 14 of this decision.

PG&E, after consulting with Energy Division, is directed to submit an informational report that updates its February 2025 Op Flex Report. The updated report is to include at a minimum the topics listed in Appendix A to this decision. Per IREC's recommendation, PG&E shall submit its Flex Connect informational report to Energy Division and serve it to the service list of this proceeding no later than 90 days after the adoption of this decision.

We note that the functionality of PG&E's Flex Connect offering is expanding and evolving, with PG&E on pace to deliver DERMS enhancements by the end of 2026. These DERMS enhancements will allow for forecasting abnormal topologies, multiple customers per constraint, and line-section constraints.³³⁷ It may be premature for PG&E to formalize this capability in its Flex Connect AL. However, the Standard Offer formalization process allows for modification of the Standard Form Agreement as necessary by filing a Tier 2 AL. We find it reasonable to allow PG&E to use the same Tier 2 AL process to modify the Flex Connect Form Agreement to account for DERMS enhancements by the end of 2026.

We are not persuaded by PG&E's concern that this recommendation is duplicative of ACP recommendation 6.1. This expansion is a persistent non-bridging offering, while ACP recommendation 6.1 concerns durable non-bridging offerings.

³³⁷ Track 3 All-Party Workshop Report at 58, Op Flex Report at 18-19, IREC Opening at 24.

We are not persuaded by PG&E's opposition to expanding Flex Connect based upon the risk that it may undermine bridging program participation. The non-bridging component will be voluntary and therefore should not impact bridging customer participation.

We are similarly not persuaded by PG&E's assertion that a persistent non-bridging load offering will only be appropriate under grid conditions where a customer would be responsible for the cost of the upgrade. We are persuaded by Critical Loop's example of customers who may have the option of a ratepayer-funded upgrade and still be interested in a persistent non-bridging Flex Connect offering. We thus find it reasonable for PG&E to extend its non-bridging Flex Connect offering to interested load customers.

Accordingly, we direct PG&E to formalize a non-bridging load Flex Connect offering by establishing a standard form agreement along with refined program process and criteria within its Tier 2 Flex Connect AL. PG&E's Flex Connect AL shall include an explanation for any areas of its processes, criteria, or customer outreach processes that diverge from those documented for non-bridging generation customers within its Flex Connect informational report. PG&E's Flex Connect AL shall be filed consistent with the schedule set out in Section 16 below.

9. IOUs Should Evaluate Durable Non-Bridging Versions of Currently Available Standard Flexible Service Connection Offerings

The ACP includes one recommendation addressing durable non-bridging solutions – arrangements in which a customer operates their equipment in a manner that resolves a capacity constraint using a control device, maintains the flexible connection for a specified period of time, and refrains from requesting an

upgrade associated with that incremental capacity.³³⁸ This ACP recommendation, 6.1, is aimed at establishing a process for providing durable non-bridging versions of currently available standard FSC offerings.³³⁹

**9.1. ACP Section Six, Recommendation One –
Establish Durable Non-Bridging Solutions for
New Flexible Connections**

ACP recommendation 6.1 proposes that PG&E and SCE establish a process for providing durable non-bridging versions of currently available standard FSC offerings. As SDG&E does not have any current offerings, they are excluded from this recommendation. The ACP recommends that SCE and PG&E file a joint AL (Non-Bridging Solutions AL) with their proposal for providing durable non-bridging versions of each of their FSC offerings. The ACP recommends that the AL should address the following:

- How each IOU plans to begin this offering with a limited number of customers within one year.
- Proposed definition for length of time “durable” covers, which should be consistent across the IOUs.
- Proposed plan for data tracking and evaluation to measure customer interest, participation, and impact on customer and ratepayer costs.
- How each IOU would plan to scale this offering to a larger number of customers following the initial evaluation.

The ACP recommends SCE and PG&E file this AL within 90 days of the adoption of this decision.

³³⁸ ACP at 36.

³³⁹ ACP at 51-52.

Party comment indicates a need to differentiate between persistent non-bridging offerings and durable non-bridging offerings. We draw the following distinctions between ACP recommendation 6.1 and similar recommendations.

This recommendation is distinct from ACP recommendation 6.2 (discussed in Section 8.2.2 of this decision) as recommendation 6.2 addresses the transition of current bridging customers to a persistent non-bridging solution. It is also distinct from the expansion of Flex Connect non-bridging to load customers that ACP recommendation 6.3 proposes (discussed in Section 8.3 of this decision) as that recommendation discusses the creation of a persistent non-bridging solution. Lastly, this recommendation is distinct from ACP recommendation 6.4 (discussed in Section 8.1 of this decision) as recommendation 6.4 directs the implementation of a persistent non-bridging offer as a version of the Standard Offer.

9.1.1. Summary of Party Comments

The recommendation for PG&E and SCE to propose durable non-bridging versions of current offering receives more support and qualified support than opposition, with PACT and the IOUs opposed.

CalCCA similarly provides broad support for this recommendation.³⁴⁰ CALSSA supports the recommendation by noting that there is no reason why FSC offerings must be temporary.³⁴¹ EDF states that it is appropriate to allow customers to transition from temporary bridging arrangements to long-term non-bridging solutions, especially where doing so can continue to avoid or defer costly infrastructure upgrades.³⁴² AEU and Clean Coalition both “strongly

³⁴⁰ CalCCA Opening Comments at 8.

³⁴¹ CALSSA Opening Comments at 6.

³⁴² EDF Opening Comments at 9.

support” expanding durable non-bridging solutions and note the potential benefits in avoided upgrades.³⁴³

Several parties provide qualified support for this proposal. IREC strongly supports offering customers permanent non-bridging solutions but raises concerns about the viability of these solutions for customers and the pathway to provide customers with incentives, compensation, and support to adopt a non-bridging option.³⁴⁴ UCAN “emphatically” supports this proposal, but notes the need for further development of customer participation and planning integration.³⁴⁵ Critical Loop supports the ACP recommendation but advocates for the development of a compensation framework.³⁴⁶ VGIC notes that “[n]early all parties agree with the Commissioner Proposal’s assertion regarding the benefits of non-bridging solutions” but recommends modifications and clarifications to the ACP recommendations, including clarifying that FSCs remain voluntary.³⁴⁷ Terawatt and CALSTART support the ACP recommendation but request clarification on which customers or operating arrangements qualify for durable non-bridging treatment.³⁴⁸ Volterra recommends that election of permanent non-bridging arrangement should be affirmative and informed, and should not waive the customer’s right to requested firm capacity or applicable energization protections.³⁴⁹

³⁴³ AEU Opening Comments at 8, Clean Coalition Opening Comments at 2.

³⁴⁴ IREC Opening Comments at 33-34.

³⁴⁵ UCAN Opening Comments at 14.

³⁴⁶ Critical Loop Opening Comments at 15.

³⁴⁷ VGIC Reply Comments at 3.

³⁴⁸ Terawatt Opening Comments at 4, CALSTART Opening Comments at 6.

³⁴⁹ Volterra Reply Comments at 4.

Cal Advocates supports the recommendation, noting the potential to help customers access available capacity and reduce reliance on unnecessary ratepayer-funded upgrades.³⁵⁰ Cal Advocates, however, qualifies its support with requests to ensure that the IOUs make a showing of verified net ratepayer benefits, including establishing a wires baseline.³⁵¹

Cal Advocates further requests the Energy Division produce a staff proposal addressing how the obligation to serve applies to persistent and durable FSCs.³⁵² Several parties request further consideration of the shared savings/compensation frameworks applicable to durable non-bridging customers.³⁵³ Cal Advocates, Clean Coalition, and UCAN provide specific guidance that it be limited to a reasonable portion of verified net ratepayer savings.³⁵⁴ Critical Loop, TMH, and SDG&E also request that the duration³⁵⁵ of a durable non-bridging solution be determined.

Clean Coalition's comments also address the need for technology-neutrality,³⁵⁶ and Mainspring addresses the lack of need for certified PCS.³⁵⁷

³⁵⁰ Cal Advocates Opening Comments at 6.

³⁵¹ Cal Advocates Opening Comments at 17-18.

³⁵² Cal Advocates Opening Comments at 13.

³⁵³ EDF Opening Comments at 9, Clean Coalition Reply Comments at 4, UCAN Opening Comments at 16, Critical Loop Opening Comments at 15, Critical Loop Reply Comments at 6, VGIC Reply Comments at 3.

³⁵⁴ Cal Advocates Reply Comments at 1, Clean Coalition Opening Comments at 4, UCAN Opening Comments at 16.

³⁵⁵ Critical Loop Opening Comments at 15, TMH Opening Comments at 5, SDG&E Reply Appendix A at 10.

³⁵⁶ Clean Coalition Opening Comments at 2.

³⁵⁷ Mainspring Reply Comments at 4-5.

Objections from PG&E and SCE identify the complexities implicated in durable non-bridging solutions.³⁵⁸ Additionally, PG&E and SDG&E note the potential effects of subsequent customers' load on ratepayer savings,³⁵⁹ and PG&E, SDG&E, SCE, and PACT comment on the likelihood of low participation under current cost allocation.³⁶⁰

9.1.2. Discussion

While no party objects to the concept of durable non-bridging solutions, some express a desire for more detail on how such a solution would be implemented.³⁶¹

We agree that there are many policy issues yet to be determined regarding implementation of durable non-bridging solutions. Specifically, we share many of the concerns raised by parties as to the need for developing a wires baseline, developing a cost comparison methodology, and evaluating whether certain durable non-bridging customer costs should be covered. These are important policy questions that will inform how IOUs offer durable non-bridging solutions, how attractive the offer is to customers, and how to ensure that any durable non-bridging policy is cost-effective. However, we find there is not sufficient record in this proceeding to make a determination on these issues. Each of these issues should be vetted through a formal proceeding rather than the AL process. Therefore,, we do not direct any utility to file an AL to implement durable non-bridging solutions at this time.

³⁵⁸ PG&E Opening Comments at 16, SCE Opening Comments at 13.

³⁵⁹ PG&E Opening Comments at 21, 23, SDG&E Opening Comments at 21.

³⁶⁰ PG&E Opening Comments at 19, SDG&E Opening Comments at 9-10, PACT Reply Comments at 5, SCE Reply Comments at 1.

³⁶¹ SCE Opening Comments at 12-13, PG&E Opening Comments at 21, SDG&E Reply Comments at 5, IREC Opening Comments at 33.

We do however direct PG&E and SCE to solicit further feedback on the issues raised by parties in comments regarding durable non-bridging solutions through a workshop. PG&E and SCE shall host a workshop, or workshops as necessary, and develop a post workshop report. SDG&E is directed to participate in the workshop as any policy outcomes may affect SDG&E in the identified areas. The IOUs are to address at minimum the following topics:

- Methodologies that could be used to generate the scope and cost of a wires baseline;
- Methodologies that could be used to determine the equivalent upgrade cost or allowance amount;
- Methodologies that could identify the technical means needed to assure operational performance;
- Methodologies to quantify reliability impacts;
- Rules governing recovery of prudently incurred IOU costs;
- Duration and terms and conditions of the durable non-bridging arrangement;
- Any appropriate cost offsets or in-kind contribution for participants that ensure cost-effectiveness for ratepayers;
- Any appropriate portion of the upgrade cost or allowance amount that could support cost offsets or in-kind contributions;
- Methodologies and data collection necessary to verify net ratepayer savings.

SCE and PG&E shall host the workshop(s) within one year of the issuance of this decision and must serve a workshop report within 60 days of the conclusion of the workshop(s). The agenda and scheduling of the workshop(s) shall be determined in coordination with Energy Division staff. The workshop report shall address all of the topics covered in the workshop, shall summarize stakeholder feedback and presentations provided at the workshop(s), and shall

include recommendations for IOU implementation of durable non-bridging solutions based on the workshop discussion. The workshop report shall be served to the service lists of this proceeding, or any successor, the Energization proceeding, Transportation Electrification Policy and Infrastructure proceeding, and the Interconnection proceeding.

Energy Division staff may develop a staff proposal following the service of the workshop report. Regardless of whether a staff proposal is developed, this is an issue that will continue to come up as we move into the high DER future. This report will have value for the Commission, as it will be able to consider the workshop report, comments, and recommendations in relation to future implementation of durable non-bridging solutions.

10. Grid Edge DERMS Warrant Both Near-Term Implementation and Further Development

The ACP provides two recommendations that pertain to Grid Edge DERMS. ACP recommendation 4.4 proposes that SCE and SDG&E implement a Grid Edge DERMS offering modeled upon PG&E's ChargeBoost pilot for 100 Amp residential customers whose EV charging would normally require an upgrade. ACP recommendation 4.5 proposes a series of Energy Division-led workshops with reports to further develop Grid Edge DERMS solutions.

Grid Edge DERMS performs sensing, computation, and DER management locally within the area served by a common set of secondary distribution infrastructure. In contrast, a Grid Edge orchestration solution relies on sensing, communications, or computation originating outside that area to determine or coordinate the response of a Grid Edge DER.

10.1. ACP Section Four, Recommendation Four – SCE and SDG&E Should Implement Grid Edge DERMS for 100 A Residential EV Charging Customers

ACP recommendation 4.4 proposes that SCE and SDG&E implement a Grid Edge DERMS offering modeled upon PG&E's ChargeBoost pilot for 100 amp residential customers whose EV charging configuration would normally require an upgrade. The ACP also recommends that PG&E further scale their ChargeBoost pilot beyond the first 1,000 customers.

The ACP recommends that the IOUs file an AL (Grid Edge DERMS AL) addressing initial Grid Edge DERMS offerings.³⁶² SCE and SDG&E, as proposed, would describe how they plan to implement the ChargeBoost-like program and describe any differences between the implementation plan and PG&E's pilot. The ACP recommends establishing the offering within six months of this decision.³⁶³ The ACP also proposes that all three IOUs should include within their AL how they plan to scale the offering beyond the first 1,000 customers and whether this approach should become the default mitigation for all residential EV customers.³⁶⁴

The ACP discusses Grid Edge DERMS as an alternative to centralized Enterprise DERMS. The ability to rapidly measure and apportion capacity represents a key challenge for implementing DOEs, which makes provisioning a DOE from Enterprise DERMS (in which signals must be sent to and from the utility) infeasible for large numbers of customers.³⁶⁵ However, as demonstrated by PG&E's ChargeBoost program, using Grid Edge DERMS can address this

³⁶² ACP at 48-49.

³⁶³ ACP at 49.

³⁶⁴ ACP at 49.

³⁶⁵ ACP at 48-49.

challenge.³⁶⁶ The objectives of ChargeBoost are to both allow residential customers to enjoy Level 2 EV charging at home without having to upgrade their existing 100 amp or smaller service, and to avoid the secondary transformer upgrade that would otherwise be necessary to accommodate Level 2 charging. While this standalone implementation may offer functionality useful to future orchestration efforts aimed at upstream capacity constraints, ChargeBoost is strictly used to address secondary constraints.

ChargeBoost utilizes an AMI 2.0 meter with Grid Edge computing capable of running software applications in addition to core metering functions. ChargeBoost core functions are provided by a meter hosted application that modulates EV charging power in response to either a site constraint or a transformer constraint, depending on which constraint reflects a lower safe amount of power. The site constraint is established by the application knowing the capacity of the site electrical panel and measuring the total power usage by loads that are not the EV charger. The difference between the site capacity and site power usage determines the capacity that is left for the EV charger to use, which sets the site constraint. The transformer constraint is established by the application knowing which meters are connected to the same transformer as the EV charging site and knowing the transformer capacity. The AMI 2.0 meter receives the current load signals of the existing AMI 1.0 meters at the other sites served by the same secondary transformer and the onboard application adds them up to understand the total power usage by other contiguous sites. The difference between the transformer capacity and the contiguous site power usage

³⁶⁶ ACP at 48-49.

determines the capacity that is left for the EV charging site to use which sets the transformer constraint.

