STATE OF CALIFORNIA
GAVIN NEWSOM, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

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Ratesetting

TO PARTIES OF RECORD IN RULEMAKING 19-10-005:

This is the proposed decision of Administrative Law Judge Thomas J. Glegola. 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 February 26, 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 to the proceeding may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure (Rules).

The Commission may hold a Ratesetting Deliberative Meeting to consider this item in closed session in advance of the Business Meeting at which the item will be heard. In such event, notice of the Ratesetting Deliberative Meeting will appear in the Daily Calendar, which is posted on the Commission's website. If a Ratesetting Deliberative Meeting is scheduled, *ex parte* communications are prohibited pursuant to Rule 8.2(c)(4).

/s/ MICHELLE COOKE
Michelle Cooke
Chief Administrative Law Judge

MLC:jnf
Attachment

Decision **PROPOSED DECISION OF ALJ GLEGOLA (Mailed 1/23/26)**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the Commission's Own Motion to consider renewal of the Electric Program Investment Charge Program.	Rulemaking 19-10-005

DECISION ADOPTING ELECTRIC PROGRAM INVESTMENT CHARGE STRATEGIC OBJECTIVES

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DECISION ADOPTING ELECTRIC PROGRAM INVESTMENT CHARGE STRATEGIC OBJECTIVES

Summary

In this decision, the California Public Utilities Commission (Commission) adopts 13 Strategic Objectives[1] for the Electric Program Investment Charge (EPIC) Program. The Strategic Objectives, contained in Appendix A, apply to the EPIC 5 investment plan cycle (2026-2030).

Additionally, this decision authorizes the investor-owned utilities (IOUs) to continue as EPIC Administrators for the EPIC 5 investment plan cycle. The IOUs are authorized to collect rates to fund their EPIC 5 investment plan budgets, consistent with the budgets and instructions in Decision 21-11-028 and discussed in Section 4.2 of this decision.

Finally, this decision adopts other refinements to the EPIC Program, including modifications to the State of California's intellectual property rights for EPIC projects administered by the IOUs, and authorizes the next EPIC Program evaluation in 2028.

Due to the additional requirements adopted in this decision, the deadline for EPIC 5 investment plan applications is extended to June 26, 2026.

[1] The Strategic Objectives are defined as clear, measurable, and robust targets that will guide effective Electric Program Investment Charge Program investment plan strategies to scale and deploy innovation that will benefit the ratepayers who fund the program. Pursuant to Decision 24-03-007, the Strategic Objectives are intended as more granular near-term sub-targets of the long-term Strategic Goals and to:

- Address the key identified gaps for critical pathways to demonstrated progress in achieving California's climate, energy, and equity goals;
- Focus on the unique role ratepayer funded RD&D should play in leading innovation investment; and
- Incorporate important crosscutting principles, including equity, identified in the decision approving the Strategic Goals.

This proceeding is closed.

1. Background

On October 10, 2019, the California Public Utilities Commission (Commission) opened Order Instituting Rulemaking (R.) 19-10-005 to consider the renewal of the Electric Program Investment Charge (EPIC) Program.[2] The EPIC Program is funded by California utility customers under the auspices of the Commission.

The purpose of this proceeding is to review the EPIC Program, consider whether and how to continue funding the program, and to consider appropriate administrative and programmatic improvements. This decision focuses on the consideration of Strategic Objectives for the EPIC Program, EPIC Program evaluations, and other improvements.

On March 6, 2020, the assigned Commissioner issued a Scoping Memo and Ruling outlining the scope and schedule for this proceeding.

Decision (D.) 20-08-042, issued on September 2, 2020, addressed the question of continuing program funding by renewing EPIC for ten years, through December 31, 2030, and authorized two five-year Investment Plan Cycles (referred to, respectively, as EPIC 4 and EPIC 5). That decision authorized the California Energy Commission (CEC) to continue in its current role as an Administrator, with an annual budget of $147.26 million for the EPIC 4 Investment Plan Cycle (2021-2025). The decision did not authorize the investor-owned utilities (IOUs) to continue in their current role as EPIC Administrators, citing concerns with their administrative performance, and deferred a

[2] The EPIC Program is an energy innovation funding program established in 2011 under the authority of the Commission. It is organized around three program areas: Applied Research and Development, Technology Demonstration and Deployment, and Market Facilitation.

determination to Phase 2 of this proceeding. Otherwise, D.20-08-042 concluded Phase 1 of this proceeding.

On May 10, 2021, the Assigned Commissioner issued a First Amended Scoping Memo and Ruling (Amended Scoping Memo). The Amended Scoping Memo divided Phase 2 of this proceeding into three parts — Phase 2-A, Phase 2-B, and Phase 2-C — and ordered a supplemental round of comments on a proposal, as well as on questions related to Commission guidance on EPIC guiding principles and policy priorities.

On July 15, 2021, the Commission adopted D.21-07-006, which approved the CEC's EPIC 4 Interim Investment Plan (Phase 2A).

On October 13, 2021, the assigned Commissioner issued a Second Amended Scoping Memo and Ruling, adding a new issue to the scope of this proceeding and modifying the schedule.

On November 18, 2021, the Commission adopted D.21-11-028, resolving most of the issues in Phase 2-B of this proceeding, including authorizing the IOUs to file their EPIC 4 Investment Plans, subject to additional administrative requirements. D.21-11-028 also adopted EPIC's mission statement and guiding principles.

On March 15, 2022, this proceeding was reassigned from Commissioner Martha Guzman Aceves to Commissioner Genevieve Shiroma.

On June 28, 2022, the assigned Commissioner issued a Third Amended Scoping Memo and Ruling, amending the scope of Phase 2-C.

On April 27, 2023, the Commission adopted D.23-04-042, approving a number of administrative improvements for the EPIC Program to increase transparency and focus on specific Strategic Goals. D.23-04-042 authorized a public planning and coordination process to develop Strategic Goals and

Strategic Objectives. In August and September 2023, Energy Division Staff (Staff) led a series of five public workshops involving EPIC Administrators and experts in the energy research and development (R&D) field to develop Strategic Goals for future EPIC Investment Plans. The discussion at the workshops led to a Staff Proposal.

On November 20, 2023, the assigned Administrative Law Judge (ALJ) issued a ruling requesting comments on the summary reports of each of the five workshops hosted by Staff in August and September 2023, as well as the Strategic Goals contained in the Staff Proposal.

On March 1, 2024, this proceeding was reassigned from Commissioner Genevieve Shiroma to Commissioner Karen Douglas.

On March 7, 2024, the Commission adopted D.24-03-007, which approved Strategic Goals for EPIC and established a process for developing proposed Strategic Objectives under those Strategic Goals.

On July 11, 2024, the Commission adopted D.24-07-019, extending the statutory deadline to March 31, 2025.

On October 18, 2024, the assigned ALJ issued a ruling (October 2024 Ruling) ordering briefing on intellectual property issues. Opening Briefs in response to the October 2024 Ruling were filed and served by November 1, 2024. Reply Briefs were filed and served by November 15, 2024.

From April through June 2024, Staff hosted five Technical Working Groups to identify relevant measurable Strategic Objectives. On March 7, 2025, the assigned ALJ issued a ruling (March 2025 Ruling) that noticed the Staff Proposal on the Strategic Objectives for public comment. Opening Comments were filed and served by March 28, 2025. Reply Comments were filed and served by April 4, 2025.

On March 13, 2025, the Commission adopted D.25-03-020, extending the statutory deadline to February 6, 2026.

On April 25, 2025, the assigned ALJ issued a ruling (April 2025 Ruling) noticing the EPIC Program evaluation conducted in 2024 (2024 Evaluation) and requesting comments on the Staff recommendation regarding the ongoing program administrative role by the IOUs. Opening Comments were filed and served by May 9, 2025. Reply Comments were filed and served by May 19, 2025.