10.1.1. Summary of Party Comments

The level of support and issues raised by party comment on near-term implementation of a ChargeBoost-like offering differs depending on which IOU is providing the implementation. We have segmented the discussion of IOU implementation accordingly.

The ACP recommends that we direct PG&E to expand and scale the ChargeBoost pilot.³⁶⁷ UCAN agrees that the “scaling framework in Recommendation 4 of Section 4 is well conceived.” UCAN also proposes refinements to define that the scaling process is stated explicitly, as well as refinements to this ACP recommendation clarifying that the eligible population comprises customers on services of 100 A or smaller.³⁶⁸ SBUA concurs that, compared to centralized Enterprise DERMS for enabling IOU-led DSO DER Orchestration, there is potential significant value to Grid Edge DERMS.³⁶⁹

Several parties express qualified support for this recommendation. PG&E expresses support, while noting that progress to date still remains in pilot form and scaling is dependent on the outcome of PG&E’s 2027-2030 GRC submittal.³⁷⁰ WeaveGrid expresses general support for advancing Grid Edge DERMS as a means of implementing FSCs, particularly for residential EV charging and constraints affecting secondary distribution infrastructure.³⁷¹ EDF supports this

³⁶⁷ ACP at 7.

³⁶⁸ UCAN Opening Comments at 9-13.

³⁶⁹ SBUA Reply Comments at 3.

³⁷⁰ PG&E Opening Comments at 12.

³⁷¹ WeaveGrid Opening Comments at 2.

proposal, but emphasizes that technology-neutral implementation is critical to bring solutions like this to meaningfully scale.³⁷² SPAN recommends that the ACP proposal be expanded to apply to all home electrification efforts, not just EV charging, including heat pumps and appliances.³⁷³ SPAN points to PanelBoost, PG&E's complimentary EPIC program to ChargeBoost which utilizes AMI 2.0 in a similar manner but instead coordinates with a smart panel instead of EV charger.³⁷⁴ AEU supports the expansion of Grid-Edge DERMS-based FSC but advocates for expanding the definitions and pathways before implementation, including the technologies and site-level controls to be used.³⁷⁵ VGIC supports the expansion of ChargeBoost but recommends limitations on future offerings from SCE and SDG&E.³⁷⁶

Cal Advocates, IREC, and Universal Devices oppose this recommendation. Cal Advocates states that the Commission should not direct PG&E to expand and scale ChargeBoost until the record includes pilot performance results, implementation costs, customer-device requirements, cybersecurity requirements, verified avoided-upgrade value, and IOU-specific transferability. Cal Advocates asserts that the Commission should be cautious about applying PG&E's approach to SCE and SDG&E.³⁷⁷ IREC argues that FSC residential EV customers should be able to choose between ChargeBoost and PanelBoost.³⁷⁸

³⁷² EDF Opening Comments at 8.

³⁷³ SPAN Opening Comments at 5-6.

³⁷⁴ SPAN Opening Comments at 3.

³⁷⁵ AEU Opening Comments at 12-13.

³⁷⁶ VGIC Reply Comments at 10.

³⁷⁷ Cal Advocates Opening Comments at 10-11.

³⁷⁸ IREC Opening Comments at 31-32.

Universal Devices supports PG&E's clarification that ChargeBoost and PanelBoost be offered as a customer choice, rather than a default mitigation.³⁷⁹

Party recommendations largely address the content requirements of PG&E's Grid Edge DERMS AL,³⁸⁰ expansion of the ChargeBoost pilot to other electrification loads and to small commercial customers,³⁸¹ safeguards to ensure technology neutrality,³⁸² clarification of whether the ChargeBoost solution should be the prioritized mitigation and if so, for which customers. Parties oppose the scaling of ChargeBoost prior to reporting of initial deployment results.³⁸³

Both SCE and SDG&E state that their existing metering infrastructure does not currently have comparable functionality to the approach PG&E's ChargeBoost uses to provide transformer level visibility through existing communications capability.³⁸⁴ SCE and SDG&E also state that the proposed implementation timelines do not align with their technology roadmaps or AMI applications.³⁸⁵

10.1.2. Discussion

We find that implementation of Grid Edge DERMS-based solutions for residential and small commercial customers may reduce both individual customer costs and overall ratepayer costs associated with electrification. This

³⁷⁹ Universal Devices Reply Comments at 15.

³⁸⁰ UCAN Opening Comments at 23-24, PG&E Opening Comments at 12.

³⁸¹ SPAN Opening Comments at 5-6, SBUA Reply Comments at 3.

³⁸² EDF Opening Comments at 8.

³⁸³ Cal Advocates Opening Comments at 2, Universal Devices Reply Comments at 13.

³⁸⁴ SCE Opening Comments at 11, SDG&E Opening Comments at 36-37.

³⁸⁵ SCE Opening Comments at 11, SCE Reply Comments at 5, SDG&E Opening Comments at 38.

provides a compelling opportunity to advance affordability efforts while facilitating electrification. Accordingly, consistent with party support, we find it reasonable to direct the IOUs to implement a Grid Edge DERMS-based solution for residential and small commercial customers. Below we discuss timeline, process, and technology readiness.

10.1.2.1. Scope of the Programs and Grid Edge DERMS AL

The ChargeBoost pilot delivers basic charging arrangements that allow the deferral or avoidance of secondary transformer upgrades driven by EV charging. These types of upgrades have been identified as a cause of upward pressure on rates through 2030.³⁸⁶ ChargeBoost is currently an operational pilot rather than being a prospective future solution, and party comment notes that the population it targets skew heavily toward disadvantaged communities and the lowest-income households.³⁸⁷ We find that the cost of the business as usual secondary upgrades would likely be higher compared to the costs of the alternative enabling equipment for these programs. Therefore, implementation and scaling of this pilot requires rigorous measurement and evaluation to confirm the net ratepayer savings.

We find the comments regarding expansion of this directive to other electrification loads from SPAN, EDF, IREC, and Universal Devices to be compelling. We agree that Grid Edge DERMS can benefit residential customers beyond just those who drive EVs, and inclusive of those with heat pumps and other electric appliances. As such, we direct that the IOUs' proposals within their

³⁸⁶ PG&E EIS Part 2 at 39, Cal Advocates 2025 DGEM at 17, Table 3-1.

³⁸⁷ UCAN Opening Comments at 10.

Grid Edge DERMS ALs address elements from both ChargeBoost and PanelBoost.

We are additionally persuaded by party comments advocating for the inclusion of small commercial EVSE customers, noting commonality in meter infrastructure and issues faced between residential and small commercial customers.³⁸⁸

IREC and Universal Devices' comments request clarification on whether these programs are voluntary. In response to these comments we clarify that participation in the Grid Edge programs shall be voluntary for customers.

Each IOU's Grid Edge DERMS AL shall include the following elements:

- IOUs shall propose clear, technology neutral criteria for equipment eligibility.³⁸⁹ IOUs shall describe the solution's architecture and identify which components of the architecture (e.g., metering, communications, control logic) are proprietary and which are built on open standards.³⁹⁰
- IOUs shall describe what role third parties potentially can play to provide functionally equivalent Grid Edge DERMS services if at a lower cost and with greater implementation efficiencies.³⁹¹
- IOUs shall each identify and document the secondary equipment categories and costs that the IOU typically uses for electrifying customers.
- IOUs shall each identify the typical equipment categories and costs customers incur when electrifying.
- IOUs shall each provide a methodology for identifying, quantifying, tracking and reporting the avoided secondary

³⁸⁸ SBUA Reply Comments at 3, UCAN Opening Comments at 11.

³⁸⁹ EDF Opening Comments at 8.

³⁹⁰ AEU Opening Comments at 17.

³⁹¹ AEU Opening Comments at 17.

utility costs resulting from implementation of the Grid Edge DERMs program, the costs of implementing the program and the net ratepayer benefits.

- IOUs shall each provide a method of estimating potential costs and savings for prospective customers as part of the program materials for customers. Each IOU shall provide a method for tracking participating customer savings.
- IOUs shall each provide an implementation schedule with stage-gates or other milestones that derisk the approach prior to scaling the solution.³⁹²
- IOUs shall propose consistent data reporting across all three IOUs' Grid Edge DERMS pilots.³⁹³
- SCE and SDG&E shall explain any differences from the ChargeBoost and PanelBoost structure.

In addition to these elements, the IOUs shall consult with Energy Division to ensure the ALs adequately respond to stakeholder feedback raised in the Grid Edge DERMS workshops, discussed below.

While we find it reasonable to adopt the ACP's recommendation for PG&E to scale its ChargeBoost, and its PanelBoost pilots, and SCE and SDG&E to propose similar offerings we also share concerns raised in comments from PG&E and Cal Advocates. PG&E's comments highlight that progress to date is still in early pilot form. Cal Advocates comments that the pilot should not be scaled until the record includes pilot performance results and other data. We address these comments first by extending the timeline for filing of the IOU ALs and implementation, as detailed in Section 16. Additionally, Energy Division staff shall not approve the IOU ALs proposing implementation if PG&E does not

³⁹² PG&E Opening Comments at 12-13.

³⁹³ SCE Opening Comments at 16.

demonstrate net ratepayer benefits and SCE and SDG&E do not demonstrate expected net ratepayer benefits.

Lastly, we also address Cal Advocates by directing PG&E to host a workshop, in coordination with the Energy Division staff. PG&E shall, at minimum, present the following at the workshop:

- Pilot performance results,
- Implementation costs,
- Customer-device requirements, and
- Avoided-upgrade value.

The purpose of the workshop is to allow for review of the pilot progress prior to AL filings. Additionally, PG&E is directed to propose a plan to scale the pilot which will inform the development of SCE and SDG&E's deployments, if shown to be cost effective. The conditions set forth here provide sufficient safeguards to allow for further exploration of how best to implement the ACP's recommendation for PG&E to scale its ChargeBoost, and its PanelBoost pilots, and for SCE and SDG&E to propose similar offerings .

10.1.2.2. PG&E Specific Implementation

PG&E requests the removal of an ACP description of EPIC 4.02³⁹⁴ programs as the default mitigation for 100-amp customers.³⁹⁵ We clarify that participation remains voluntary rather than the IOU defaulting customers into participation.

The ACP recommends that the IOUs file a Tier 2 Grid Edge DERMS AL within six months of the issuance of this decision. PG&E supports a timeline of

³⁹⁴ EPIC 4.02 encompassed both ChargeBoost and PanelBoost at the time of the Track 3 All-Party Workshop. ChargeBoost is now EPIC 4.02A and PanelBoost is now EPIC 4.02B.

³⁹⁵ PG&E Opening Comments at 13-14.

180 days.³⁹⁶ We direct PG&E to file its Grid Edge DERMS AL by the date set forth in Section 16 below.

The ACP recommends that IOUs should propose in their Grid Edge DERMS AL how they plan to scale their offering and whether it should become the mitigation evaluated for all residential EVSE customers, not just those on 100 amp or smaller services.³⁹⁷

In addition to the common AL requirements articulated above, PG&E's Grid Edge DERMS AL shall disclose initial pilot results, reflect stakeholder feedback from the Grid Edge DERMS workshop, propose how PG&E plans to scale Grid Edge DERMS through PanelBoost and ChargeBoost, and discuss whether ChargeBoost and PanelBoost Grid Edge DERMS should become the Flexible Connection prioritized for evaluation in the case of residential customers, and small commercial customers.

10.1.2.3. SCE and SDG&E Grid Edge DERMS AL Considerations

Both SCE and SDG&E state that their existing metering infrastructure does not currently have comparable functionality to the approach PG&E's ChargeBoost uses to provide transformer level visibility through existing communications capability.³⁹⁸ SCE and SDG&E also state that the proposed implementation timelines do not align with their technology roadmaps or AMI 2.0 applications under consideration with the Commission.³⁹⁹

³⁹⁶ PG&E Opening Comments at 12.

³⁹⁷ ACP at 49.

³⁹⁸ SCE Opening Comments at 11, SDG&E Opening Comments at 36-37.

³⁹⁹ SCE Opening Comments at 11, SCE Reply Comments at 5, SDG&E Opening Comments at 38.

We note that PG&E's infrastructure did not provide transformer level visibility prior to the ChargeBoost pilot and that PG&E is implementing its pilot independent of broad AMI 2.0 rollout. PG&E deploys AMI 2.0 meters as needed for customers to implement the program. We clarify that the direction to implement and scale Grid Edge DERMS for residential load does not contemplate or rely upon any change to either SCE or SDG&E's AMI infrastructure outside of the participating customers. Grid Edge DERMS for SCE and SDG&E can proceed independently of their pending AMI 2.0 applications for system wide AMI 2.0 rollout.

SCE and SDG&E shall propose a scaled implementation, based on the learnings from the workshop on PG&E's pilot results. We additionally find it reasonable that SCE and SDG&E host a workshop in coordination with the Energy Division after PG&E's workshop. At the workshop(s) SCE and SDG&E shall detail the technical basis, required infrastructure, costs, and timeline for their proposed Grid Edge DERMS implementation. This information along with implementation data from PG&E will help inform discussion on how best to tailor the ChargeBoost and PanelBoost pilots to SCE and SDG&E's unique use cases. Following discussion at this workshop SCE and SDG&E shall present their proposals for establishing a ChargeBoost and PanelBoost-like programs and gather stakeholder feedback to inform their Grid Edge DERMS ALs. The workshop date, key deliverables and associated dates for this item are set out below in Section 16 of this decision.

10.2. ACP Section Four, Recommendation Five – Further Development of Grid Edge DERMS Solutions

ACP recommendation 4.5 proposes a series of Energy Division-led workshops with reports to further develop Grid Edge DERMS solutions. This

recommendation proposes that workshops be established to address five enumerated topics:⁴⁰⁰

- The issue of capacity sharing,
- Application authoring and program access, including for CCAs,
- Whether AMI meters are the appropriate long-term solution for computing the Operating Envelope,
- Ensuring that more devices than EV chargers can be locally controlled to ensure rapid response and prevent ongoing access fees,
- Identifying any generation-related interactions or issues that should be considered.

The ACP proposes that relevant stakeholders should include interested parties, California Energy Commission staff, and stakeholders from the Vehicle-Grid Integration Forums.⁴⁰¹ Following the workshops, one or more staff workshop reports would be circulated to relevant service lists for this and other proceedings, the Transportation Electrification Policy Infrastructure (TEPI) proceeding (R.23-12-008), Interconnection proceeding (R.25-08-018), Energization proceeding, and filed within any successor to the High DER proceeding.

10.2.1. Summary of Party Comments

Party comment provides either support or qualified support; no party opposes this recommendation. SDG&E argues that workshops should precede the IOU's Grid Edge DERMS implementation ALs, while PG&E believes these workshops should occur after the ALs.⁴⁰² CalCCA recommends that Grid Edge

⁴⁰⁰ ACP at 7, 49.

⁴⁰¹ ACP at 50.

⁴⁰² PG&E Opening Comments at 16, SDG&E Opening Comments at 57.

DERMS workshops be held following interoperability workshop efforts and evaluations of a marketplace to support DER orchestration.⁴⁰³

Workshop topics that SDG&E, IREC, and UCAN recommend include: technology-neutral equipment eligibility criteria; cost and benefit of Grid Edge solutions relative to conventional upgrades; metering, communications, and back office capabilities and costs according to candidate architecture for each IOU;. Additional, topics recommended by these parties include: OEM and service-provider fee structures on an aggregated and anonymized basis; transparency around curtailment protocols; ensuring curtailment protocols are non-discriminatory and not used to defer routine maintenance; Grid Edge DERMS applicability to single-phase small commercial customers; and third-party program access.⁴⁰⁴ UCAN recommends incorporating into workshops the following topics: transparency around curtailment protocols; ensuring curtailment protocols are non-discriminatory and not used to defer routine maintenance; Grid Edge DERMS applicability to single-phase small commercial customers; and third-party program access. IREC recommends discussing costs and benefits of Grid Edge solutions relative to conventional upgrades.⁴⁰⁵

SCE and SDG&E affirmatively support keeping generation interactions in scope and IREC requests that Interconnection stakeholders should be invited to the Grid Edge DERMS Workshops.⁴⁰⁶

⁴⁰³ CalCCA Opening Comments at 8.

⁴⁰⁴ SDG&E Opening Comments at 6, IREC Opening Comments at 3,, UCAN Opening Comments at 24.

⁴⁰⁵ UCAN Opening Comments at 24, IREC Opening Comments at 32.

⁴⁰⁶ SCE Opening Comments at 12, SDG&E Opening Comments at 40, IREC Opening Comments at 32.

10.2.2. Discussion

Based on broad party support, we find it reasonable to direct the IOUs to support a series of Energy Division-led workshops, to the extent such workshops are necessary, and provide the following clarity on workshop scheduling and topics.

Energy Division staff may determine whether to lead additional workshops, as some of the topics may already be addressed in the Grid Edge DERMS workshops SCE, SDG&E, and PG&E will host in service of their AL development. We clarify that, in the workshops led by Energy Division, the five enumerated topics should be included to the extent not already addressed in the prior workshops.

We agree with SDG&E that the workshops should be leveraged to inform the ALs. However, the IOU-led workshops to develop the Grid Edge DERMS ALs discussed in the previous section serve this purpose.

As PG&E has the only Grid Edge DERMS offering reflected in the record of this proceeding, we find it reasonable for the PG&E-led workshop discussed in the previous section to be the first workshop. In addition to sharing results of initial deployments, PG&E shall detail any other plans or current programs it has for providing a Grid Edge DERMS solutions and discuss the feasibility of expanding ChargeBoost and/or PanelBoost to small commercial EVSE customers on 100 amp services.

PG&E shall preview the content of their forthcoming Grid Edge DERMS AL and gather input from stakeholders. PG&E shall circulate any integration or interoperability documents generated for their AMI 2.0 enabled offerings no later than seven days prior to the first workshop.

As noted above, we find it reasonable for SCE and SDG&E to present their proposed Grid Edge DERMS offering in the workshop(s) held after PG&E's workshop.

Subsequent workshops should address the five topics enumerated in the ACP recommendation⁴⁰⁷ and, at the discretion of ED staff, the listed workshop topics parties recommended that are listed above.

We direct the IOUs to support Energy Division staff with hosting any additional Grid Edge DERMS workshops. When hosting workshops or supporting workshops led by Energy Division, the IOUs should follow the directions in Appendix E of this decision.

11. Establishing Interoperability and Customer Choice Requirements

The ACP includes one recommendation, in Section 7, addressing expectations around interoperability in support of market access and fair market competition.⁴⁰⁸ This recommendation is aimed at ensuring that customers that participate in a flexible connection offering should retain the ability to participate in utility, CCA, aggregator, or self-managed programs without being restricted by proprietary vendor arrangements.⁴⁰⁹

⁴⁰⁷ ACP at 49: "These include: The issues of capacity sharing, application authoring and program access, including for CCAs, Whether AMI meters are the appropriate long-term solution for computing the Operating Envelope, ... Ensuring that more devices than EV chargers can be locally controlled to ensure rapid response and prevent ongoing access fees, [and] Identifying any generation-related interactions or issues that should be considered."

⁴⁰⁸ ACP at 54.

⁴⁰⁹ ACP at 54.

11.1. ACP Section Seven, Recommendation One – Interoperability and Customer Choice Requirements

Section 7 of the ACP highlights concerns raised by parties in the Track 3 workshop process “regarding how access to both customer equipment and distribution system information may affect competition and customer choice.”⁴¹⁰ The ACP cites IOU concerns that some vehicle OEMs maintain proprietary communication pathways to customer-owned devices and may charge fees for third-party access to those devices.⁴¹¹ The ACP also cites CalCCA, aggregator, and technology provider concerns that the operational information generated by utility Enterprise DERMS platforms could become available to utility programs while remaining inaccessible to other market participants.⁴¹² The ACP concludes: “Taken together, these concerns highlight the importance of ensuring that flexible connection frameworks do not inadvertently create barriers to participation or confer undue advantages on particular technologies, vendors, or market actors.”⁴¹³

In light of these concerns, the ACP states that information about capacity constraints, available flexible capacity, and Operating Envelope requirements should be made publicly available, and customers should be able to choose how they satisfy flexible connection requirements, whether through utility programs, OEM-provided solutions, third-party aggregators, CCAs, or self-managed equipment.⁴¹⁴ The ACP recommends that Energy Division staff host a workshop

⁴¹⁰ ACP at 39.

⁴¹¹ ACP at 39.

⁴¹² ACP at 39.

⁴¹³ ACP at 39.

⁴¹⁴ ACP at 39.

that includes technology providers, utilities, California Energy Commission staff, and CCA representatives to discuss reasonable guardrails to ensure interoperability, customer choice, and local control where feasible.⁴¹⁵ The ACP further recommends that the IOUs file a workshop report and serve it to this service list and to the Data Access and Cost Effectiveness Rulemaking (R.22-11-013) service list, and file it within any successor proceeding to this proceeding.⁴¹⁶ This section addresses that workshop and report.

11.1.1. Summary of Party Comments

In their responses to the ACP, parties are generally supportive of the concepts and workshop process proposed in Section 7 of the ACP. Cal Advocates supports the proposed interoperability and customer choice requirements.⁴¹⁷ CALSTART supports resolving questions regarding interoperability and customer choice requirements through a workshop.⁴¹⁸ Terawatt supports efforts to prevent restricting customer choice and addressing these issues through a workshop.⁴¹⁹ PG&E agrees that a workshop would be useful for ensuring interoperability and customer choice requirements.⁴²⁰ SDG&E supports the proposed workshop on interoperability and customer choice requirements but argues that it will not be likely to solve the problem.⁴²¹ IREC states that customer ability to choose how they satisfy flexible connection requirements should be

⁴¹⁵ ACP at 55.

⁴¹⁶ ACP at 55.

⁴¹⁷ Cal Advocates Opening Comments at 6.

⁴¹⁸ CALSTART Opening Comments at 6.

⁴¹⁹ Terawatt Opening Comments at 10.

⁴²⁰ PG&E Opening Comments at 27.

⁴²¹ SDG&E Opening Comments at 22.

balanced with the communications pathway allowances of Rule 21.⁴²² IREC also states that the Commission should ensure that a customer's participation in FSC does not hinder their vendor capabilities or participation in other programs.⁴²³

EDF states that "the Commission should ensure the transition to real-time pricing structures does not disrupt existing rate designs that already provide valuable customer incentives and planning certainty."⁴²⁴ AEU writes "this is the section of greatest concern to United" and argues that enough record has been created during Track 3 workshops to support baseline open access rules rather than holding more workshops.⁴²⁵ CalCCA "strongly supports" the Section 7 recommendations and recommends also creating a formal working group to address competition and market access considerations, as well as to investigate a demand flexibility marketplace to complement the IOUs' Grid-Edge DERMS.⁴²⁶ Terawatt urges the Commission to evaluate mechanisms to ensure that ratepayer and customer savings from durable non-bridging solutions are not eroded by third-party vendor costs during the workshop process.⁴²⁷ UCAN asserts that the Commission should adopt four principles regarding open, non-exclusive DERMS and aggregator interfaces, protocol neutrality, customer choice of provider on shared infrastructure, and no conditioning of participation in a ratepayer-funded

⁴²² IREC Opening Comments at 36.

⁴²³ IREC Opening Comments at 36.

⁴²⁴ EDF Opening Comments at 11-12.

⁴²⁵ AEU Opening Comments at 10.

⁴²⁶ CalCCA Opening Comments at 9.

⁴²⁷ Terawatt Opening Comments at 10.

flexible connection offering on proprietary subscriptions or third-party access fees.⁴²⁸

SCE recommends developing interoperability requirements through stakeholder workshops and standard development processes rather than immediate rulemaking mandates, and states that such requirements should be balanced against reliability, operational visibility, data quality, cyber risk, and clear accountability for performance.⁴²⁹ Critical Loop supports technology-neutral and provider-neutral eligibility based on objectively verified performance.⁴³⁰

11.1.2. Discussion

The Commission agrees with the ACP recommendation that flexible connection frameworks should not inadvertently create barriers to participation or confer undue advantages on particular technologies, vendors, or market actors. The Commission agrees with the ACP that technology and provider neutrality will help ensure wider compatibility of flexible connection frameworks. A workshop is needed to further explore interested parties' views and ideas on developing such interoperability standards and protections before adopting any guidelines or implementing standards.

The Commission finds it reasonable to direct the IOUs, in coordination with Energy Division, to host a workshop focused on discussing reasonable guardrails. The IOUs shall record the workshop and Energy Division shall post the link on the High DER Commission webpage. This workshop shall be held

⁴²⁸ UCAN Opening Comments at 18.

⁴²⁹ SCE Opening Comments at 14.

⁴³⁰ Critical Loop Opening Comments at 19.

consistent with the information set out in Section 16 below. The workshop report and link to the recording shall be served to the most recent service list for the following proceedings: this proceeding (R.21-06-017); the Data Access and Cost Effectiveness Rulemaking (R.22-11-013); the Energization Rulemaking (R.24-01-018); and any successor to this proceeding. The timeline for the workshop is meant to help inform the IOUs AL filings.

12. IOUs Shall Provide Customer Education for Flexible Customers Enrolling onto Dynamic Rates

The ACP includes two recommendations addressing real-time pricing. These recommendations are aimed at ensuring flexible connection customers are not only aware of and abiding by the established limitations on their capacity related to the distribution infrastructure, but also maximizing utilization of grid assets by being responsive to price signals.⁴³¹ The first ACP recommendation, 8.1, addresses default enrollment onto real-time pricing rates, and the second ACP recommendation, 8.2, addresses data tracking related to real-time pricing and flexible connections.

12.1. ACP Section Eight, Recommendation One – Real-Time Pricing Rate Enrollment

The ACP recommends that the Commission direct the IOUs to default any customer taking service on a VOE or DOE to a real-time pricing rate.⁴³² The ACP states that VOE and DOEs communicate information regarding the physical availability of distribution capacity, while real-time pricing communicates information on the economic value of electricity at a given time. The ACP asserts that, in many cases, these signals can be complementary. Complementary signals

⁴³¹ ACP at 55.

⁴³² ACP at 55.

could align operational flexibility with price signals that encourage customers to shift consumption toward periods where both distribution load capacity and energy supply are plentiful, which would improve overall utilization and reduce costs.⁴³³

Per ACP recommendation 8.1, the customer would have the ability to opt out of the enrollment and return to their prior rate.⁴³⁴ These customers may deploy flexible load controls or storage to manage changes in available capacity, which would allow these same technologies to respond to dynamic price signals by charging during lower-cost periods and reducing consumption or discharging during higher-cost periods. As a result, customers enrolled in real-time pricing may have a significant number of hours where their price for energy is lower than the comparable time of use rate.⁴³⁵ The ACP recognizes that adoption of flexible connection solutions coupled with efficient price signals has the potential to increase utilization of existing infrastructure, reduce the need for costly distribution upgrades, and place downward pressure on customer rates by making better use of both distribution and generation resources.⁴³⁶

12.1.1. Summary of Party Comments

Cal Advocates and AEU are supportive of real-time pricing rate enrollment. Cal Advocates also recommends allowing default enrollment subject to comprehensive tracking and evaluation to see if it provides long-term

⁴³³ ACP at 41.

⁴³⁴ ACP at 55.

⁴³⁵ ACP at 41.

⁴³⁶ ACP at 42.

benefits.⁴³⁷ Additionally, Critical Loop recommends the proposal's opt-out and return rights be preserved.⁴³⁸

Parties were largely opposed to this recommendation, either expressing clear opposition, recommendations for real-time pricing enrollment to be optional, or providing clarifications regarding the limitations of such a recommendation's ability to be implemented. Several parties expressed clear opposition to the recommendation—SDG&E,⁴³⁹ CalCCA,⁴⁴⁰ and Tesla.⁴⁴¹ Several parties recommended that the Commission should instead allow for dynamic rate opt-in, rather than default enrollment.⁴⁴² UCAN recommends opt-in enrollment with shadow billing for the first year and a seamless right of return to a customer's prior rate.⁴⁴³

PG&E opposes the recommendation for default enrollment.⁴⁴⁴ In its reply comments, PG&E notes the near unanimous opposition from parties to the recommendation.⁴⁴⁵ SCE states that it currently uses day-ahead pricing in dynamic rate applications rather than real-time or day-of pricing, which it does not have the capability to do. SCE further states that Track 3 discussions have not

⁴³⁷ Cal Advocates Opening Comments at 8-9, AEU Opening Comments at 15.

⁴³⁸ Critical Loop Opening Comments at 20.

⁴³⁹ SDG&E Opening Comments at 23.

⁴⁴⁰ CalCCA Opening Comments at 9.

⁴⁴¹ Tesla Opening Comments at 11.

⁴⁴² UCAN Reply Comments at 2, PACT Reply Comments at 4-5 VGIC Reply Comments at 10-11.

⁴⁴³ UCAN Reply Comments at 2.

⁴⁴⁴ PG&E Opening Comments at 27-28.

⁴⁴⁵ PG&E Reply Comments at 10-12.

demonstrated that real-time pricing is necessary to make FSCs successful, and therefore should be opt-in.⁴⁴⁶

Several parties request exceptions or clarifications to the default enrollment. Terawatt and CALSTART request commercial EV fleet charging be exempted from real-time pricing requirements.⁴⁴⁷ IREC opposes this proposal, noting that further record development would show whether real-time pricing in this context serves customer and ratepayer interests and whether any misalignment can be resolved ahead of implementation.⁴⁴⁸ TMH requests the Commission take several actions before considering making real-time pricing enrollment the default. TMH recommends expanding access to all customers who may want to choose a real-time pricing rate. They additionally recommend directing the IOUs to create additional elements in their FSC options and promotional materials introducing customers to the potentially synergistic effects of choosing real-time pricing. TMH also recommends directing IOUs to have representative modelling of FSC and real-time pricing to fleet advisory services to help customers visualize successful dual participation.⁴⁴⁹

PACT notes that the pilots are still under evaluation and recommends that real-time pricing enrollment be an opt-in option presented to VOE and DOE customers with the utilities' required to present real-time pricing options and an estimated bill comparison.⁴⁵⁰ VGIC recommends enrollment in dynamic rates be opt-in, citing the concern that tying real-time pricing to FSCs risks creating a

⁴⁴⁶ SCE Opening Comments at 14-15.

⁴⁴⁷ Terawatt Opening Comments at 10, CALSTART Opening Comments at 6-7.

⁴⁴⁸ IREC Opening Comments at 37.