This decision addresses topics in the October 2024 Ruling, the March 2025 Ruling, and the April 2025 Ruling.

1.1. Submission Date

This matter was submitted on May 19, 2025, upon the filing of Reply Comments to the April 2025 Ruling.

2. Jurisdiction

The Commission's authority to initiate this rulemaking is pursuant to Public Utilities Code (Pub. Util. Code) Section 399.8, which reads in pertinent part as follows:

> (a) In order to ensure that the citizens of this state continue to receive safe, reliable, affordable, and environmentally sustainable electric service, it is the policy of this state and the intent of the Legislature that prudent investments in energy efficiency, renewable energy, and research, development, and demonstration shall continue to be made.
>
> (b) (1) Every customer of an electrical corporation shall pay a nonbypassable system benefits charge authorized pursuant to this article. The system benefits charge shall fund energy efficiency, renewable energy, and research, development, and demonstration.

(2) Local publicly owned electric utilities shall continue to collect and administer system benefits charges pursuant to Section 385.

(c) (1) The commission shall require each electrical corporation to identify a separate rate component to collect revenues to fund energy efficiency, renewable energy, and research, development, and demonstration programs authorized pursuant to this section.

Pub. Util. Code Section 740.1 provides additional guidance, stating that:

The Commission shall consider the following guidelines in evaluating the research, development, and demonstration programs proposed by electrical and gas corporations:

(a) Projects should offer a reasonable probability of providing benefits to ratepayers.

(b) Expenditures on projects which have a low probability for success should be minimized.

(c) Projects should be consistent with the corporation's resource plan.

(d) Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations.

(e) Each project should also support one or more of the following objectives:

(1) Environmental improvement.

(2) Public and employee safety.

(3) Conservation by efficient resource use or by reducing or shifting system load.

(4) Development of new resources and processes, particularly renewable resources and processes which further supply technologies.

(5) Improve operating efficiency and reliability or otherwise reduce operating costs.

3. Issues Before the Commission

This decision resolves the issues outlined below.

1. Should the Commission establish measurable Strategic Goals for the EPIC Program? Should the Commission provide direction for topic areas and/or strategies that the Commission establishes to see that EPIC investments are prioritized to achieve the state's goals and benefit ratepayers, within the context of the mandatory guiding principles and other program rules? What should be the process/cadence for revisiting these EPIC Strategic Goals and investment priorities?[3]
2. How should the Commission address recommendations from the Evergreen Evaluation that have not already been fully addressed?[4]
3. Should the Commission revise EPIC intellectual property terms, including indemnification and march-in rights?[5]

4. IOUs Authorized as Administrators for EPIC 5 Investment Plan Cycle

D.21-11-028 authorized the IOUs' budgets for the EPIC 4 investment plan cycle (through 2025) but not for the EPIC 5 investment plan cycle (2026-2030). Pursuant to D.21-11-028, approval of the IOU's EPIC 5 budgets first requires a review of their performance as Administrators, including a recommendation from Staff.[6] Staff conducted the compliance review[7] and determined that each

[3] Third Amended Scoping Memo, issued on June 28, 2022, Issue 1(a).

[4] *Id*., Issue 2.

[5] *See*, D.23-04-042, at 40. At the request of Southern California Edison, D.23-04-042 expanded the scope of this proceeding to "clarify intellectual property terms for indemnification and march-in rights to maximize potential project partners."

[6] D.21-11-028, at Ordering Paragraph 1, 45-46.

[7] The April 2025 Ruling noticed a document entitled "Energy Division Staff Report on IOU Administrator Progress in Implementing the Additional Requirements of D.21-11-028 for the Electric Program Investment Charge (EPIC) Program." This Staff Report is Attachment B to the April 2025 Ruling.

IOU has largely addressed the additional administrative requirements specified in D.21-11-028, which identified IOU deficiencies in administrative performance in three broad categories: portfolio optimization;[8] stakeholder engagement;[9] and benefits quantification.[10]

Under portfolio optimization, Staff reviewed three criteria:

- Explain, where possible quantitatively, each project's strategic value in the portfolio, and how the projects support State goals;[11]
- Clear justification for why each project is a priority in the investment plan;[12] and
- Ensure data and descriptions needed to characterize investments are in the EPIC database.[13]

Under stakeholder engagement, Staff reviewed seven criteria:

- Each IOU must include in its investment plans, a summary of all stakeholder feedback received during investment plan formulation and explain how this feedback was considered in the investment plan;[14]
- Prior to conducting stakeholder workshops, the IOUs must provide specific commitments in investment plans and any

[8] D.20-02-003 at 13 found that IOU Administrator project portfolio alignment with the Commission's policy goals, though demonstrating incremental improvement, fell short of the Commission's expectation.

[9] D.20-02-003 at 17-18 found meaningful stakeholder engagement fell short of "best practices," lacking specific commitment on the substance of the EPIC information they will share with stakeholders.

[10] D.20-02-003 at 20-22 found benefits quantification was technically compliant, but the response did not provide an ideal framework for quantifying benefits.

[11] Staff Report at 3.

[12] *Id.*, at 3-4.

[13] *Id.*, at 4-5.

[14] *Id.*, at 5-6.

other project filings to the Commission on the type of project content that will be shared with stakeholders;[15]

- Prior to conducting stakeholder workshops, the IOUs must provide to stakeholders comprehensive information about what projects are being planned through all outreach channels. This should include detailed information on the planned project's focus, demonstration approach, needed partner expertise, and other relevant considerations. They should also identify and use additional outreach channels to reach a broader range of communities;[16]
- IOUs must clarify how outside stakeholder responses will be considered;[17]
- At least one month prior to project launch, the IOUs must share detailed project proposals and budgets with stakeholders to allow stakeholders to fully understand and formulate input on the proposed projects;[18]
- During all workshops, each IOU must provide abundant time for stakeholders to provide and discuss input. IOUs must examine how to provide technical assistance to diverse participants during and before workshops;[19] and
- Throughout the project process, the IOUs must provide relevant, timely, detailed, and appropriate technical information to interested stakeholders upon request.[20]

[15] *Id.*, at 6-7.

[16] *Id.*, at 7-9.

[17] *Id.*, at 10-11.

[18] *Id.*, at 11-12.

[19] *Id.*, at 12-13.

[20] *Id.*, at 13-14.

Under benefits quantification, Staff examined IOU participation in the public workshops that led to the development of Strategic Goals and Strategic Objectives.[21]

In nine of the 11 criteria considered, Staff assert the IOUs have demonstrated significant progress. In one criterion, (prior to conducting stakeholder workshops, the IOUs must provide specific commitments in investment plans and any other project filings to the Commission on the type of project content that will be shared with stakeholders), Staff found that progress has not yet been demonstrated, but noted the IOUs have clear plans in place to address improvements going forward. In another criterion, (providing comprehensive information to stakeholders in advance of stakeholder workshops), Staff found that the IOUs have demonstrated partial progress with room for improvement.[22]

The April 2025 Ruling noticed the Staff Report and the 2024 Evaluation and asked parties to comment on both documents, and to focus their comments on the following questions:

- Do parties agree or disagree with the findings in Staff's Report that the IOUs sufficiently met the Commission's requirements to continue as EPIC Administrators for EPIC 5?
- Do the findings of the 2024 Evaluation (discussed in more detail in Section 5) support the IOUs continuing as EPIC Administrators for EPIC 5?

[21] *Id.*, at 14-15.

[22] *Id.*, at 16.