⁴⁴⁹ TMH Opening Comments at 6-7.

⁴⁵⁰ PACT Reply Comments at 5-6.

customer experience characterized by overwhelming technical complexity and implementation friction, posing risks to efforts designed to accelerate electrification.⁴⁵¹ Lastly, EDF acknowledges the IOU concern over the default enrollment and recommends the proposal explain the distinction between default and mandatory enrollment.⁴⁵²

12.1.2. Discussion

We first address SCE's statement that they do not offer real-time pricing options at this time through their dynamic rates. We agree that this recommendation should address dynamic rate enrollment, rather than real-time pricing. Dynamic rates are included in SCE's current rate offerings.

We are persuaded by party concerns regarding the potential for customer confusion with default enrollment in real-time pricing rates. In particular, we are persuaded by arguments from parties that default enrollment of FSC participants risks creating a negative or technically overwhelming customer experience. We agree that this could become a deterrent for customers who may otherwise be interested in taking advantage of FSC offerings. Therefore we decline to adopt a default enrollment requirement for VOE and DOE customers and allow dynamic rate enrollment to remain an opt-in, requiring affirmative customer agreement.

While we modify this requirement so as not to overburden FSC customers, we do still find there is value in supporting FSC customers' enrollment on dynamic rates. VOEs and DOEs communicate information regarding the physical availability of distribution capacity, while dynamic rates communicate

⁴⁵¹ VGIC Reply Comments at 10-11.

⁴⁵² EDF Reply Comments at 5.

information regarding the economic value of electricity at a given time. In many circumstances, these signals can be complementary.

TMH recommends the IOUs create materials introducing customers to the potentially synergistic effects of choosing real-time pricing.⁴⁵³ PACT also recommends IOUs share real-time pricing rate options with FSC customers, as well as estimated bill comparison.⁴⁵⁴ We find both these recommendations to be compelling and direct the IOUs to develop informational materials available online that shall be shared with all FSC customers at the time of enrollment to introduce customers to the potential synergies between the use of FSC and dynamic rates. These materials shall provide customers with information on the available dynamic rate options. If an IOU has an active dynamic rate pilot, that IOU may use the pilot rate information for developing the informational material. The IOUs shall consult with Energy Division staff on their bill comparison methodologies and dynamic rate information.

We are not compelled by CALSTART's and Terawatt's requests to carve out EV charging, as the switch to an opt-in dynamic rate approach allows for customer choice.

12.2. ACP Section Eight, Recommendation Two – Data Tracking Related to Real-Time Pricing Enrollment

The ACP recommends that the Commission direct the IOUs to track certain data related to flexible connection customer enrollment in real-time pricing rates, as well as opt-out levels. The recommendation includes the following, at a minimum:⁴⁵⁵

⁴⁵³ TMH Opening Comments at 7.

⁴⁵⁴ PACT Reply Comments at 5-6.

⁴⁵⁵ ACP at 55-56.

- Customer type and representative load curve,
- Size of customer service (A),
- Location of customer,
- Flexible connection offering/program,
- Bridging vs. non-bridging customer,
- Whether enrolled on a real-time pricing rate:
 - If yes, which rate,
 - If not enrolled in a real-time pricing rate, reason given for opting out.

As the ACP states,⁴⁵⁶ the purpose of this proposal is to track the rate of enrollment of FSC customers on real-time pricing rates, understand any reasons for declining to enroll, and understand what types of customers may be more likely to take advantage of both FSCs and real-time pricing rates.

12.2.1. Summary of Party Comments

SDG&E does not support data tracking related to real-time pricing enrollment as their rate design has not yet been finalized.⁴⁵⁷ PG&E opposes expanded data sharing more generally but does not specifically address this recommendation.⁴⁵⁸ AEU, UCAN, and Cal Advocates support the recommendation and provide additional data reporting requirements.

AEU recommends reporting on whether service is provided through a CCA or IOU to see if responsiveness varies by service-provider type.⁴⁵⁹

⁴⁵⁶ ACP at 55.

⁴⁵⁷ SDG&E Opening Comments at 46.

⁴⁵⁸ PG&E Reply Comments at 12.

⁴⁵⁹ AEU Opening Comments at 15.

UCAN recommends adding realized bill impacts relative to a customer's previous rate.⁴⁶⁰ Cal Advocates argues that data tracking should be strengthened so that the Commission can evaluate whether pairing RTP with VOEs and DOEs produces incremental benefits. Cal Advocates also recommends the Commission require the IOUs to track evaluation of customer response, automation use, bill impacts, export compensation impacts, and any cost shifts to non-participants. Cal Advocates argues the Commission should require IOUs to evaluate, where feasible, whether observed load reductions are attributable to the operating envelope requirement, the RTP price signal or both.⁴⁶¹

12.2.2. Discussion

First, we clarify, as per the above section, that this decision addresses dynamic rates rather than solely real-time pricing rates.

We are not compelled by PG&E and SDG&E's arguments against data tracking related to dynamic rate enrollment. As UCAN and Cal Advocates point out, there are additional lessons we can learn from implementation of FSCs alongside dynamic rate enrollment, and we believe that data tracking is fundamental to those lessons. Tracking this data could help us better understand what types of FSC customers may be more likely to take advantage of dynamic rates.

We find the recommendations for additional data collection requirements from UCAN and Cal Advocates compelling. However, we do not know the feasibility of reporting on Cal Advocates' recommendation of automation use or

⁴⁶⁰ UCAN Opening Comments at 26.

⁴⁶¹ Cal Advocates Opening Comments at 9.

cost shifts to non-participants. We therefore decline to adopt those recommendations at this time.

We direct the IOUs to include the following minimum data tracking requirements in their HDER FSC Implementation AL:

- Customer type and representative load curve.
- Flexible connection offering/program.
- Size of customer service (amps).
- Location of customer (feeder).
- Whether customer has elected enrollment in a dynamic rate or not. If so:
 - Which dynamic rate,
 - Realized bill impacts relative to a customer's previous rate,
 - Evaluation of customer response,
 - Export compensation impacts (if applicable),
 - Automation use,
 - Whether customer is served by the IOU or CCA, and which CCA.
- To the extent feasible for customers enrolled in a dynamic rate, whether observed load reductions are attributable to the operating envelope requirement, the dynamic price signal or both.

This decision will additionally address other data tracking and reporting requirements in Section 14.

13. Implementation of Baseline Cybersecurity Considerations from the SIO-CS

Section 5 of the ACP addresses the cybersecurity considerations the High DER Track 3 examined through the Smart Inverter Operationalization Cybersecurity Subgroup (SIO-CS) and report. The ACP recommends directing a

process for the IOUs to implement the working group's recommendations, those being SIO-CS paths F, G, and H. In short, path F recommends that the DSOs use the SIO-CS Phase 1 Primary DER Cybersecurity Requirements, path G initiates the development of Phase 2 DER Cybersecurity Requirements, and path H endorses the establishment of testing and certification programs.⁴⁶²

13.1. ACP Section Five, Recommendation One – Direct IOUs to Propose Implementation of Baseline Cybersecurity Considerations from the Smart Inverter Operationalization Cybersecurity Subgroup

The ACP proposes next steps to address the SIO-CS and the substantial work that was completed through this working group.⁴⁶³ The SIO-CS developed a phased set of DER cybersecurity requirements using IEEE 1547.3⁴⁶⁴ as its foundation. It recommended a regulatory pathway involving utility adoption of the Phase 1 requirements,⁴⁶⁵ continued development of Phase 2 requirements,⁴⁶⁶

⁴⁶² SIO-CS Report at v-vi.

⁴⁶³ The SIO-CS focused on answering the third Track 3 Phase 1 scoping question: "What existing cybersecurity standards should be applied for smart inverter operationalization and DERMS to ensure communications between the equipment and management systems are secure (e.g., Institute of Electrical and Electronics Engineers (IEEE) 1547.3?"

⁴⁶⁴ Institute of Electrical and Electronics Engineers (IEEE)std 1547.3-2023, IEEE Guide for Cybersecurity of Distributed Energy Resources Interconnected with Electric Power Systems, 2023.

⁴⁶⁵ The Phase 1 Primary DER Cybersecurity Requirements is a set of cybersecurity requirements that addresses some of the basic controls and is not a complete set of requirements. *SIO-CS report at page 16.*

⁴⁶⁶ The SIO-CS report provides a path to initiate development of Phase 2 Cybersecurity Requirements for the California Distribution System Operators with the initiation of a Phase 2 cybersecurity working group to build on the scope of the SIO-CS and update the Phase 1 Primary DER Cybersecurity Requirements based on input from additional sources and stakeholders. The Phase 2 DER Cybersecurity Requirements would include qualifications on where they are or are not applicable and flexibility on where they would be deployed. *SIO-CS report at page 21.*

and establishment of testing and certification programs for DER equipment and communications systems.⁴⁶⁷

The SIO-CS developed these recommendations to support the secure operationalization of smart inverters, DERMS, and related communications architectures necessary to enable firm and non-firm operating limits, Operating Envelopes, and other flexible connection solutions.⁴⁶⁸ Several of the flexible connection frameworks addressed in this decision rely upon communications pathways that extend beyond traditional distribution operations. As such, ensuring the SIO-CS work is implemented is important to the success of the processes and policies established in this decision.

The ACP, consistent with SIO-CS path F, recommends that all FSC offerings utilizing communications capabilities consider the SIO-CS phased cybersecurity requirements as the baseline cybersecurity framework for all systems larger than 1MW.⁴⁶⁹ The ACP recommendation extends to non-firm limit approaches and all FSC energization pathways that rely upon customer-owned devices, communications gateways, or Enterprise DERMS platforms. The ACP further recommends that the IOUs be required to justify any deviations from the SIO-CS recommendations through the proposed AL filing and workshop process.⁴⁷⁰ Specifically, the ACP workshop process, which acts as an abridged

⁴⁶⁷ The SIO-CS report's Path H addresses testing and certification programs, noting that testing and certification programs can be established for Phase 1 and eventually Phase 2 DER cybersecurity Requirements. *SIO-CS report at page 24.*

⁴⁶⁸ ACP at 32.

⁴⁶⁹ Smart Inverter Operationalization Cybersecurity Subgroup Working Group Report (Attachment 2):
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M532/K683/532683550.PDF>

⁴⁷⁰ ACP at 32.

version of SIO-CS path G, includes a timeline for the IOUs to host an initial workshop, serve the workshop report and initial implementation plan to the service list, host a second workshop to discuss the proposal and respond to questions, allow for informal comments to be filed, and for the IOUs to then file a Tier 2 Cybersecurity Implementation AL⁴⁷¹

As grid operations advance to better accommodate new load and generation, accelerate energization, and optimize use of existing grid assets, new devices and operations will be introduced. With these new devices and operations, it is imperative that we ensure cybersecurity is addressed to ensure the safety of the electric system.

13.1.1. Summary of Party Comments

Party comments reflect either support or qualified support for moving forward with the workshop and AL process to implement the SIO-CS cybersecurity requirements.⁴⁷²

PG&E and Cal Advocates support the ACP's proposed approach to implementing the SIO-CS recommendations.⁴⁷³

Several parties also offer qualified support for the proposal. SCE recommends developing cybersecurity requirements based on specific attributes of FSCs (e.g., resource size, operational impact, and system risk) in coordination with entities responsible for operation.⁴⁷⁴ SDG&E supports the proposal if it is sequenced in a manner so as not to be overly burdensome with the other work

⁴⁷¹ ACP at 51.

⁴⁷² ACP at 51.

⁴⁷³ PG&E Opening Comments at 16, Cal Advocates Opening Comments at 5-6.

⁴⁷⁴ SCE Opening Comments at 12.

products this decision establishes.⁴⁷⁵ Critical Loop supports the ACP recommendation as long as it does not generate blanket requirements based on customer capacity (MW).⁴⁷⁶ SPAN notes its support for following the SIO-CS Path H⁴⁷⁷. UCAN asks for clarification on the AL tier, as the proposal designates this AL as both a Tier 2 and a Tier 3 AL.⁴⁷⁸

Two parties offer qualified support with specific recommended additions to the requirements. AEU supports but adds that the Commission should direct that the resulting workshop and AL explicitly address a standardized utility neutral certification and testing pathway so that a vendor need not separately qualify with each of the three IOUs under different procedures.⁴⁷⁹ IREC adds that the Commission should clarify whether 1 MW refers to the nameplate rating, connected load, or another value.⁴⁸⁰

13.1.2. Discussion

We are persuaded that the proposed implementation process for cybersecurity standards should be adopted with modifications.

Following the workshop, the IOUs shall prepare a summary workshop report that includes an initial implementation proposal for the baseline cybersecurity framework. This baseline cybersecurity framework must include a proposal for testing and certification programs. This report will include justification for any deviations from the SIO-CS recommendations in their

⁴⁷⁵ SDG&E Opening Comments at 41.

⁴⁷⁶ Critical Loop Opening Comments at 20.

⁴⁷⁷ SPAN Opening Comments at 9.

⁴⁷⁸ UCAN Opening Comments at 42.

⁴⁷⁹ AEU Opening Comments at 13.

⁴⁸⁰ IREC Opening Comments at 33.

internal practices. Any justification for a deviation should address how the deviation will support improved security, interoperability, reliability, how it aligns with California's evolving grid modernization objectives, and how it avoids being overly restrictive to customers and third parties. This report will be served to the service lists of the following proceedings, and IOUs should allow for informal comments to be submitted from parties and staff: High DER (R.21-06-017), Transportation Electrification Policy and Infrastructure (R.23-12-018), and Interconnection, Advanced Rate Design, and Demand Response (R.25-09-004). Following the informal comment period, the IOUs should submit the workshop report, summary of informal comments, and implementation proposal, adjusted based on comments, through a Tier 2 AL.

We are persuaded by SDG&E's request that implementation of the cybersecurity recommendation should be sequenced in a manner so as not to be overly burdensome. As such we direct the IOUs to implement a modified schedule as set out in Section 16 below.

We clarify, per the comment from UCAN, that the AL is a Tier 2 AL.

SPAN's comments are addressed given the proposal is in fact following the SIO-CS Path H, which is the Commission endorsing the establishment of testing and certification programs that would meet the SIO-CS Phase 1 DER cybersecurity testing and certification needs.⁴⁸¹ The Commission endorsement testing and certification programs shall be achieved through the disposition of the joint Tier 2 Cybersecurity Implementation AL, which shall include proposals for testing and certification programs. SPAN will also have an additional

⁴⁸¹ SIO-CS Report at 24.

opportunity to comment on the Tier 2 AL that sets forth the proposals for testing and certification.

We are persuaded by AEU's recommendation that the workshop and AL should address a standardized utility neutral certification and testing pathway so that a vendor need not separately qualify with each utility under different procedures. This falls in line with Path H of the SIO-CS report, which is the path we aim for the utilities to pursue. Further, no party objected to AEU's recommendation in reply comments.

Per IREC's comments we clarify that the 1MW refers to the site demand load. However, this can be further addressed and modified, if necessary, through the workshop and through the AL filing to implement the cybersecurity requirements.

We are not persuaded by SCE's recommendation that this decision should base cybersecurity requirements upon specific attributes of FSCs but recommend that the workshop and AL process can be a venue for SCE to coordinate with the entities responsible for operation to inform their AL implementation plan.

While we understand Critical Loop's concern about blanket requirements based on capacity, we find that the language in the ACP, which this decision adopts, to be sufficient for avoiding burdensome requirements. Specifically, we direct the IOUs in their joint Tier 2 Cybersecurity AL to include justification for any deviations from the SIO-CS recommendations in their internal practices. In any justification for a deviation, the IOUs shall address how the deviation will support improved security, interoperability, or reliability, how it aligns with California's evolving grid modernization objectives, and how it avoids being overly restrictive to customers and third parties.

14. Data Reporting and Affordability Tracking Related to Flexible Connections

Parties addressed the topic of new data reporting and affordability tracking requirements for the IOUs related to FSC implementation and the associated effects on operational performance, costs, benefits, and affordability considerations, in response to the following question from the July 2026 ACP

Ruling:

“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?”

14.1. Summary of Party Comments

While SDG&E does not recommend any additional reporting metrics beyond what the IOUs already report,⁴⁸² SCE and PG&E each propose additional reporting metrics. SCE suggests that it build on the reporting framework developed through its LCMS pilot, and that the reporting framework focus on:

- Customer benefits, including customers served and reduction in energization timelines;
- Grid utilization benefits, including capacity enabled;
- Operational performance, including compliance with operating limits and reliability of control and communications systems;
- Affordability metrics including implementation costs and deferred/avoided infrastructure investment benefits.⁴⁸³

⁴⁸² SDG&E Opening Comments at 50-51.

⁴⁸³ SCE Opening Comments at 16.

For non-bridging solutions, SCE recommends that reporting should include participation persistence, long-term operational performance, and demonstrated deferral value.⁴⁸⁴

PG&E recommends that the following be considered in measuring, tracking, and reporting cost and benefit metrics:

- Net ratepayer benefits;
- No new or increased cost shifts;
- All avoided costs should be verifiable, measurable and realized; and
- No double compensation.

PG&E also recommends that any financial tracking be done in the GRC, but would like to track costs related to FSC in the Distributed Energy Resources Distribution Deferral Account (DERDDA) memorandum account.⁴⁸⁵ In response to PG&E's recommendation to track costs in the DERDDA memorandum account, Cal Advocates argues that costs tied to this proposal should not be tracked there. Cal Advocates recommends that the Commission not authorize new or expanded memorandum accounts, balancing accounts or AL cost recovery pathways for FSC implementation.⁴⁸⁶

Cal Advocates recommends applying the reporting and cost-efficiency framework established by D.26-02-025⁴⁸⁷ to several ACP recommendations.⁴⁸⁸ Specifically, Cal Advocates recommends applying this cost and efficiency

⁴⁸⁴ SCE Opening Comments at 16.

⁴⁸⁵ PG&E Opening Comments at 31-33.

⁴⁸⁶ Cal Advocates Reply Comments at 2-3.

⁴⁸⁷ D.26-02-025, Decision Establishing a Standard Offer for Flexible Service Connections (Order Instituting Rulemaking to Establish Energization Timelines).

⁴⁸⁸ Cal Advocates Opening Comments at 17 and 19.

framework to ACP Section 3, ACP Recommendation 4 (Flexible Connection Evaluation Requirements), Section 4, ACP Recommendation 1 (IOUs Provide Limited Power Arrangement as Default Mitigation for Distribution Transformer Upgrades), and ACP Section 6, Recommendations 1-4 to compare these non-bridging FSCs against wires upgrades.⁴⁸⁹ Cal Advocates also recommends the Commission evaluate technology-intensive recommendations before deployment or scaling.⁴⁹⁰

Further, Cal Advocates recommends that development of VOE programs should also track:

- Capacity and hourly energy available under the variable operating profile;
- Customers' actual hourly consumption;
- Capacity and energy that would have been available under a lower-cost static limit; and
- The incremental utility and customer costs required to provide the variable profile.

Cal Advocates argues that this will allow for future analysis on cost-effectiveness.⁴⁹¹

In response to Cal Advocates' comments, "PG&E recommends that affordability considerations and outcomes be used in developing a valuation framework for non-bridging projects, rather than creating a DIDF-like set of reporting requirements that are only theoretical."⁴⁹²

⁴⁸⁹ Cal Advocates Opening Comments at 17.

⁴⁹⁰ Cal Advocates Opening Comments at 19.

⁴⁹¹ Cal Advocates Opening Comments at 16-17.

⁴⁹² PG&E Reply Comments at 13-14.

AEU comments that tracking for all FSC types should include by service-provider type: 1) number of customers, 2) certification, or interoperability testing costs and timelines experienced by third party aggregators and vendors, and 3) cost benchmarks.⁴⁹³

CALSSA recommends that IOUs submit quarterly reports that include the number of load customers that have chosen to use flexible connections, broken down by the type of flexible connection the load customer selected, as well as capacity enabled.⁴⁹⁴

CalCCA recommends looking at the UK's RIIO Electricity Distribution Price Control (ED3) framework (RIIO-ED3).⁴⁹⁵

Terawatt comments that "[f]or Limited Power arrangements specifically, Terawatt recommends that IOUs track and report the type of control technology deployed (*e.g.*, UL 3141-certified device, programmable relay, customer self-managed PCS with energy management software, or bus-bar-level equipment), the associated customer cost by technology type, and the incidence of any protective equipment trips or unplanned isolation events."⁴⁹⁶

UCAN proposes the following four categories of tracking: 1) utilization and service metrics, 2) financial metrics, 3) planning metrics, and 4) customer protection metrics.⁴⁹⁷

Critical Loop suggests the following be tracked in response to the ruling question: 1) time and certainty: compliance with the 30-day, 15 day, and

⁴⁹³ AEU Opening Comments at 18

⁴⁹⁴ CALSSA Opening Comments at 11.

⁴⁹⁵ CalCCA Opening Comments at 11-14.

⁴⁹⁶ Terawatt Opening Comments at 11.

⁴⁹⁷ UCAN Opening Comments at 32-33.

preliminary capacity assessment clocks; 2) capacity quality and use; 3) system economics and compensation: the counterfactual upgrade and payer classification.⁴⁹⁸

14.2. Discussion

Party comments highlight two distinct recommendations – 1) data reporting to track FSC implementation and affordability considerations, and 2) the development of a valuation framework to measure when an FSC should be used and how the costs and benefits compare to traditional wires solutions. While these two outcomes are related, as data reporting is essential to any valuation framework, we address them separately.

14.2.1. Data Reporting

We first address the recommendations related to data reporting to track FSC implementation and affordability considerations. We agree with the many parties that recommend additional reporting as necessary, in particular to track how implementation of the solutions this decision directs impact affordability. As such we reject SDG&E's argument that no additional reporting metrics are needed.

We find Cal Advocates' recommendation that development of VOE programs should also track the following to be reasonable: 1) capacity and hourly energy available under the variable operating envelope; 2) customer's actual hourly consumption; and 4) the incremental utility and customer costs required to provide the variable profile. We agree with Cal Advocates that this data will support future cost-effectiveness analysis. However, we find Cal Advocates' recommendation to track capacity and energy that would have been

⁴⁹⁸ Critical Loop Opening Comments at 26.

available under a lower cost static limit to likely be challenging to track and burdensome for IOUs to report. We therefore decline to require this reporting at this time.

We find AEU's recommendations to track the number of customers for all FSC types to be reasonable, but find their recommendation to track certification, or interoperability testing costs and timelines experienced by third-party aggregators and vendors; and cost benchmarks to be overly burdensome.

We find CALSSA's recommendation that IOUs report on the number of load customers that have chosen to use flexible connections, broken down by the type of flexible connection the load customer selected, as well as the capacity enabled, to be reasonable. However, we do not find quarterly reporting, per their comment, necessary at this time. We instead seek to create reporting efficiencies, leveraging existing utility reporting processes, to the extent feasible. This is further discussed below.

Terawatt's recommendation that for Limited Power arrangements IOUs track and report the type of control technology deployed, the associated customer cost by technology type, and the incidence of any protective equipment trips or unplanned isolation events is also reasonable. However, we understand that some of this information may not be readily available to the utility. As such we direct that the IOUs to track this information to the extent feasible.

We agree with UCAN that a standardized set of metrics be reported for all FSC types across all the IOUs, and address this through the adoption of Appendix D, which aims to track quantitative data on cost, implementation, and affordability.

SCE provides several recommendations for reporting. We find the following to be reasonable:

- Customer benefits, including customers served and reduction in energization timelines.
- Grid utilization benefits, including capacity enabled, operational performance, including compliance with operating limits and reliability of systems.

We find the other metrics SCE proposed, including affordability metrics related to deferrals and avoided infrastructure and evaluation of participation persistence and other metrics for non-bridging, to be more applicable to a valuation framework.

We decline to adopt Critical Loop's recommendation to track compliance with the 30-day, 15-day, and preliminary capacity assessment clocks, as these metrics are better suited to be addressed in the context of energization timelines. We additionally decline to direct reporting on system economics and compensation, as this decision does not direct any compensation. Lastly, we decline to direct reporting on capacity quality as it is not clear how this would be measured. We do, however, find it reasonable to track Critical Loop's recommendation of capacity use, as this will help in understanding whether the FSC serves customers' needs.

For these reasons, we direct the IOUs to track and report all of the requirements outlined in Appendix D.

To avoid adding unnecessary administrative burden, we direct the IOUs to report this data as part of their GNA/DUPR. This will additionally ensure that this data is reviewed annually as part of the DPEP process.

In addition to the GNA/DUPR reporting, we reiterate our direction for SDG&E to submit reporting related to their Standard Offer through the biannual energization reporting pathway established in D.24-09-020 OP 18 and consistent with the data fields required for reporting by D.26-02-025 OP 5. This will help to

streamline review of this data along with the Standard Offer data for SCE and PG&E.

While the reporting discussed in this section and Appendix D represent a good starting point to further our understanding and evaluation of the performance and affordability implications for FSCs, we acknowledge that data needs may evolve over time. As such we authorize Energy Division staff to modify the tracked fields as necessary to monitor the performance, costs, or benefits of FSCs. Before modifying the reporting requirements, Energy Division staff must first discuss the modifications and seek feedback at the DPAG meetings. Following this discussion, Energy Division must notify the service list of this proceeding, the Energization OIR, and any successor proceeding(s) of any changes.

14.2.2. Valuation Framework

This section addresses establishing a valuation framework. PG&E advocates for affordability considerations and outcomes to be used in developing a valuation framework for non-bridging projects. SCE recommends tracking affordability metrics and evaluating certain metrics related to deferral and performance of non-bridging projects. Cal Advocates recommends non-bridging FSCs be evaluated against the wires upgrades they are intended to replace. We also note CalCCA's recommendation to look at the UK's RIIO-ED3. While we see value in establishing a process to compare outcomes from traditional approaches to infrastructure upgrade with FSC, we do not find the record in this proceeding to be sufficient to establish such a methodology.

Establishing a valuation methodology, if done well, can provide a meaningful tool for evaluating policy outcomes and affordability impacts. However, there is also the potential that a hastily developed valuation

methodology does not appropriately capture all relevant costs and benefits. As such, we decline to adopt a valuation methodology in this decision. However, this decision adopts reporting requirements that are meant to gather data that could in the future inform the development of a valuation framework by the Commission in a future proceeding.

14.2.3. DERDDA Memorandum Account

PG&E recommends that the Commission authorize the utility to track costs related to the FSC in the DERDDA Memorandum Account. Cal Advocates and SBUA oppose this recommendation. Both Cal Advocates and SBUA caution against additional or expanded cost recovery stemming from this decision. We agree with Cal Advocates and SBUA that no additional cost recovery should be authorized in this decision. The record in this proceeding does not reflect a fulsome discussion on possible cost recovery pathways. As such, any new authorization of cost recovery here risks failing to account for prior authorizations for related spending. The IOUs should not use the DERDDA Memorandum account for activities ordered in this decision. The IOUs retain the ability to request any relevant cost recovery through their GRCs.

15. Sunsetting or Modifying Legacy Deferral Reporting Requirements

In D.24-10-030, the Commission eliminated Distribution Investment Deferral Framework (DIDF) solicitations and refocused the overall framework from investment deferral to facilitating transparency in the Distribution Planning and Execution Process (DPEP).¹ In doing so, the Commission discontinued the annual DIDF Reform Ruling process, through which incremental adjustments were historically implemented through an annual ruling.²

Several deferral reporting requirements originally established across DIDF Reform Rulings may have become outdated and are still reported in Grid Needs

Assessments (GNA) and Distribution Upgrade Project Reports (DUPR). As this decision will close the R.21-06-017 proceeding, we address how to update potentially outdated deferral related reporting requirements in the DPEP process.

We authorize the IOUs to submit an annual joint Tier 2 AL to propose sunseting or modifying outdated deferral-specific reporting requirements either in whole or in part. If filed, the annual Tier 2 AL must be filed in the first quarter of the year to allow time to be processed and effective for proximate annual GNA/DUPR filing in August.

All Tier 2 ALs submitted pursuant to this directive must:

- a. Identify the specific ruling, decision, or OP establishing the deferral-related reporting requirement;
- b. Provide a clear justification demonstrating: (a) the identified reporting requirement was adopted exclusively to support third-party deferral solicitations suspended by D.24-10-030; (b) subsequent filings would yield identical entries due to the absence of active or pending deferral solicitation; and (3) the filing does not provide information relevant to the revised DPEP framework; and
- c. Propose whether the requirement should be retired as a whole or modified in part to retire the portion that satisfies all criteria above.

16. Timing of Implementation Steps

This section of the decision sets forth the timing and the next steps for implementing this decision, including all of the workshops, ALs, and reports this decision orders.

The party comments on the proposed schedule in the ACP made it clear that the substantial work required to implement the proposed changes would require more time than the ACP anticipated. Accordingly, this decision adopts

the schedule below to balance the need for additional time to implement this decision with the importance of making prompt progress on these issues.

As discussed throughout this decision, there will be several additional reports and workshops meant to inform stakeholder discussion, IOU implementation, and IOU AL filings. The reports, workshops, and advice letters are summarized in the tables below.