- Do any of the findings in the 2024 Evaluation raise concerns about the performance of any EPIC Administrator?[23]

4.1. Positions of Parties

San Diego Gas & Electric Company (SDG&E) agrees with the findings of the Staff Report, stating that the Staff Report provides a comprehensive and fair assessment of the IOUs' performance in implementing the additional administrative requirements of D.21-11-028 under the EPIC program.[24] SDG&E asserts that it has sufficiently met the Commission's requirements to continue as an EPIC Administrator for the EPIC 5 cycle. SDG&E notes that that the Staff Report concludes that SDG&E demonstrated significant progress in implementing the additional administrative requirements of D.21-11-028 in nine of the eleven criteria (82 percent across the three mandated focus areas), with the remaining areas showing evidence of ongoing efforts and clear plans for improvement.[25]

The California Energy Commission (CEC) agrees with the findings in the Staff Report that the IOUs have sufficiently met the Commission's requirements to continue as EPIC Administrators for EPIC 5, as the IOUs have demonstrated progress in the areas of portfolio optimization, stakeholder engagement, and benefits quantification. Further, the CEC asserts that the IOUs have sufficiently met the requirements set forth in D.21-11-0285 and should continue as EPIC Administrators for the EPIC 5 investment period.[26]

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[23] April 2025 Ruling, at 2-3.

[24] SDG&E, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 2.

[25] *Ibid*.

[26] CEC, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 2.

Pacific Gas and Electric Company (PG&E) agrees with Staff's conclusion that PG&E's "demonstration of progress addresses the Commission's criteria upon which it made contingent authorization of IOU participation beyond 2025." As an EPIC Administrator for four investment plan cycles of the EPIC Program, PG&E states that it has demonstrated steady compliance and continuous maturation of its practices related to the three overarching areas covered in the Staff Report and the continuation of IOU EPIC programs is critical to meeting California's ambitious goals and maximizing the EPIC Program's benefits for customers.[27]

WeaveGrid asserts that the Staff Report confirms that the IOUs have demonstrated the ability to manage technically complex projects in an effective manner that aligns with the EPIC Program's goals of grid reliability and decarbonization. WeaveGrid further states that continued IOU leadership ensures alignment with utility operations and customer needs.[28]

4.2. Discussion

The Commission concurs with Staff that the IOUs have improved in their administrative performance. Thus, we authorize the IOUs to continue as EPIC Administrators for the EPIC 5 Investment Plan Cycle.

D.21-11-028 authorized the IOUs to collect funding for EPIC 4, totaling $185 million annually beginning January 1, 2021, and continuing through December 31, 2025, and to collect funds for the CEC's EPIC 5 budget.[29] In this decision, the IOUs are authorized to collect funds for the IOU's EPIC 5 budgets ($185 million annually for years 2026-2030 after including the CEC's approved

[27] PG&E, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 2.

[28] WeaveGrid, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 3.

[29] D.21-11-028, at Ordering Paragraph 4.

EPIC 5 budget) . Consistent with D.21-11-028, the $185 million annual EPIC 5 budget shall be divided among each Administrator in the following manner: $147.26 million for the CEC, $18.444 million for PG&E, $3.24 million for SDG&E and $15.131 million for SCE.[30] Consistent with D.21-11-028, all Administrators may propose to increase their EPIC 5 budgets by the rate of inflation, as calculated using the California Department of Finance's California Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) method.[31]

5. 2024 Evaluation and 2028 Evaluation

Evaluations are common practice within the EPIC Program. D.12-05-037 required that an independent evaluation of the EPIC Program be conducted by a consultant under contract to the Commission in 2016.[32] D.18-10-052 makes clear that the Commission intended for future evaluations.[33] D.23-04-042 authorized Staff to develop a scope of work and undertake a Request for Proposal (RFP) process to select a contractor to conduct another evaluation of the EPIC Program (2024 Evaluation). The 2024 Evaluation was to focus on program strategy, project portfolio impacts, and EPIC Administrator performance.[34]

The 2024 Evaluation makes two "core findings." First, the 2024 Evaluation finds that the CEC primarily uses its Energize Innovations database rather than the Commission's EPIC database, resulting in incomplete information for many CEC projects in the Commission's EPIC database.[35] Much of the information

[30] *Id.*, at Ordering Paragraph 3.

[31] *Ibid*.

[32] D.12-05-037, Finding of Fact 12 and at 30.

[33] D.18-10-052, at 100 and 138-139.

[34] D.23-04-042, at Ordering Paragraph 6.

[35] 2024 Evaluation, at 1.

required in the Commission's EPIC database exists in the CEC's Energize Innovations database, but some crucial data points are not.[36] Second, the 2024 Evaluation found several structural and operational issues in the EPIC database that makes project documentation harder to find, decreases the overall effectiveness of the documentation effort, and impacts the ability to track project progress and outcomes over time.[37]

The 2024 Evaluation also made four "focus area findings," including the following: 1) there was significant variation in documentation across EPIC Administrators; 2) project progress tracking is limited by both the incomplete information in the database, as well as the database structure, making it more difficult to track longer-term outcomes and market transformation impacts; 3) EPIC Administrators engage in regular coordination meetings, but documentation of outcomes is limited; and 4) IOU project documentation is generally more complete than CEC documentation in the EPIC database, and annual reports are not consistently aligned with database content.[38]

The April 2025 Ruling asks whether the findings of the 2024 Evaluation raise concerns about the performance of any EPIC Administrator and whether, given the incompleteness of program data required for this evaluation, the Commission should conduct another evaluation in 2028.[39]

[36] *Ibid*.

[37] *Ibid*.

[38] *Id*., at 2.

[39] April 2025 Ruling, at 1-2.

5.1. Positions of Parties

California Clean Energy Fund (New Energy Nexus)[40] supports conducting an EPIC Program evaluation in 2028. New Energy Nexus states that the organization was not previously aware of this Commission's database requirements, which are distinct from CEC reporting obligations, but that this disconnect presents an opportunity to collaborate and potentially would help capture the qualitative impacts of programs like CalSEED and CalTestBed in the next evaluation.[41]

SDG&E states that the 2024 Evaluation does not raise concerns about the performance of any EPIC Administrator, asserting that the 2024 Evaluation found that EPIC investments generally are aligned with program goals and that each Administrator is contributing to innovation, equity and ratepayer benefits.[42] Regarding its own performance, SDG&E states the 2024 Evaluation reflects its progress in portfolio optimization, stakeholder engagement, and benefits quantification.[43]

SDG&E believes that the costs of an evaluation in 2028 should be weighed against its potential benefits as an affordability measure. EPIC 5 budgets are authorized through 2030, and it's not clear what benefit another evaluation will provide mid-way through an EPIC cycle. Any proposed changes would be challenging to implement when most project deployments are underway. SDG&E strives for continuous improvement and is addressing some of the

[40] New Energy Nexus is a nonprofit that administers (for the CEC) the projects such as the CalSEED and CalTestBed programs.

[41] New Energy Nexus, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 3-5.

[42] SDG&E, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 11-12.

[43] *Id.*, at 2.

outstanding issues identified in the 2024 Evaluation. That said, if an additional evaluation is required, SDG&E recommends the evaluation include a higher level of engagement and understanding of SDG&E's administration of EPIC.[44]

PG&E asserts that the 2024 Evaluation's findings overwhelmingly support the continued role of the IOUs as EPIC Administrators. However, PG&E also states that the 2024 Evaluation included only limited engagement with PG&E, which in turn limits PG&E's ability to respond in full to certain findings and recommendations.[45] In principle, PG&E supports periodic, holistic evaluation of the EPIC Program, though it argues that future evaluations should assess the value of the full set of administrative requirements in place for the Program in addition to Administrators' performance against, and compliance with, those requirements. PG&E also recommends reinstating quarterly meetings with Staff as an effective mechanism for timely feedback and updates, discussion, and increased visibility throughout the EPIC cycle.[46]

The CEC asserts the findings of the 2024 Evaluation support the IOUs continuing as EPIC Administrators for EPIC 5, noting that while the 2024 Evaluation identifies areas for improvement for all EPIC Administrators, it does not identify any specific areas of concern regarding the IOUs' administration of EPIC.[47]

5.2. Discussion

The 2024 Evaluation offers several useful recommendations on best practices that Staff and Administrators can implement without a Commission

[44] *Id.*, at 12-13.