Table 2: Advice Letter Timeline

Advice Letter Name	Designated IOUs	Deadline
HDER FSC Implementation ALs (Tier 3)	PG&E, SCE, SDG&E	120 days after issuance of decision
SDG&E Standard Offer AL (Tier 2)	SDG&E	75 days from the disposition of PG&E and SCE's joint AL establishing a tariffed Standard Offering Flexible Service Connection Form Agreement
Limited Power ALs (Tier 1)	PG&E, SCE, SDG&E	45 days after issuance of decision
PG&E Flex Connect AL (Tier 2)	PG&E	120 days after issuance of decision
SCE and SDG&E Flex Connect ALs (Tier 2)	SCE, SDG&E	1 year after issuance of decision
PG&E Grid Edge DERMS AL (Tier 2)	PG&E	13 months after issuance of decision
Grid Edge DERMS AL (Tier 2)	SCE, SDG&E	15 months after issuance of decision
Joint Cybersecurity AL (Tier 2)	PG&E, SCE, SDG&E	60 days after party comment on cybersecurity workshop report
Persistent Non-Bridging Solutions AL (Tier 2)	PG&E, SCE, SDG&E	90 days after disposition of respective HDER FSC Implementation AL

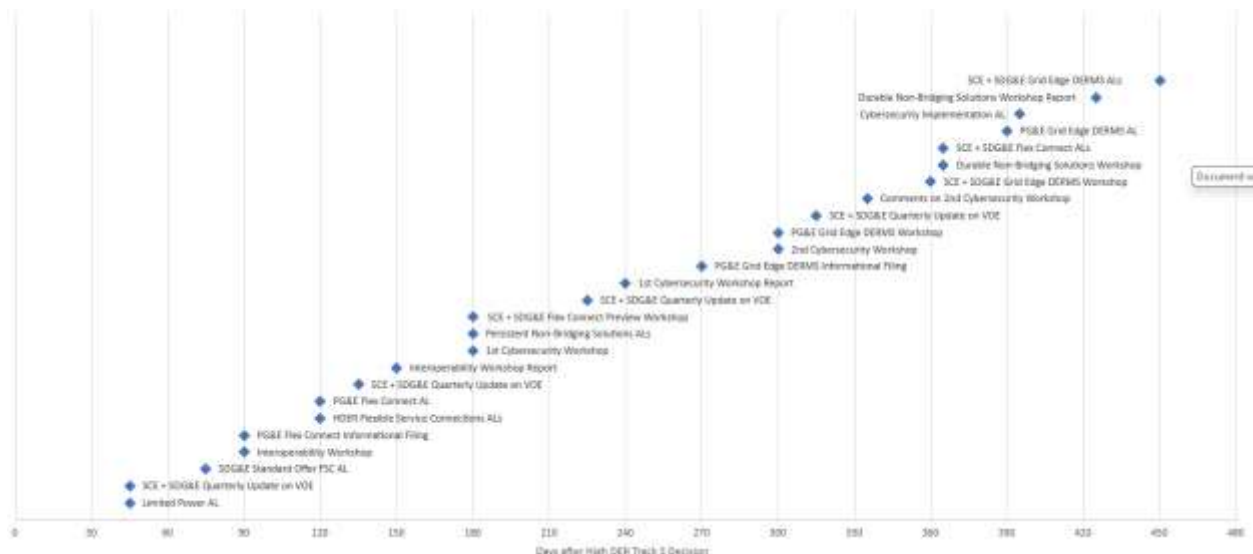
Table 3: Workshops and Reports Timing

Workshop or Report Topic	Designated IOUs	Timing
Flex Connect Quarterly Reports to Energy Division	SCE, SDG&E	45 days after issuance of Decision through disposition of Flex Connect ALs
Flex Connect Preview Workshop	SCE, SDG&E (joint)	180 days after issuance of Decision
PG&E Flex Connect Informational Report	PG&E	90 days after issuance of Decision

PG&E Grid Edge DERMS Informational Report	PG&E	9 months after issuance of Decision
1 st Grid Edge DERMS Workshop	PG&E	10 months after issuance of Decision
2 nd Grid Edge DERMS Workshop	SCE, SDG&E (joint)	12 months after issuance of Decision
1 st Cybersecurity Workshop	PG&E, SCE, SDG&E (joint)	180 days after issuance of Decision
Cybersecurity Workshop Report	PG&E, SCE, SDG&E (joint)	60 days after 1 st Cybersecurity Workshop
2 nd Cybersecurity Workshop	PG&E, SCE, SDG&E (joint)	60 days after Cybersecurity Workshop report (comments within 35 days)
Durable Non-Bridging Solutions Workshop(s)	PG&E, SCE, SDGE (joint)	1 year after issuance of Decision
Durable Non-Bridging Solutions Workshop Report	PG&E, SCE (joint)	60 days after conclusion of workshop(s)
Customer Choice and Interoperability Workshop	PG&E, SCE, SDG&E (joint)	90 days after issuance of Decision

The full implementation timeline, inclusive of the workshops, reports, and AL requirements are reflected in the following figure.

Figure 1: Decision Implementation Timeline



17. Summary of Public Comment

Rule 1.18 allows any member of the public to submit written comment in any Commission proceeding using the “Public Comment” tab of the online Docket Card for that proceeding on the Commission’s website. Rule 1.18(b) requires that relevant written comment submitted in a proceeding be summarized in the final decision issued in that proceeding. One public comment was filed that is relevant to this decision. The public comment urged the Commission to support faster energization of housing.

18. Procedural Matters

This decision affirms all rulings made by the Administrative Law Judge and assigned Commissioner in this proceeding. All motions not ruled on are deemed denied.

19. Comments on Proposed Decision

The proposed decision of Commissioner Darcie L. Houck in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission’s Rules of

Practice and Procedure. Comments were filed on _____, and reply comments were filed on _____ by _____.

20. Assignment of Proceeding

Darcie L. Houck is the assigned Commissioner, and Justin Regnier and Jack Chang are the assigned Administrative Law Judges in this proceeding.

Findings of Fact

1. Grid mitigations are characterized by being minor in nature, are historically performed within months, and are expected to cost in the range of thousands to tens of thousands of dollars.
2. Grid upgrades require significant design and procurement, take several months to years in advance to implement, and could cost hundreds of thousands to millions of dollars to implement.
3. FSC mitigations that defer grid upgrades, while maintaining both safety and reliability, support affordability.
4. Some customers who are eligible for an FSC option would prefer to decline.
5. FSC offerings are contingent on factors besides customer willingness to participate (e.g., size, secondary infrastructure, EV charging, etc.).
6. Some customers will not have a realistic opportunity to use an FSC mitigation to defer or avoid an upgrade.
7. IOUs have historically used mitigations to allow for full capacity (e.g., switching phase, voltage regulation, etc.).
8. Customers may have more than one feasible FSC mitigation.
9. Limited Power, SOEs, VOEs, and DOEs represent a continuum of increasing operational sophistication that enables progressively greater utilization of distribution infrastructure.

10. No currently offered IOU flexible connection requires the use of a UL 3141 certified PCS.
11. A flexible connection is appropriate where the customer agrees to the terms of service.
12. PG&E and SCE both used the term “Load Determination Process” to define the process used to determine demand load.
13. PG&E’s Rule 2 Section F.2 uses IEEE 519 standard to define Harmful Waveform, and SCE and SDG&E do not explicitly use this standard in their Rule 2.
14. Gendered language is currently present within SCE and SDG&E’s Rule 2.
15. The IOUs Rule 2 language currently places the responsibility to avoid intolerable or detrimental voltage fluctuation on the customer but does not provide any criteria defining that fluctuation.
16. PG&E and SCE’s Joint Standard Offer AL provided a defined term for the process to determine demand load.
17. There may be confusion as to the control point of the PCS.
18. The customer’s decision whether to self-manage Limited Power and what equipment to place within a PCS relies on an understanding of their current demand relative to the IOUs’ forecast demand load.
19. Each IOU already maintains an “Authorization to Receive Customer Information or Act on a Customer’s Behalf” (CISR) form.
20. SDG&E’s distribution design manual provides both power per square foot values and demand factors that can be applied to nameplate values to provide a better indicator of equipment load values.
21. There are existing Flexible Generation Connection offerings for SOEs and VOEs.

22. There are no proposals for a Flexible Generation Connection DOE offering.
23. Upgrades triggered by photovoltaic generation systems smaller than one megawatt are ratepayer funded.
24. PG&E and SCE filed a joint AL to implement flexible connection Standard Offers in compliance with D.26-02-025.
25. SDG&E does not currently have a Standard Offer, and the Commission has not previously directed SDG&E to establish one.
26. A preliminary capacity assessment, sometimes referred to as a “power check” or Step 0 of the energization process, refers to an estimate of capacity provided prior to a customer application.
27. A preliminary capacity assessment is not required unless requested by a customer, and the customer bears the cost associated with the assessment.
28. D.26-02-025 Ordering Paragraph 7 states that “Pacific Gas and Electric Company and Southern California Edison Company shall file, no later than 75 days from the issuance of this decision, a Tier 2 advice letter formalizing their preliminary capacity assessment offerings as directed in Section Ten of this decision.”
29. There is ratepayer benefit to SDG&E implementing a Standard Offer and preliminary capacity assessment.
30. SCE has implemented the necessary SCADA functionality to inform the forecasts needed for a VOE, and Phase 2 of its Grid Management System will provide short-term forecasting for both load and generation no later than 2027.
31. SDG&E’s technology readiness is in a different state than both SCE and PG&E, including its ability to establish site telemetry which does not rely upon IEEE 2030.5.

32. Using a consistent interoperability testing and certification procedure would avoid redundant vendor qualification processes.

33. PG&E's Flex Connect can determine when abnormal conditions are experienced and quickly send an affected site updated capacity limits.

34. PG&E has safely and reliably administered variable limits utilizing technical capabilities described in its Op Flex Report and Customer-Owned Telemetry Procedure.

35. D.26-02-025 established requirements for treatment of UL 3141 PCS for use in PG&E and SCE's Standard Offer.

36. PG&E's Flex Connect offers a non-bridging version to generation customers.

37. There are many policies issues yet to be addressed regarding implementation of durable non-bridging solutions.

38. The ChargeBoost pilot delivers basic charging arrangements that allow the deferral or avoidance of secondary transformer upgrades driven by EV charging.

39. The ChargeBoost pilot is currently in early deployment stages.

40. The record does not show whether SCE and SDG&E can implement comparable Grid Edge DERMS approaches to PG&E on the timeline the ACP recommends.

41. Access to both customer equipment and distribution system information may affect competition and customer choice.

42. Default enrollment in real-time or dynamic pricing rates for FSC customers may deter customers who would otherwise be interested in taking service under an FSC offering at this time.

43. Tracking dynamic rate enrollment data could help the Commission better understand what types of FSC customers may be more likely to take advantage of dynamic rates.

44. With these new devices and operations, it is imperative that the Commission ensure cybersecurity is addressed to ensure the safety of the electric system.

45. Data tracking FSC implementation and affordability considerations can help the Commission evaluate how FSC implementation directly impacts ratepayer affordability.

46. Future cost-effectiveness analysis can benefit from VOE programs tracking capacity and hourly energy available under the variable operating profile, customers' actual hourly consumption, and the incremental utility and customer costs required to provide the variable profile.

47. FSC program development can benefit from tracking the number of customers for all FSC service-provider types, certification or interoperability testing costs, timelines experienced by third-party aggregators and vendors, and cost benchmarks.

48. Tracking capacity use will help the Commission understand whether the FSC is serving the customer's needs.

49. A hastily developed valuation methodology may not appropriately capture all relevant costs and benefits.

50. The activities resulting from adoption of this decision are not covered within the DERDDA memorandum account.

51. The IOUs retain the ability to request any relevant cost recovery through their GRCs.

52. D.24-10-030 eliminated Distribution Investment Deferral Framework (DIDF) solicitations, refocused the overall framework from investment deferral to facilitating transparency in the Distribution Planning and Execution Process, renamed the Distribution Deferral Opportunity Report to the Distribution Upgrade Project Report, and ended the annual DIDF Reform ruling process.

53. Several deferral reporting requirements originally established across DIDF Reform Rulings for the Grid Needs Assessment and Distribution Upgrade Project Reports may be irrelevant to the revised Distribution Planning and Execution Process framework.

Conclusions of Law

1. It is reasonable to adopt FSC mitigations that defer upgrades while maintaining both safety and reliability.
2. It is reasonable to direct PG&E, SCE, and SDG&E to provide customers with the opportunity to indicate interest in flexible connection offerings within their energization application forms.
3. It is reasonable for IOUs to prioritize the flexible connection offering that is most likely to provide the greatest ratepayer benefit when more than one offering may be appropriate for a particular customer.
4. It is reasonable to direct PG&E, SCE, and SDG&E to provide customers with relevant information on factors affecting their suitability for flexible connection offerings.
5. It is reasonable to direct PG&E, SCE, and SDG&E to establish transparent criteria to reduce the scope of customers who receive a flexible connection evaluation prior to an upgrade as some customers do not have a realistic opportunity to defer or avoid an upgrade.

6. It is reasonable to direct PG&E, SCE, and SDG&E, when applicable, to notify the customer and present the specific reason that a flexible connection is not a realistic opportunity to defer or avoid an upgrade at the conclusion of the Engineering and Design phase of energization.

7. It is reasonable for PG&E, SCE, and SDG&E to use another mitigation besides a flexible connection if it is able to provide the customer with full capacity or is more cost-effective than the flexible connection mitigation.

8. It is reasonable to direct the IOUs to not require any customer to accept an FSC offering at this time; no FSC shall be implemented unless and until the customer agrees to such an offering and the terms of the offering.

9. It is reasonable to allow customers and IOUs to utilize either certified UL 3141 PCS or other technical means under mutual agreement for flexible connections offered by IOUs.

10. It is reasonable for PG&E, SCE, and SDG&E to establish that a UL 3141 certified PCS should be a presumptively accepted flexible connection option.

11. It is reasonable to modify the Rule 2 language to clarify that the PCS control point is the point of common coupling.

12. It is reasonable to specify and define the Load Determination Process within Rule 2.

13. It is reasonable to use PG&E's Rule 2 Section F.2 definition of Harmful Waveform.

14. It is reasonable to remove gendered language in Rule 2.

15. It is reasonable for the IOUs' Rule 2 to provide criteria defining intolerable or detrimental voltage fluctuations.

16. It is reasonable for a customer to calculate their own demand load, absent information from the IOU.

17. It is reasonable for an IOU to provide the following information to a customer upon request, and retain it once provided: demand load, metered demand, secondary transformer capacity, capacity limiting factor, and service conductor capacity.

18. It is reasonable for an authorized third party to request and receive the following information on behalf of a customer, utilizing the IOUs' existing "Authorization to Receive Customer Information or Act on a Customer's Behalf" form: demand load, metered demand, secondary transformer capacity, capacity limiting factor, and service conductor capacity.

19. It is reasonable to direct SDG&E to establish a Standard Offer consistent with the direction the Commission provided PG&E and SCE in D.26-02-025.

20. It is reasonable to allow SDG&E more time to file its Standard Offer AL than was provided to PG&E and SCE to file the AL that establishes their Standard Offer Flexible Service Connection Form Agreement.

21. It is reasonable to direct SDG&E to model its Standard Offer AL upon PG&E and SCE's Standard Offers the Commission directed in D.26-02-025.

22. It is reasonable to direct SDG&E to utilize overload standards that are based upon emergency ratings for its Standard Offer equipment ratings.

23. It is reasonable to direct SDG&E to establish a preliminary capacity assessment, consistent with the Commission's direction to SCE and PG&E in D.26-02-025.

24. It is reasonable to align the period for formalization of SDG&E's preliminary capacity assessment with that of the Standard Offer.

25. It is reasonable to direct SCE and SDG&E to implement a VOE offering modeled off of PG&E's Flex Connect.

26. It is reasonable, based on technology readiness, for SCE to propose VOE offering modeled off PG&E's Flex Connect.

27. It is reasonable, based on technology readiness, for SDG&E to propose a proof-of-concept of a VOE offering modeled off PG&E's Flex Connect.

28. It is reasonable to direct the IOUs to hold a joint workshop on consistent interoperability testing and certification procedures and implement a consistent interoperability testing and certification procedure that incorporates input from the workshop.

29. It is reasonable for PG&E, SCE, and SDG&E to leverage the technical capabilities described in PG&E's Op Flex Report and Customer-Owned Telemetry Procedure to provide updated capacity limits to customers during abnormal grid conditions.

30. It is reasonable to direct PG&E, SCE, and SDG&E to establish a persistent non-bridging version of the Standard Offer.

31. Current customers utilizing bridging solutions should have the ability to elect to take service under their current terms without triggering an upgrade, as a persistent non-bridging solution.

32. It is reasonable to direct the IOUs to maintain the Standard Offer's requirement of a tariffed form agreement and treatment of UL 3141 PCS in their implementation of the Non-Bridging Standard Offer.

33. It is reasonable to direct PG&E to formalize its Flex Connect offering and expand its non-bridging generation offering to load customers.

34. It is reasonable to direct PG&E and SCE to solicit further feedback on durable non-bridging solution details discussed in party comments.

35. It is reasonable for the IOUs to consider both ChargeBoost and PanelBoost with Grid Edge DERMS offerings.

36. It is reasonable to direct PG&E to propose a scaling of its ChargeBoost and PanelBoost pilots.

37. It is reasonable to direct SCE and SDG&E to propose incremental deployments modeled off ChargeBoost and PanelBoost.

38. It is reasonable for ED staff to evaluate PG&E, SCE, and SDG&E's Grid Edge DERMS proposals based on current or expected net ratepayer savings.

39. It is reasonable for the IOUs to host a joint workshop to discuss with stakeholders how access to both customer equipment and distribution system information may affect competition and customer choice.

40. The IOUs should share real-time pricing rate options with FSC customers, as well as estimated bill comparisons.

41. The IOUs should develop informational materials available online to be shared with all FSC customers at the time of enrollment to introduce customers to the potential synergies between the use of FSC and dynamic rates.

42. The IOUs should include minimum data tracking requirements in their Tier 2 HDER FSC Implementation AL.

43. The IOUs should prepare a summary workshop report that includes an initial implementation proposal for a baseline cybersecurity framework and testing and certification programs.

44. The IOUs should track and report the number of customers for all FSC service-provider types, certification or interoperability testing costs, timelines experienced by third-party aggregators and vendors, and cost benchmarks.

45. The IOUs should track and report a standardized set of metrics for all FSC types across all the IOUs in accordance with Appendix D, which includes quantitative data on cost, implementation, and affordability.

46. Energy Division staff should be allowed to modify the IOUs' data reporting tracked fields as necessary, after consultation with DPAG, and should notify the service list of this proceeding, the Energization OIR, and any successor proceeding(s) of any changes to tracked fields.

47. No additional cost recovery should be authorized in this decision.

48. It is reasonable to authorize the IOUs to submit an annual joint Tier 2 AL in the first quarter proposing to sunset or modify, in whole or in part, deferral-related reporting requirements that: (1) were adopted exclusively to support deferral solicitations suspended by D.24-10-030; (2) would yield identical filings due to the absence of active or pending deferral; and (3) the filing does not provide information relevant to the revised DPEP framework.

49. It is reasonable to affirm all rulings issued by the assigned Commissioner or ALJ and to deem denied all motions not ruled upon in this proceeding.

50. It is reasonable to close this proceeding.

O R D E R

IT IS ORDERED that:

1. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company shall each file a Tier 3 Advice Letter (AL) addressing implementation of flexible connections (High Distributed Energy Resources Flexible Service Connection Implementation AL) within 120 days of the issuance of this decision. The High Distributed Energy Resources Flexible Service Connection Implementation ALs must include all of the information in Appendix A.

2. Following approval of the High Distributed Energy Resources Flexible Service Connection Implementation Advice Letters from Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric

Company (together, the IOUs), each IOU shall provide updates to the flexible connection evaluation process through the annual Distribution Planning Process.

3. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall each file a Tier 1 Advice Letter (AL) enabling Limited Power flexible connections (Limited Power AL) through updates to their Electric Rule 2 and 3 within 45 days after issuance of this decision. The Limited Power AL shall include the following Electric Rule updates:

- (a) The Limited Power AL shall update Electric Rule 2 to include the terms defined in Appendix B, the section describing controlled load in Appendix C, to adopt Institute of Electrical and Electronics Engineers (IEEE) Standard 519 as the definition for the harmonics comprising harmful waveform, to adopt IEEE Standard 1453 as the standard for limits on voltage fluctuations, and to excise gendered language from the Electric Rule 2 text.
- (b) This decision supersedes the direction given in Ordering Paragraph 2 of D.26-02-025 by allowing each IOU discretion to add the controlled load definition to the most appropriate section of its Electric Rule 2, and to modify its Electric Rule 3 language to point to the section of Electric Rule 2 that houses the controlled load definition.
- (c) The IOUs shall each include, as an appendix to the Limited Power AL, the full set of demand factor tables by equipment class, diversity schedules by customer count, demand per square foot values for each climate zone, and method selection rules available to its internal engineers.
- (d) If there is a need for divergence between the IOUs in the values, schedules, factors, or selection rules provided, the IOUs shall each provide, within the body of its Limited Power AL, a description and justification for any proposed divergence between their service territories.

4. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall each serve a notice to the service list of this proceeding within 60 days of the issuance of this decision that it has implemented the following requirements. The utility will provide the following data fields to customers or authorized third parties within 30 days of a request: demand load, metered demand, secondary transformer capacity, capacity limiting factor, and service conductor capacity. The IOUs shall each add information to their websites detailing the data fields they will provide upon request and allowing customers the ability to enter account information, authorize any additional party that should receive this data upon their behalf, and make an existing service data request. Within 30 days of a valid request the IOUs must either provide the customer and any authorized third-party the data or confirmation the data is unavailable for each field. The IOUs shall maintain this data internally.

5. San Diego Gas & Electric Company (SDG&E) shall file a Tier 2 Advice Letter to establish a tariffed Standard Offering for Flexible Service Connection Form Agreement (SDG&E Standard Offer AL) and may file a Tier 2 Advice Letter to modify the Standard Form Agreement as necessary consistent with Decision (D.) 26-02-025. SDG&E shall file the SDG&E Standard Offer Advice Letter within 75 days after the disposition of the joint Advice Letter from Pacific Gas and Electric Company and Southern California Edison Company establishing a tariffed Standard Offering Flexible Service Connection Form Agreement (Southern California Edison Advice Letter 5790-E/Pacific Gas and Electric Company Advice Letter 7868-E) in compliance with D.26-02-025. The SDG&E Standard Offer AL shall include the following:

- (a) All the required components for the tariffed Standard Offer for Flexible Service Connections, as outlined in Appendix F, consistent with D.26-02-025.
- (b) Proposal to formalize a preliminary capacity assessment by providing a standardized form for collecting the required customer information and a standardized preliminary capacity assessment report. SDG&E must describe any current preliminary capacity assessment process, provide the name of its assessment process, describe the analysis this process performs to arrive at a capacity estimate, and provide the historical average cost to the customer for performing these assessments. The proposed preliminary capacity assessment timeline must meet the target timeline of 30 days from when SDG&E receives a request for a preliminary capacity assessment until it provides the customer with the results. SDG&E should align its offering with that of Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) to the extent practicable, and shall articulate the rationale for any divergence in its approach. SDG&E shall align the format of its Advice Letter with SCE and PG&E to allow comparing.

6. San Diego Gas & Electric Company (SDG&E) shall file, in this proceeding, Rulemaking 24-01-018, and any successor proceedings, by January 15, 2029 a report summarizing the costs, additional energy consumption enabled, assessment of the Standard Offer Static Flexible Service Connection's cost efficiency, and a quantitative assessment of the effect the Standard Offer has had upon its revenue requirement. This is consistent with Decision 26-02-025 Ordering Paragraph 4.

7. San Diego Gas & Electric Company (SDG&E) shall report on Standard Offer Flexible Service Connections data, as listed in Appendix F to this decision. SDG&E shall additionally work with Energy Division to identify the appropriate date fields, consistent with those that Southern California Edison Company and

Pacific Gas and Electric Company are reporting, and propose their reporting as part of the SDG&E Standard Offer Advice Letter. This is consistent with Decision 26-02-025 Ordering Paragraph 5. This data shall be reported through the biannual reports that the Commission directed in Decision 24-09-020, starting with the first reporting deadline after the disposition of SDG&E's Standard Offer Advice Letter.

8. Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E) shall develop Variable Operating Envelope offerings based off Pacific Gas and Electric Company's (PG&E) Flex Connect offering. SCE shall develop an offering that aligns with PG&E's Flex Connect, and SDG&E shall initially develop a proof-of-concept. Within 180 days of the issuance of this decision, SCE and SDG&E shall hold a joint preview workshop to present their initial proposals for this offering and receive input from stakeholders. SCE and SDG&E shall additionally provide quarterly updates to Energy Division staff, starting 45 days after issuance of this decision until the disposition of their Flex Connect Advice Letters. SCE shall file a Tier 2 Advice Letter and SDG&E shall file a Tier 3 Advice Letter to propose their Variable Operating Envelope offering within one year of the issuance of this decision (Flex Connect Advice Letters).

The Flex Connect Advice Letters must include the following:

- (a) SCE's AL shall align with PG&E's Flex Connect implementation including both a Flex Connect Form Agreement and providing descriptive detail at a level equivalent to PG&E's Flex Connect informational report. SCE shall articulate any divergence between its Flex Connect offering and PG&E's and describe the factors that require divergence. SDG&E's AL shall provide an implementation plan for a proof-of-concept Variable Operating Envelope that shall include no less than two sites and provide telemetry by June 1, 2028. SDG&E shall

additionally detail its plan to provide a Variable Operating Envelope offering consistent with PG&E's Flex Connect as a formalized offering, beyond the proof-of-concept sites, by June 1, 2029.

9. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) must establish consistent interoperability testing and certification procedures to avoid redundant vendor qualification processes. The IOUs shall hold a joint workshop on this topic within 90 days of the issuance of this decision and follow the workshop guidelines in Appendix E to this decision. The IOUs shall serve a notice to the service list of this proceeding within 180 days of the issuance of this decision to confirm compliance with this requirement.

10. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company shall leverage PG&E's Flex Connect Op Flex Report and Customer-Owned Telemetry Procedure, including the Emergency Mitigations Abnormal Grid Switching provisions, to establish processes to respond to emerging grid events. The IOUs shall each serve a notice to the service list of this proceeding within 180 days of the issuance of this decision to confirm compliance with this requirement.

11. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall each file a Tier 3 Advice Letter (AL) to implement persistent non-bridging solutions (Persistent Non-Bridging AL) within 90 days of the disposition of each IOU's respective High Distributed Energy Resources Flexible Service Connection Implementation AL. The IOUs must each include the following in their Persistent Non-Bridging ALs:

- (a) Tariffed form agreement implementing the non-bridging standard offer, which shall specify a “safe harbor” for load controlled by a UL 3141 PCS, meaning a system certified to UL 3141 shall be deemed sufficient for load control, consistent with direction established in Decision 26-02-025 for the bridging standard offer.
- (b) Description of any caps on participation for the non-bridging standard offer.
- (c) Plan to scale the non-bridging standard offer to a larger number of customers following evaluation.
- (d) Implementation plan to allow customers to transition between current bridging solutions to an equivalent persistent non-bridging offer.

12. Pacific Gas and Electric Company must file a Tier 2 Advice Letter (AL) to formalize its Flex Connect offering in tariff and expand its current non-bridging generation option to load customers (PG&E Flex Connect AL). PG&E must file this AL within 120 days of the issuance of this decision. PG&E’s AL must reflect feedback from stakeholders and Energy Division staff. The PG&E Flex Connect AL must:

- (a) Formalize the Flex Connect offering by establishing a standard form agreement along with refined program process and criteria. PG&E must provide an explanation for any areas where proposed process, criteria, or customer outreach processes diverge from those documented in its Flex Connect informational report.
- (b) Formalize a non-bridging load Flex Connect offering by establishing a standard form agreement along with refined program process and criteria. PG&E must include an explanation for any areas where proposed non-bridging processes, criteria, or customer outreach processes diverge from those documented for generation customers within its Flex Connect informational filing.

13. Pacific Gas and Electric Company (PG&E) shall serve an informational report to the Commission's Energy Division and the service list of this proceeding on its Flex Connect program within 90 days after of the issuance of this decision. The informational report shall include at minimum the topics listed in Appendix A. PG&E shall also serve a Grid Edge Distributed Energy Resource Management System Informational Report to the Commission's Energy Division and the service list of this proceeding on ChargeBoost and PanelBoost within nine months of the issuance of this decision. The informational report will include at minimum the topics listed in Appendix A.

14. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall jointly host a workshop or workshops to discuss outstanding policy topics related to durable non-bridging solutions within one year of the issuance of this decision. The IOUs shall develop a workshop report within 60 days of the workshop(s) and serve the report on the service lists for the following rulemakings: this proceeding [Rulemaking (R.)21-06-017]; Energization Rulemaking (R.) 24-01-018, Transportation Electrification Policy and Infrastructure (R.23-12-008), Interconnection (R.25-08-004), Advanced Rate Design (R.26-04-009), and Demand Response (R.25-09-004). The IOUs must solicit participation from stakeholders, coordinate with Energy Division on the agenda for the workshop, and follow the workshop process requirements in Appendix E. The workshop report must address all of the topics covered in the workshop, summarize stakeholder feedback and presentations provided at the workshop(s), and include recommendations for IOU implementation of durable non-bridging solutions based on the workshop discussion. The topics covered in this workshop, or workshops, shall at minimum include the following:

- (a) Methodologies that could be used to generate the scope and cost of a wires baseline;
- (b) Methodologies that could be used to determine the equivalent upgrade cost or allowance amount;
- (c) Methodologies that could identify the technical means needed to assure operational performance;
- (d) Methodologies to quantify reliability impacts;
- (e) Rules governing recovery of prudently incurred IOU costs;
- (f) Duration and terms and conditions of the durable non-bridging arrangement;
- (g) Any appropriate cost offsets or in-kind contribution for participants that ensure cost-effectiveness for ratepayers;
- (h) Any appropriate portion of the upgrade cost or allowance amount that could support cost offsets or in-kind contributions; and
- (i) Methodologies and data collection necessary to verify net ratepayer savings.

15. Pacific Gas and Electric Company (PG&E) shall host a workshop to discuss results from its ChargeBoost and PanelBoost pilots within 10 months of the issuance of this decision (1st Grid Edge DERMS Workshop). PG&E shall at minimum present pilot performance results, implementation costs, customer-device requirements, and avoided-upgrade value. PG&E shall follow the workshop guidelines in Appendix E.

16. Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E) shall jointly host a workshop to discuss their draft proposals for Grid Edge DERMS pilots modeled off Pacific Gas and Electric Company's ChargeBoost and PanelBoost pilots (2nd Grid Edge DERMS Workshop). SCE and SDG&E shall at minimum address the following related to their draft proposals: technical basis, required infrastructure, costs, and timeline for their proposed

implementations. SCE and SDG&E shall follow the workshop guidelines in Appendix E.

17. Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE) and San Diego Gas & Electric Company shall each file a Tier 3 Advice Letter (AL) with their Grid Edge DERMS proposals (Grid Edge DERMS ALs). PG&E shall include a proposal to scale its current ChargeBoost and PanelBoost pilots within 13 months of the issuance of this decision. SCE and SDG&E shall file proposals for scaled implementations of Grid Edge DERMS offerings based on PG&E's ChargeBoost and PanelBoost pilots within 15 months of the issuance of this decision. The Grid Edge DERMS ALs shall include the following:

- (a) IOUs shall propose clear, technology neutral criteria for equipment eligibility. IOUs shall describe the solution's architecture and identify which components of the architecture (e.g., metering, communications, control logic) are proprietary and which are built on open standards.
- (b) IOUs shall describe what role third parties potentially can play to provide functionally equivalent Grid Edge DERMS services if at a lower cost and with greater implementation efficiencies.
- (c) IOUs shall each identify and document the secondary equipment categories and costs that the IOU typically uses for electrifying customers.
- (d) IOUs shall each identify the typical equipment categories and costs customers incur when electrifying.
- (e) IOUs shall each provide a methodology for identifying, quantifying, tracking and reporting the avoided secondary utility costs resulting from implementation of the Grid Edge DERMS program, the costs of implementing the program and the net ratepayer benefits.