[45] PG&E, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 5-6.

[46] *Id.*, at 11.

[47] CEC, Opening Comments on April 2025 Ruling, filed and served May 9, 2025, at 3.

order. The 2024 Evaluation also supports the IOUs continuing as EPIC Administrators for EPIC 5.

Additionally, the record demonstrates a continued need to evaluate EPIC. Over $2 billion in ratepayer funds have financed Research, Development and Demonstration (RD&D) projects. That funding requires accountability and continued oversight. We agree with the recommendation of PG&E and the CEC for an evaluation of the EPIC Program in 2028 because the 2024 Evaluation was unable to answer all Commission questions due to lack of available data. D.23-04-042 adopted a mid-cycle evaluation and it appears best to continue with that approach. A 2028 evaluation may inform Commission consideration of whether to continue EPIC past its current 2030 sunset.

We also agree with SDG&E's recommendation that the 2028 Evaluation should involve more engagement with all EPIC Administrators.

The Commission delegates to Staff the authority to facilitate the 2028 Evaluation, including developing a scope of work, undertaking the RFP process, and managing the work of a contractor to conduct an evaluation of the EPIC Program. The 2028 Evaluation will need to be more extensive than the 2024 Evaluation and Staff should begin the RFP process immediately upon approval of this decision. Given there has been no complete program data to-date, the 2028 Evaluation shall consider completed projects and consider new measurable targets.

6. Intellectual Property Issues

SCE requests that the Commission clarify intellectual property (IP) terms for EPIC-funded projects, including projects that involve the work of federal government entities.[48]

On October 18, 2024, the assigned ALJ issued a ruling ordering SCE, PG&E, and SDG&E to file and serve briefs on this issue (October 2024 Ruling). Other parties, such as the CEC, filed comments. In addition to the service list in this proceeding, the October 2024 Ruling was served on the U.S. Department of Energy and the national laboratories.

6.1. March-in Rights

Under U.S. law, patent owners possess the exclusive right to make, use, sell, and import a new invention for the life of the patent (e.g., 20 years), during which anyone who wishes to use the invention in the U.S. must obtain a license from the patent holder. The Patent and Trademark Act Amendments of 1980[49] established a uniform federal patent policy that allows federal funding recipients to retain patent rights on inventions made with federal funding, subject to certain conditions, including "march-in rights." Federal march-in rights allow a federal government agency to grant a compulsory license on a privately owned patent to third parties, if the invention was developed with that agency's funding and the agency finds that any of four statutory conditions apply:

> (1) action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention;

[48] SCE, Opening Comments, filed on November 1, 2022, at 9.

[49] P.L. 96-517 commonly called the "Bayh-Dole Act."

(2) action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

(3) action is necessary to meet requirements for public use specified by Federal regulations; or

(4) action is necessary based on a failure to comply with the preference for domestic manufacturing of the invention under 35 U.S.C. Section 204.[50]

Federal procedures governing the exercise of march-in rights are set forth in 37 CFR.[51] Section 401.6. Among other items, an agency must notify the contractor and may use informal consultations prior to initiating a formal march-in proceeding. A contractor may appeal an agency's decision to the U.S. Court of Federal Claims.

The State's march-in rights to EPIC fund-generated IP are codified pursuant to Public Resources Code (PRC) Section 25711.5(b), which, in part, states that the Commission shall, in consultation with the Treasurer, "establish terms that shall be imposed as a condition to receipt of funding for the state to accrue any intellectual property interest or royalties that may derive from projects funded by the EPIC program" and when determining terms, "balance the potential benefit to the state from those terms and the effect those terms may have on the state achieving its statutory energy goals." The Commission also "shall require each reward recipient, as a condition of receiving moneys pursuant to this chapter, to agree to any terms the commission determines are appropriate for the state to accrue any intellectual property interest or royalties that may derive from projects funded by the EPIC program." EPIC contracts

[50] 35 U.S.C. Section 203(a).

[51] Code of Federal Regulations.

currently must contain a requirement whereby California holds march-in rights for any patentable IP.[52]

SCE states that federal government-related entities, specifically national laboratories, have informed SCE that they are required, under federal law, to reserve march-in rights for the U.S. Department of Energy. Thus, SCE asserts it is not able to partner with these entities on EPIC projects due to this conflict, since both entities would have competing claims. To allow for it to work with national laboratories and universities, SCE requests the Commission provide an exception and waive California march-in rights for EPIC contracts where the project partner is a "governmental-related entity."[53] SCE also notes that the Commission previously granted an exception for governmental-related partners, citing to the EPIC 2 decision (D.15-04-020), which granted an exception for the third-party indemnification/hold harmless requirement for governmental entities that are prevented legally from indemnifying a third party.[54]

6.1.1. Positions of Parties

SDG&E supports SCE's proposal.[55]

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[52] SCE, Supplemental Opening Brief, filed November 1, 2024, at 2. SCE cites D.13-11-025 (EPIC 1 decision), at 86-87:

> "The IOUs must in all cases require that both they and the State of California (with administration by the Commission) hold at least a direct license to the IP to use for governmental purposes (e.g., reporting on the results of the EPIC investment on the Commission, Governor's Office, and Legislature), with appropriate protections against public disclosure of proprietary information, data, and IP, and require that the State of California hold march-in rights to patent the IP if the IP owner does not undertake to patent the IP, or if the IP owner does not undertake to patent the IP in a manner that benefits ratepayers."

[53] SCE, Supplemental Opening Brief, filed November 1, 2024, at 2.

[54] *Id.*, at 7-8. SCE cites to D.15-04-020 at 42.

[55] SDG&E, Supplemental Reply Brief, filed November 15, 2024, at 1-3.

The CEC states that it has addressed these challenges posed by the conflict of completing march-in claims while working with federal government and related entities on EPIC-funded projects by developing specific terms and conditions unique to U.S. Department of Energy (DOE) recipients. These terms recognize the unique status of these recipients as governmental-related entities. The CEC also waives march-in rights for U.S. DOE recipients that otherwise would be within CEC's standard terms and conditions.[56] The CEC requests that the Commission adopt a procedure that aligns with the CEC's IP procedures, or that it otherwise require no change to the CEC's IP procedures.[57]

PG&E states that EPIC Program requirements related to IP, indemnification, and march-in rights have not created material negative impacts on PG&E's administration of its EPIC projects.[58]

6.1.2. Discussion

The Commission agrees with the CEC's statement that IP rules for EPIC must balance the desire to recoup investments from successful deployment of EPIC-funded IP with the ability of EPIC-funded entities to further commercialize their technologies.[59] Moreover, EPIC-funded projects with the national laboratories may represent an opportunity worth pursuing. However, the limited details SCE provides regarding its potential projects is insufficient to support the Commission granting a general waiver at this time.

[56] CEC, Supplemental Reply Brief, filed November 15, 2024, at 3.

[57] *Id.*, at 7.

[58] PG&E, Supplemental Opening Brief, filed November 1, 2024, at 1-2.

[59] CEC, Supplemental Opening Brief, filed November 1, 2024, at 2.

6.2. Direct Licensing

The Commission requires EPIC IOU Administrators to ensure that both they and the State of California (with administration by the Commission) hold a direct license to the IP to use for governmental purposes, with appropriate protections against public disclosure of proprietary information, data, and IP.[60]

SCE states that it has attempted to work with national labs and other potential "governmental-related partners," and that these entities have standard terms and conditions or form agreements that will not permit California to have direct IP licenses.[61] SCE states that its inability to harmonize the Commission's IP requirements with the federal government's standard terms has prevented SCE from moving forward with EPIC projects, and that providing an exception for governmental-related partners (such as universities and national laboratories) will allow for SCE to engage in EPIC contracts with these entities, a significant benefit to California ratepayers. Finally, SCE asserts that California will face no detriment as a result of the Commission granting this exception.[62]

6.2.1. Positions of Parties

SDG&E writes that it has not experienced the IP issues that are the subject of SCE's request, but that does not mean that SCE's request will not benefit the administration of EPIC both now and in the future. Therefore, SDG&E supports granting SCE's request.[63]

The CEC states that it has addressed the challenges posed by EPIC's direct-licensing requirement by developing specific terms and conditions unique to

[60] D.13-11-025 at Ordering Paragraph 32.

[61] SCE, Supplemental Opening Brief, filed November 1, 2024, at 5.

[62] *Ibid*.

[63] SDG&E, Supplemental Reply Brief, filed November 15, 2024, at 2.

DOE recipients, including waiving rights for DOE recipients that otherwise would be within CEC's standard terms and conditions.[64] The CEC requests that the Commission adopt a procedure that aligns with the CEC's IP procedures, or that it otherwise requires no change in the CEC's IP procedures.[65]

PG&E states that EPIC Program requirements related to IP, indemnification, and march-in rights have not created material negative impacts on PG&E's administration of its EPIC program.[66]

6.2.2. Discussion

The Commission agrees with the CEC's statement that IP rules for EPIC must balance the desire to recoup investments from successful deployment of EPIC-funded IP with the ability of EPIC-funded entities to further commercialize their technologies.[67] EPIC-funded projects with the national laboratories may represent an opportunity worth pursuing. However, the limited details SCE provides regarding its potential projects is insufficient to support granting a general waiver.

6.3. Open-Sourced Work Product

Asserting that previously adopted EPIC decisions are silent regarding whether IP developed using EPIC funds may be given freely to the public domain, SCE asks the Commission to clarify that where the IP of EPIC-funded projects will be "open sourced" or otherwise provided freely to the public at

[64] CEC, Supplemental Reply Brief, filed November 15, 2024, at 3.

[65] *Id.*, at 7

[66] PG&E, Supplemental Opening Brief, filed Novembre 1, 2024, at 1-2.

[67] CEC, Supplemental Opening Brief, filed Novembre 1, 2024, at 2.

large, the IOU need not include IP flow-down[68] requirements in its contracts.[69] SCE argues that it and potential project partners contend that in an open-source situation where the EPIC partner intends to make the IP available to the public, these partners do not believe that IP requirements are needed because any entity (including the IOUs and California) will have free access to the IP.[70] SCE also contends that potential projects (especially those with national laboratories, but also commercial partners) designed to improve upon or develop open-sourced software code or algorithms would then be available to benefit all IOUs, as well as the industry at large, and California would not need march-in rights or a direct license.[71]

6.3.1. Positions of Parties

The CEC states it has not faced similar challenges to those presented by SCE. With respect to open-sourced work products, the CEC states it has "funded many projects through EPIC that have developed open-source products and has not received feedback from recipients that the IP provisions were a hinderance to development of the products."[72] The CEC requests that the Commission adopt a procedure that aligns with the CEC's IP procedures, or that it otherwise require no change to the CEC's IP procedures.[73]

[68] Flow-down means to apply terms and conditions from a higher-level contract to a lower-tier one.

[69] SCE, Supplemental Opening Brief, filed November 1, 2024, at 6-7.

[70] *Id.*, at 6.

[71] *Id.*, at 7.

[72] CEC, Supplemental Reply Brief, filed November 15, 2024, at 4.

[73] *Id.*, at 7

6.3.2. Discussion

The Commission agrees with SCE's premise and grants the requested waiver. This waiver applies to EPIC projects administered by the IOUs and does not address the CEC's IP procedures.

6.4. Enhancements to Pre-Existing Intellectual Property

Where there is partner-owned and developed IP and the potential EPIC project involves incremental work, such as an improvement or repair to a commercial vendor-owned and developed product, SCE requests that the Commission clarify that the EPIC IP flow downs do not apply to the partner's existing IP, "including any enhancements via EPIC funds." SCE states that its current flow-downs define EPIC-funded IP as "intellectual property that is created or developed with EPIC funds."[74] SCE states that potential partners have indicated to SCE that where they have existing IP, and the EPIC project may only result in an enhancement to that IP, onerous IP terms related to that incremental enhancement may encumber their broader IP rights.[75] As such, SCE states that these potential partners have been reticent to partner with SCE for fear that their broader pre-existing IP will be burdened by the engagement. SCE asserts that a clarification on the inapplicability of the EPIC IP requirements in such instances would increase the number of potential EPIC partners with whom SCE could engage.[76]

[74] SCE, Supplemental Opening Brief, filed November 1, 2024, at 7.

[75] *Ibid*.

[76] *Ibid*.

6.4.1. Positions of Parties

The CEC states that it allows all EPIC funded recipients to declare pre-existing IP prior to the start of an EPIC-funded project. The CEC asserts that this practice provides a baseline to ensure that only newly developed IP that uses EPIC funds is subject to EPIC IP provisions and safeguards against overly restrictive IP policies that could deter applicants from seeking EPIC funding. The CEC states that this process could serve as a model to address SCE's concerns.[77] The CEC requests that the Commission adopt a procedure that aligns with the CEC's IP procedures, or that it otherwise requires no change in the CEC's IP procedures.[78]

6.4.2. Discussion

We deny SCE's request. SCE has not demonstrated that its request is necessary. The CEC's approach, allowing all recipients to declare pre-existing IP prior to the start of an EPIC-funded project, appears sufficient and would address the two circumstances SCE cites to in its filings. In both cases (Vehicle to Grid Integration with On-Board Inverter[79] and Comprehensive Hazards Assessment Tool CHaT[80]), the explanation provided by SCE is that its potential partners were concerned about existing IP, not enhancements to their pre-existing IP. Going forward, IOU Administrators should follow the CEC's approach when faced with this circumstance.

[77] CEC, Supplemental Reply Brief, filed November 15, 2024, at 4.

[78] *Id.*, at 7.

[79] SCE, Supplemental Opening Brief, filed November 1, 2024, at 9-10.

[80] *Id.*, at 12-13.

7. Strategic Goals and Strategic Objectives for EPIC

Consistent with the finding in D.18-10-052 that the EPIC Program needed clearer direction on priorities that would generate an optimal mix of research projects that maximize ratepayer benefits, lead to energy innovation, and support California's key policy goals, and building on the mission statement and guiding principle adopted in D.21-11-028, D.23-04-042 authorized a public engagement process to develop program-wide goals to evaluate the progress of EPIC investments and the extent to which EPIC Investment Plan portfolios maximize ratepayer benefits and impacts in achieving California's clean energy and climate goals.[81]

Staff conducted five workshops in August and September 2023 that involved 88 panelists and over 700 participants. Those workshops led to proposed Strategic Goals. Subsequently, in D.24-03-007, the Commission adopted five Strategic Goals:

- Transportation Electrification;
- Distributed Energy Resource (DER) Integration;
- Building Decarbonization;
- Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas; and
- Climate Adaptation.[82]

The Commission intended for the Strategic Goals to inform a stakeholder process to establish more detailed and nearer-term Strategic Objectives for the EPIC 5 Investment Plan Cycle. The Staff Proposal issued by the March 2025 Ruling contains thirteen Strategic Objectives, each of which fall under at least one

[81] D.23-04-042 at Findings of Fact 9 and 13 and Conclusion of Law 3.

[82] D.24-03-007 at 2.

of the five Strategic Goals. Staff defines Strategic Objectives as "clear, measurable, and robust targets that will guide effective EPIC investment plan strategies to scale and deploy innovation that will benefit the ratepayers who fund the program."[83] These proposed Strategic Objectives would apply to EPIC 5 investment plans.