- (f) IOUs shall each provide a method of estimating potential costs and savings for prospective customers as part of the program materials for customers. Each IOU shall provide a method for tracking participating customer savings.
- (g) IOUs shall each provide an implementation schedule with stage-gates or other milestones that derisk the approach prior to scaling the solution.
- (h) IOUs shall propose consistent data reporting across all three IOUs' Grid Edge DERMS pilots.
- (i) SCE and SDG&E shall explain any differences from the ChargeBoost and PanelBoost structure.
- (j) PG&E shall disclose initial pilot results, reflect stakeholder feedback from the Grid Edge DERMS workshop, propose how it plans to scale Grid Edge DERMS through PanelBoost and ChargeBoost, and discuss whether ChargeBoost and PanelBoost Grid Edge DERMS should become flex connect prioritized for evaluation for residential customers and small commercial customers.

18. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall jointly host, in coordination with Energy Division staff, a workshop focused on discussing reasonable guardrails regarding customer choice and competition within 90 days of the issuance of this decision. The IOUs shall record the workshop, provide the recording to Energy Division staff to post on the High DER/Distribution Planning webpage on the Commission website, and serve the service list of this rulemaking with the link to the webpage where the recording can be found.

19. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall jointly host two workshops and develop a workshop report prior to filing a joint Tier 2 Advice Letter (AL) to implement cybersecurity requirements based on the Smart Inverter Operationalization Working Group Cybersecurity Subgroup (SIO-CS)

Recommendations (Joint Cybersecurity AL). The IOUs shall jointly host the first cybersecurity workshop within 180 days of the issuance of this decision. The IOUs must develop and serve to the service list of this proceeding a workshop report within 60 days of the first cybersecurity workshop and solicit informal stakeholder comments due 35 days after the workshop report is served. The IOUs shall host a second cybersecurity workshop 60 days after the workshop report is served to discuss feedback from stakeholders that shall inform the Joint Cybersecurity AL. Each workshop must follow the guidelines in Appendix E. The IOUs shall file the Joint Cybersecurity AL within 60 days of the second cybersecurity workshop. The joint AL must include justification for any deviations from the SIO-CS recommendations in their internal practices. In any justification for a deviation, the IOUs shall address how the deviation will support improved security, interoperability, or reliability, how it aligns with California's evolving grid modernization objectives, and how it avoids being overly restrictive to customers and third parties.

20. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company (together, the IOUs) shall track and report the standardized set of metrics for all Flexible Service Connection types as set forth in Appendix D and shall report this data as part of each utility's Grid Needs Assessment/Distribution Upgrade Project Report. The IOUs will begin to track this information within 90 days of the issuance of this decision.

21. All rulings issued by the assigned Commissioner or ALJ are affirmed and all motions not ruled upon in this proceeding are deemed denied.

22. Rulemaking 21-06-017 is closed.

This order is effective today.

Dated _____, at Sacramento, California.

Appendix A: Requirements for HDER FSC Implementation AL and IOU Informational Reports

HDER FSC Implementation AL Requirements:

- (a) Eligibility Criteria: A consistent eligibility proposal across IOUs that sets forth criteria and a process governing customer notification of flexible connection options, even absent an expressed interest. These eligibility criteria shall include metrics to narrow the scope of the requirement. The proposed eligibility criteria shall meet the following standards:
 - (i) Each criterion is objective and can be applied using information available to the IOU at the conclusion of the Engineering and Design steps;
 - (ii) Each criterion is tied to an identified engineering, operations, or cost reason why a flexible connection could not reasonably defer or avoid an upgrade;
 - (iii) The criteria are consistent across the IOUs, or the AL explains with specificity the system difference that justifies divergence;
 - (iv) No customer is excluded solely by customer class or size without a showing that customers of that class or size lack a realistic opportunity to defer or avoid an upgrade; and
 - (v) The IOU will record, for each customer screened out, the criterion applied.
- (b) Evaluation Process: The process to evaluate customer projects for flexible service. The process should include presentation of the appropriate flexible connection option to the customer during the Engineering and Design step of the Energization process, at the same time as the convention upgrade option and costs are presented. The conventional energization process should proceed without delay until

and unless the customer elects a flexible connection offering. The time taken by the customer to elect either a conventional or flexible connection shall not be counted against the IOU steps' time for the purposes of timekeeping directed in Decision 24-09-020.

- (c) Documentation Process: The process to document whether the IOU offered a flexible service option to the customer, whether the customer took service under a flexible service option, and if so what the details of the arrangement are. This process should include tracking of how and when the evaluation occurs.
- (d) Customer Communication Process: The process to communicate to customers about the available flexible service options. This process should include changing the application forms to include information on the benefits of flexible connections, allowing a customer to indicate their interest in flexible connections, and providing customers information to facilitate decision making. This includes upgrade schedule, expected curtailment, customer equipment needed, and basic time ranges, all provided in sufficient detail.
- (e) Limited Power Evaluation: Include the workflow, customer communications, and transparent risk-based criteria the IOUs will use to evaluate Limited Power as a mitigation for distribution transformer and secondary conductor capacity constraints.
- (f) Data Tracking for dynamic rates and flexible connections: Address how the IOUs will meet the minimum data tracking requirements related to flexible connections and dynamic rates, including the following:
 - Customer type and representative load curve.

- Flexible connection offering/program.
- Size of customer service (Amps).
- Location of customer (feeder).
- Whether customer has elected enrollment in a dynamic rate or not. If so:
 - Which dynamic rate,
 - Realized bill impacts relative to a customer's previous rate,
 - Evaluation of customer response,
 - Export compensation impacts (if applicable),
 - Automation use,
 - Whether customer is served by the IOU or CCA, and which CCA.
- To the extent feasible for customers enrolled in a dynamic rate, whether observed load reductions are attributable to the operating envelope requirement, the dynamic price signal or both.

Minimum Requirements for PG&E's Flex Connect Informational Report:

- a. Narrative overview of program, including purpose, goals, history, challenges, successes, lessons learned, and opportunities for improvement.
- b. Overview of number of customers enrolled, types of customers, size of load request .
- c. Incremental early revenue realized through speed to power benefits.
- d. The eligibility of solar PV behind-the meter sites.
- f. Customer eligibility criteria.
- g. Constraint types and locations.

- h. Capacity allocation among multiple customers behind the same constraint.
- i. Program evaluation metrics utilized.
- j. Existing Scaling and roll-out plans.
- k. Any modifications to the energization process due to Flex Connect.
- l. Customer data sharing, tracking and reporting.
- m. Flex Connect queue management.
- n. Flex Connect curtailment studies, costs, timelines, and cost responsibilities.
- o. Flex Connect cost responsibilities (descriptive), customer costs (quantitative), and utility costs (quantitative).
- q. Timelines for bridging participants to receive full requested service.
- s. Flex Connect DERMS capabilities.
- t. Flex Connect firm capacity guarantee.
- u. Flex Connect firm capacity granularity (time, power).
- v. Any implications for PG&E's project planning, based on Flex Connect participation.
- w. Update on both automated and manual capacity restoration processes and average times for capacity restoration under both methods.

Minimum Requirements for PG&E's Grid Edge DERMS Informational Report:

For each program offering – **ChargeBoost and PanelBoost** – provide the following information:

A. Program Overview and History

Narrative overview of the program, including its purpose, goals, history, challenges, successes, lessons learned, and opportunities for improvement.

Program planning implications, including how experience to date informs future program design and implementation.

B. Customer Eligibility, Acquisition, and Enrollment

Customer eligibility criteria.

Customer acquisition methods, including communication materials used to inform prospective customers about the program and its potential benefits.

Customer acquisition outcomes, including success rates.

Application and enrollment process.

Total number of program participants.

C. Program Implementation and Operations

Program implementation timelines, including relevant milestones.

Curtailment studies conducted or planned, including their purpose, methodology, and findings.

Total energy accessed through the program.

Customer data sharing, tracking, and reporting practices.

D. Grid Edge DERMS Capabilities and Technologies

Grid Edge DERMS capabilities and technologies deployed, identifying which equipment and technologies are utility-owned and which are customer-owned.

Metrics used to evaluate program performance and outcomes.

E. Program Costs and Cost Responsibilities

Description of utility and customer cost responsibilities, including which parties are responsible for specific costs.

Quantitative accounting of utility costs incurred in planning, implementing, operating, and administering the program.

Quantitative accounting of customer costs incurred in participating in the program, including relevant equipment, installation, and other associated costs.

F. Business-as-Usual Secondary Equipment and Costs

Equipment categories and associated costs typically incurred by the utility under business-as-usual circumstances to electrify customers connected to the secondary grid.

Equipment categories and associated costs typically incurred by customers connected to the secondary grid when electrifying under business-as-usual circumstances.

G. Avoided Costs and Net Ratepayer Benefits

Methodology for identifying, quantifying, tracking, and reporting the secondary utility costs avoided through implementation of ChargeBoost and PanelBoost.

Methodology for identifying, quantifying, tracking, and reporting program implementation costs and calculating the net ratepayer benefits resulting from avoided secondary utility costs.

H. Customer Costs, Savings, and Benefits

Methodology for estimating potential costs and savings for prospective customers.

Actual or estimated costs and savings for enrolled customers, including the assumptions and methods used to develop estimates.

I. Scaling and Future Deployment

Existing plans for scaling and rolling out each program, including anticipated timelines, implementation considerations, and relevant planning implications.

Appendix B: Definitions for Rule 2 Terms

Connected load:⁴⁹⁹ connected load is the sum of the rated capacities of all of the Customer's electric utilization equipment that is served through one metering point and that may be operated at the same time.

Demand Load:⁵⁰⁰ The portion of the connected load estimated to operate simultaneously, expressed in kW or kVA, and which imposes increased demand on the utility distribution system.

Load Determination Process:⁵⁰¹ The formal engineering process used to estimate a customer's expected electrical demand on the utility system for the purpose of planning, designing, and sizing distribution facilities.

Metered Demand:⁵⁰² The existing electrical demand for the customer.

⁴⁹⁹ PG&E Rule 2 at sheet 20: "Connected Load is the sum of the rated capacities of all of the Customer's electric utilization equipment that is served through one metering point and that may be operated at the same time."

⁵⁰⁰ Joint Standard Offer AL at 5.

⁵⁰¹ Joint Standard Offer AL at 5.

⁵⁰² SCE January 16, 2026 Comments upon the PD establishing a Standard Offer at 14: "Metered demand refers to the existing electrical demand for the customer."

Appendix C: Modifications to Rule 2

Rule 2 Connected Load Section (underline and ~~strikeout~~ reflect changes from D.26-02-025 Appendix D):

Where a customer has a portion of their electric utilization equipment installed within a power control system (PCS) that is certified to the UL 3141 standard and whose power import limit (PIL) functionality has been verified through a Nationally Recognized Testing Laboratory (NRTL) evaluation, the PIL references the point of common coupling, and the PCS limits power import at the point of common coupling into the facility such that it will not exceed the lesser of connected load the demand load of the remaining electric utilization equipment or the rated capacity of the service conductor, that is known as controlled load. Controlled load shall not be included in the load determination process computation of demand load ~~connected load or metered demand~~.

Appendix D: Data To Be Reported Within The GNA/DUPR

System Data

- a. Number of customers for all FSC types
- b. Reductions in energization timelines
- c. Total Capacity enabled
- d. Total gross upgrade costs deferred or avoided
- e. Total gross costs Incurred
- f. Compliance with operating limits and reliability of systems

Data for each FSC

- a. FSC status (offered, agreement signed, ongoing, concluded, cancelled)
- b. Whether or not customer requested a preliminary capacity assessment
- c. FSC agreement signed date
- d. FSC implemented date
- e. Customer Load Connected (kW)
- f. What grid component led to the capacity constraint
- g. What amount of headroom was on the constrained grid component prior to the FSC
- h. Description of Firm limits
- i. PCS installed (Y/N)
- j. Customer type
- k. Customer application size (kW)
- l. Feeder ID
- m. FSC offering program
- n. Expected end date of FSC
- o. Whether the baseline upgrade was ultimately avoided, deferred, resized, or constructed
- p. Capital investment avoided or deferred through FSC
- q. Incremental IOU costs of evaluating, implementing, monitoring, and administering the FSC
- r. Customer equipment, installation, and third-party costs incurred by Customer
- s. Customer equipment, installation, and third-party costs incurred by IOU

- t. Customer's actual hourly consumption
- u. VOE only: Capacity and hourly energy available under the applicable operating envelope
- v. Energization ID
- w. Known Load Tracking ID

Appendix E: Requirements for Utility-Hosted Workshops

1. Workshops shall be recorded and the public recording shall be published on the Commission's YouTube channel
2. Public Notice of workshop(s) must be served to the relevant service lists at least 4 weeks prior to the workshop date
3. Materials, such as agendas and slide decks, for each workshop must be served to the service list of this proceeding and any successor proceeding at latest one week before the workshop date.
4. The IOUs shall share the draft agenda and other presentation materials with the Energy Division ahead of each workshop and request approval by Energy Division.
5. The IOUs shall consult with the Energy Division on whether workshops shall be in-person, hybrid, or remote. Energy Division may direct which workshops are in-person, hybrid or remote.

Appendix F: SDG&E Standard Offer Advice Letter Requirements

SDG&E must include the following in its Standard Offer AL, consistent with the direction the Commission provided PG&E and SCE in Decision 26-02-025:

- Customer Application Language: Provide updated customer application documents and sample informative language.
- Ideal Candidate Characteristics: Identify the characteristics that cause a customer to be an ideal candidate for the Standard Offer. SDG&E shall clarify that it will provide a customer with a Standard Offer upon the determination that there exists a Load Limit Profile whose operation will result in a benefit to both the customer and the ratepayers, and that a customer will be able to safely operate under the required framework.
- Underground Limitation: List which, if any, underground components have been identified as a disqualifying factor for the Standard Offer. Include a narrative explaining the rationale under which each identified underground component is being identified as a disqualifying factor.
- Seasons and Daily Values: Identify the start and end dates for a minimum of three standard seasons. SDG&E must offer a minimum of two daily values for each season, and recognize that they may provide a Load Limit Profile with a lower or higher number of values on a case-by-case basis.
- Criteria for Two Applications: Provide transparent and consistent criteria for establishing a window of time in which two applications were received to consider sharing capacity.
- PV Consideration: Incorporate the output of photovoltaics for customers without onsite storage into their engineering evaluation and describe this process. SDG&E should continue working toward offering

a single, streamlined process to customers requesting both load and generation.

- Capacity Review: Description of SDG&E's process for requesting an ad-hoc capacity review and an annual capacity review.
- Process to Compute Customer Load: Provide a description of the process used to compute customer load. If there are differences in process or terminology, the description shall articulate those differences and the rationale that supports divergence from SCE and PG&E.
- Equipment Ratings: Explain how it determines the normal and emergency ratings, the duration of the emergency ratings, and must include its normal and emergency rating standards for relevant equipment.

Minimum Data Fields to be Tracked for SDG&E's Standard Offer, consistent with D.26-02-025 Appendix C:

- FSC status (offered, agreement signed, ongoing, concluded, cancelled)
- Whether or not customer requested a preliminary capacity assessment
- FSC agreement signed date
- FSC implemented date
- Customer load connected (kW)
- What grid component led to the capacity constraint
- What amount of headroom was on the constrained grid component prior to the FSC
- FSC agreement signed date
- FSC customer connected date (if not already energized)
- Description of Limited Load Profile by season or by specified dates
 - PCS installed (yes/no)