8. Strategic Objectives Applicable to EPIC 5 Investment Plans

SCE, PG&E, SDG&E, and the CEC interpreted the Staff Proposal as proposing to apply the proposed Strategic Objectives to EPIC 4 projects[84] and opposed the Commission doing so, noting that these projects are already approved and in flight.[85] The Commission clarifies that the Strategic Objectives would apply to EPIC 5 projects.

We also clarify that EPIC Administrators are not required to file investment plans that meet every Strategic Objective. Rather, each proposed project must meet at least one of the Strategic Objectives adopted here.

9. Strategic Objective 1: Reducing Medium and Heavy-Duty Vehicle Charging Infrastructure Costs

Under the Transportation Electrification Strategic Goal, the first proposed Strategic Objective is that EPIC "accelerate innovation, demonstration, and innovative approaches to deployment that support the reduction of the cost of

[83] Staff Proposal at 1.

[84] *Id.*, at 56: "…Administrators should begin to implement improvements identified through the mechanisms below for relevant EPIC funds previously approved."

[85] SCE, Opening Comments, filed March 28, 2025, at 2. PG&E, Opening Comments, filed March 28, 2025, at 3. CEC, Reply Comments, filed April 4, 2025, at 4. SDG&E, Reply Comments, filed April 4, 2025, at 2.

medium- and heavy-duty charging infrastructure installations, and associated cost of IOU grid upgrades by a target of 50 [percent] by 2035."[86]

In 2020, Governor Newsom signed Executive Order N-79-20, establishing a goal for all in-state sales of new passenger vehicles to be zero-emission by 2035. Executive Order N-79-20 also establishes a goal that all medium- and heavy-duty vehicles (MHDV) be zero-emission by 2045 for all operations where feasible, all drayage trucks be zero-emission by 2035, and all off-road vehicles and equipment be zero-emission by 2035 where feasible. The gap this proposed Strategic Objective is intended to address is the high cost of infrastructure to support California's MHDV electrification goal's impacts on ratepayer affordability.[87]

In its Order Instituting Rulemaking Regarding Transportation Electrification Policy and Infrastructure (R.23-12-008), adopted on December 14, 2023,[88] the Commission found that as California continues to implement transportation electrification policies, the number of electric vehicles (EVs) and the required charging infrastructure is expected to grow significantly over the next ten years.[89] The anticipated expenses are driven in part by California's goal for MHDV emissions.[90] For example, a Lawrence Berkeley National Laboratory analysis estimated that without charging infrastructure cost reduction,

[86] Staff Proposal at 12.

[87] *Id*., at 13. *See also*, ALJ Ruling Requesting Comments on Staff Proposal, Attachment B, issued November 20, 2023, EPIC Strategic Goals Grid Modernization Workshop Report at 15.

[88] The Transportation Electrification OIR also closed the previous proceeding, R.18-12-006.

[89] R.23-12-008 OIR at 7.

[90] Staff Proposal at 12.

electrifying the California trucking industry would require a $10.8 billion upfront investment.[91]

Based on this information and input from the relevant Technical Working Group meetings, Staff proposed a Strategic Objective of "Reducing Medium and Heavy-Duty Vehicle Charging Infrastructure Costs" using the following metrics:

- Reduction in charging infrastructure installation times, by community;
- Utility bill savings for ratepayers in avoided infrastructure investments;
- Number and EV adoption rate for medium and heavy-duty vehicles, by community;
- Air pollution reduction, by airshed (percentage, mass);
- Greenhouse Gas (GHG) reduction (percentage, mass); and
- Air pollution reduction in disadvantaged and vulnerable communities (DVCs), (percentage, mass).[92]

Staff assert that adopting this proposed Strategic Objective aligns with the scope of R.23-12-008 and will support the statewide zero-emission goal for all MHDVs.[93]

9.1. Positions of Parties

PG&E supports the thirteen proposed Strategic Objectives, in general, with some modifications or additions.[94] Specific to this proposed Strategic Objective,

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[91] *Id.*, at 12.

[92] *Id.*, at 13.

[93] *Id.*, at 13-14.

[94] PG&E, Opening Comments, filed March 28, 2025, at 8:

> "In general, PG&E supports the Strategic Objectives, but we recommend the Commission broaden several Objectives and include additional wildfire- and operational cost-efficiency-related Strategic Objectives. Many of the Objectives are so specific that they will not lend themselves to us having multiple initiatives and research

Footnote continued on next page.

PG&E suggests removing the focus on "medium- and heavy-duty" EV charging infrastructure to include all types of EVs. PG&E asserts that broadening the scope of this proposed Strategic Objective will allow for RD&D projects to demonstrate vehicle-to-grid integration strategies and to improve EV customer experience for all types of EVs.[95] PG&E recommends including charger utilization (kWh) or utilization rate (%) in the optional metrics, as increasing utilization rate can mean installation is more cost-effective for both PG&E and customers.[96]

SDG&E recommends that the Commission broaden the scope of this Strategic Objective to encompass a wider range of zero-emission vehicle technologies, including hydrogen fuel cell electric vehicles, particularly for heavy-duty applications. Additionally, SDG&E recommends that the Commission clarify the 50 percent cost reduction target by establishing a defined baseline and corresponding metrics to ensure a consistent and measurable comparison.[97]

The CEC proposes to revise the title of this proposed Strategic Objective from "Reducing Medium- and Heavy-Duty Vehicle Charging Infrastructure Costs" to "Reducing Commercial Charging Infrastructure Costs."[98] The CEC asserts this proposed revision allows for the inclusion of a broader spectrum of impactful commercial charging use cases that can mitigate the costs of achieving

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topics to propose within them in our upcoming Investment Plans. As such, PG&E seeks confirmation from the CPUC that future Administrators' EPIC Investment Plans do not need to propose research topics to address all Strategic Objectives."

[95] *Ibid*.

[96] *Ibid*.

[97] SDG&E, Opening Comments, filed March 28, 2025, at 3.

[98] CEC, Opening Comments, filed March 28, 2025, at 4.

the State's transportation electrification goals. Noting that the Commission's Transportation Electrification Proceeding (R.23-12-008) specifically highlights both zero-emissions freight infrastructure and similar, impactful loads such as light duty charging plazas as key priorities, given their significant anticipated load growth and likely impact on electric infrastructure, the CEC asserts that its recommendation maintains the focus on medium- and heavy-duty charging infrastructure while broadening the research scope to include other impactful commercial charging use cases, and also better align with the Commission's objectives across related proceedings.[99] PG&E and SCE support the CEC's proposed revisions.[100]

9.2. Discussion

The Commission adopts this Strategic Objective and associated metrics with a revision to include the goal of achieving the State's transportation electrification goals in a cost-effective manner, given that this is consistent with the EPIC Program's mission of increasing affordability by funding electric sector technologies and approaches that lower California electric rates and ratepayer costs and help enable the equitable adoption of clean energy technologies.[101] Moreover, innovative technology will reduce charging infrastructure and associated grid upgrade capital costs, and proactive planning will better inform infrastructure investments and reduce infrastructure installation times, all promoting affordability.

[99] *Id*. at 3-4.

[100] SCE, Reply Comments, filed April 4, 2025, at 5. PG&E, Reply Comments, filed April 4, 2025, at 2.

[101] D.21-11-028 at Appendix A.

We also clarify that the 50 percent cost reduction by 2035 is a stretch goal, but still useful as a metric to assess outcomes. We do not broaden the Strategic Objective to include commercial vehicles, as they represent a different use case; doing so may dilute efforts to reduce MHDV pollution disproportionately affecting DVCs. Further, we note that a light-duty vehicle-to-grid project could be funded through other Strategic Objectives, such as Objective 6 (Community-Scale Decarbonization) and Objective 9 (Leveraging DERs for Grid and Community Resiliency).

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

10. Strategic Objective 2: Overcoming Barriers to EV Benefits in Disadvantaged Communities

Under the Transportation Electrification Strategic Goal, Staff proposes a Strategic Objective where EPIC funds "accelerate innovation, demonstration, and innovative approaches to deployment to overcome obstacles to equitable transportation electrification benefits (including alleviation of pollution, bridging

transportation access, and addressing energy burden) in Disadvantaged and Vulnerable Communities, low-income communities, and non-attainment air districts."[102] The identified gap that this proposed Strategic Objective is intended to address is the lack of priority community access to transportation electrification benefits.[103]

The Legislature directed this Commission to make more funding available for transportation electrification in underserved communities.[104,105] Subsequently, the Commission adopted requirements for IOU transportation electrification programs to increase funding for customers in underserved communities, requiring that up to 50 percent of all investments be in underserved communities.[106] Later, the Commission reserved at least 65 percent of the Transportation Electrification Framework Funding Cycle One (FC1) budget for underserved communities, along with 65 percent of the marketing, education and outreach budget,[107,108] which must include targeted outreach to underserved and rural communities, small businesses, and tribal communities.

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

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[102] Staff Proposal at 14-15.

[103] *Id*. at 15.

[104] AB 841, Stats. 2020, ch. 372.

[105] Pub. Util. Code Section 740.12 (referencing definition of "underserved communities" in Pub. Util. Code Section 1601).

[106] D.21-07-028; D.21-04-014.

[107] D.22-11-040 at 138-139.

[108] FC1 would consist of a statewide rebate program for behind-the-meter make-readies and EV supply equipment (EVSE), as well as ME&O and TA programs. The FC1 rebate program would provide support to MUDs, MUD-serving public locations, and MHDV sectors. The FC1 term is from 2025 through 2029.

- Improvement in air quality metrics as related to transportation sector emissions (NOx, PM2.5, PM10).
- Reduction in household energy burden for targeted DVCs: Amount that energy burden decreased (percent reduction in share of income paid for energy bills) for participating households.
- Annual rate of new EV charging infrastructure installation in DVCs, in comparison to the overall system.
- Number, MW, and MWh of customers in DVCs participating in transportation electrification use cases.
- Program and technology accessibility: Percent change in program awareness and share of priority community participation over time.

Regarding EPIC, D.23-04-007 adopted the Strategic Goal on transportation electrification in part to reduce significant pollution from the transportation sector in disadvantaged communities.[109] Workshop participants that contributed to the Staff Proposal issued prior to D.23-04-007 noted several related gaps that EPIC funds may be able to impact, including, among others: 1) high costs related to charger interconnection and grid upgrades for areas with high concentrations of EV charging infrastructure; 2) high costs of EV charging infrastructure for light-, medium-, and heavy-duty EVs; 3) a lack of availability of affordable public charging infrastructure; 4) a lack of opportunities for disadvantaged communities to benefit directly from EV adoption; and 5) the high costs of infrastructure for electrifying public transit to benefit disadvantaged and non-attainment communities by mitigating pollution.[110]

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[109] D.23-04-007 at 10.

[110] *Id*. at 11. *See also*, Assigned ALJ Ruling of November 20, 2023, Attachment B at 45:

> "Participants noted that many ESJ communities and customers are left behind in the transportation electrification efforts, either because no affordable EV options are

Footnote continued on next page.

The workshops that helped develop the Staff Proposal for Strategic Objectives also discussed both the need to increase equitable access to transportation electrification benefits as well as participants' concern regarding the lack of access to transportation electrification benefits in disadvantaged communities relative to others.[111]

Staff asserts its proposed Strategic Objective is consistent with statute and Commission policy.

10.1. Positions of Parties

The CEC supports this proposed Strategic Objective, noting that the EPIC Equity Principles articulated in the Staff Proposal also highlight that equity needs are regionally diverse, and one size may not fit all when measuring impacts. The CEC states that this Strategic Objective will need to consider broader transportation electrification equity metrics of importance to different communities and stakeholder groups.[112]

PG&E supports the 13 proposed Strategic Objectives, in general, with some modifications or additions,[113] but does not comment specifically on this proposed Strategic Objective.

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available to them or because their neighborhoods or living arrangements do not support affordable EV charging. Many participants provided examples of other programs that can contribute to the ESJ community participation in the transportation electrification efforts, including EV ride share, electric bikes, EV public transit. Participants noted that EPIC research must look for solutions that provide direct benefits of transportation electrification to the ESJ customers, including EV ownership, public transit options and prioritization of ESJ communities for pollution reduction efforts."

[111] Staff Proposal at 14-16. *See also*, March 2025 Ruling, Attachment 2, Slide 4 and Attachment 3 at 8.

[112] CEC, Opening Comments, filed March 28, 2025, at 4.

[113] PG&E, Opening Comments, filed March 28, 2025, at 8.

10.2. Discussion

The Commission adopts this Strategic Objective and associated metrics. The lack of access to transportation electrification benefits in disadvantaged communities relative to other communities remains a concern and focusing EPIC investments on equity is an ongoing priority.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

11. Strategic Objective 3: Smart Planning Tools for New Load and Clean Resources

Staff proposes a Strategic Objective where EPIC projects and funds "support the development, integration, and updating of transparent, open-access grid planning tools that a) substantially increase the forecasting and predictability of intermittent resources, electric vehicles, building electrification, flexible load, and DERs, b) enable widespread adoption of demand flexibility, c) coordinate with utility capital planning processes, and d) integrate into utility operations for the enablement of grid services and dynamic operation with the goal of reducing ratepayer costs over time and ensuring Disadvantaged and

Vulnerable Communities are not left behind in benefits from the transition to zero-emission technologies."[114]

The gap that this proposed Strategic Objective intends to address is the high capital cost of grid modernization to meet new load and underscoring that DVCs are insufficiently considered in grid planning.[115] This proposed Strategic Objective would extend across four of the five Commission-approved Strategic Goals: 1) Transportation Electrification; 2) Building Decarbonization; 3) Achieving 100 percent Net-Zero Carbon and the Coordinated Role of Gas; and 4) Climate Adaptation.[116]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Avoided costs of project demonstrations compared to a baseline;
- Commensurate peak load reduction;
- Reductions in forecasting errors and mismatch with actual load;
- Locational changes in service interruption indexes including SAIDI, SAIFI, and CAIDI;[117]
- Reduced risk of loss of load, reduced load shed events; and

[114] Staff Proposal at 16-17.

[115] *Id*. at 17. *See also*, ALJ Ruling Requesting Comments on Staff Proposal, issued November 20, 2023, at Attachment B, EPIC Strategic Goals Grid Modernization Workshop Report at 19-20.

[116] Staff Proposal at 17-18.

[117] System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), and Customer Average Interruption Duration Index (CAIDI).

- Affordability Ratio (AR) defined by the Commission as an essential utility services bill divided by the sum of household income minus nondiscretionary expenses.[118, 119]

Staff assert that this proposed Strategic Objective aligns with the Commission's High DER proceeding,[120] including: (i) requirements for utilities to use scenario planning to improve forecasting in their Distribution Planning and Execution Process; (ii) requirements for utilities to develop project prioritization methods and methods for integrated planning; (iii) requirements to address concerns about lack of transparency in IOU integrated planning and project prioritization methods; and (iv) requirements for utilities to include metrics evaluating equity in utility distribution plan reporting. Staff also assert the proposed Strategic Objective aligns with several components of Commission's Climate Change Adaptation proceeding, including (i) requiring the IOUs to integrate the best available climate science, in coordination with the California Climate Assessment, into their long-term planning via their Climate Adaptation Vulnerability Assessments (CAVAs), (ii) recommending that IOUs integrate this best available climate science into other long-term planning proceedings, and (iii) requiring that IOUs follow specific guidelines when proposing investments based on their CAVAs, including incrementality, prioritization, cost-effectiveness, and justification of investment.[121]

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[118] D.20-07-032 at 16-18, Decision Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Service. The Affordability Ratio may be calculated for representative customer at various points of the income distribution, but generally for the 20th percentile.

[119] Staff Proposal at 18.

[120] R.21-06-017.

[121] R.18-04-019, Strategies and Guidance for Climate Change Adaptation.

Staff assert that this proposed Strategic Objective is consistent with the Governor's Clean Energy Transition Plan,[122] which finds that because these upgrades are paid for by customer electric bills, a higher degree of planning than in the past is required to be equitable, timely, and cost-effective. Staff also assert that this proposed Strategic Objective supports the Commission's DER Action Plan Grid Infrastructure Track, which is focused on Commission actions to guide utility infrastructure planning and operations to make the most of existing and future infrastructure and maximize the value to ratepayers of DERs interconnected to the electric grid. Finally, Staff argue that the proposed Strategic Objective supports cost-effectively meeting California's goal of 100 percent clean electricity by 2045 through modernization of tools used in the distribution planning process.[123]

11.1. Positions of Parties

The CEC recommends the Commission revise the name of this proposed Strategic Objective from "Smart Systemwide Grid Planning Tools for New Load" to "Smart Grid Planning Tools for New Load and Clean Resources."[124] The CEC also asks the Commission to revise the explanation of the proposed Strategic Objective so that it would read as follows:

> "The EPIC program will support the development, integration, and updating of transparent, open-access grid planning tools that can help: a) substantially increase the forecasting and predictability of intermittent resources, electric vehicles, building electrification, flexible load, and distributed energy resources, b) enable widespread adoption of demand

[122] Building the Electricity Grid of the Future: California Clean Energy Transition Plan, released May 2023. As of December 18, 2025, available at https://www.gov.ca.gov/wp-content/uploads/2023/05/CAEnergyTransitionPlan.pdf.

[123] Staff Proposal at 18-19. *See also*, March 2025 Ruling, at Attachment 6, Draft EPIC Strategic Objectives-Distributed Energy Resource Integration at 3.

[124] CEC, Opening Comments, filed March 28, 2025, at 5.

> flexibility, c) provide transparent inputs into utility capital planning processes, and/or d) inform utility operations for the enablement of grid services and dynamic operation with the goal of reducing ratepayer costs over time and ensuring Disadvantaged and Vulnerable Communities are not left behind in benefits from the transition to zero-emission technologies."[125]

The CEC opines that increasing the transparency of grid planning and investment decisions is a valuable objective that EPIC investments should support. Moreover, the CEC states that ratepayers will benefit from planning and investment pathways that broadly consider new load, supply, and storage resources. The CEC also asserts that investments in advanced tools and technologies during the EPIC 5 investment cycle should be enabled to explore growth in new load, supply, and storage resources connected at both the distribution and transmission levels. Additionally, the CEC contends that the coordination of any planning tool with utility capital plans and integration into utility operations depends on numerous utility decision-making processes that individual EPIC projects have little control over. The CEC states that many of the identified metrics, such as reductions in reliability metrics like the system average interruption duration index and loss of load events, will be similarly challenging for EPIC projects to directly impact, given the long timeline from planning tool development to implementation by planning entities and utilities, and eventual infrastructure construction or operation. Accordingly, the CEC asserts that EPIC projects can instead seek to amplify strong indirect impacts via improved load and clean resource planning efforts that ultimately increase affordability, accessibility, and other ratepayer benefits.[126]

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[125] *Ibid*.

[126] *Ibid*.

PG&E supports the thirteen proposed Strategic Objectives, in general, with some modifications or additions and supports the revisions proposed by the CEC.[127] Related to this proposed Strategic Objective, PG&E asserts that IOU Administrators are limited to funding RD&D projects and therefore cannot use EPIC funds for operationalizing new planning tools into standardized work.[128] PG&E recommends that this Strategic Objective instead focus on demonstrating and advancing emerging technologies that can later be integrated into the existing ecosystem of the tools. Specifically, PG&E proposes revising the title of the proposed Strategic Objective to "Smart Systemwide Planning Tools for New Load and Existing Loads,"[129] revising sub-bullet (a) to include strategies to connect both flexible and non-flexible loads, not just flexible loads,[130] and expanding sub-bullet (c) to include reviewing asset health and the operational impact of load leveling.[131] Finally, PG&E states that sub-bullet (d) is not clear.

SDG&E requests additional details related to how "Smart Systemwide Planning Tools for New Load" research programs will lead to improvement in grid planning tools. SDG&E argues that the proposed metrics appear misaligned with the intended goal. For example, metrics such as "avoided costs of project demonstrations compared to a baseline" and "locational changes in service interruption indexes (SAIDI, SAIFI, and CAIDI)" do not directly correlate with grid planning and planning tool enhancements. Additionally, SDG&E

[127] PG&E, Opening Comments, filed March 28, 2025, at 8. Reply Comments, filed April 4, 2025, at 3.

[128] *Ibid*.

[129] *Id*., at 9.

[130] *Ibid*.

[131] *Ibid*.

seeks clarification on the staff modification regarding "transparent planning tools" as its connection to the "widespread adoption of demand flexibility" is not clear.[132]

11.2. Discussion

We revise this Strategic Objective to remove the word "Systemwide" so that the description focuses on widespread adoption. Per PG&E's comments, the Commission broadens the scope of this Strategic Objective because grid planning tools must account for both new and existing load, including non-flexible load, and because reviewing asset health and the operational impact of load leveling may impact ratepayer cost. We do not agree to add the words "can help" before sub-bullet (a) because this would weaken the intent of the Strategic Objective.

With these revisions, the Commission adopts this Strategic Objective and associated metrics. Improved planning and forecasting tools utilizing best available climate science and technology innovation will optimize economic deployment of grid infrastructure, reduce peak load and associated grid costs, increase opportunities to use demand flexibility to meet load, and reduce infrastructure installation times, all supporting affordability

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. If an Administrator proposes a metric not listed above, that metric (or

[132] SDG&E, Opening Comments, filed March 28, 2025, at 3.

metrics) must be of similar granularity and measurable of the Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

12. Strategic Objective 4: Reducing the Cost of Whole Home Electrification

Under the Building Decarbonization Strategic Goal, Staff proposes a Strategic Objective in which the EPIC Program will accelerate innovation, demonstration, and reliable and scalable approaches to deployment that help reduce the all-in cost of whole-home electrification and enable demand flexibility/automated response to process signals or dynamic rates for single-family and multi-family buildings and manufactured housing by 50 percent, while decreasing residents' energy costs, by 2035.[133]

This proposed Strategic Objective intends to address the gap of the high cost of residential building electrification by reducing the capital cost of such deployment in furtherance of the objective of residential electricity affordability.[134]

Residential buildings account for 36 percent of all California electricity use and 39 percent of California gas use.[135] One of the gaps identified by workshop

[133] Staff Proposal, at 19.

[134] *Id*.

[135] Staff Proposal at 20. California Energy Commission, California Energy Consumption Database 2022 data, downloaded Sept. 19, 2024 from http://www.ecdms.energy.ca.gov/elecbyutil.aspx and http://www.ecdms.energy.ca.gov/gasbyutil.aspx.

participants is the high cost of residential building electrification.[136] Staff proposes this Strategic Objective because it supports the Commission's goal to maximize cost-effective reduction of GHG emissions from buildings in support of the State's goals of reducing economy wide GHG emissions 40 percent below 1990 levels by 2030 and achieving carbon neutrality by 2045 or sooner in a manner that aligns with several Commission proceedings, including Building Decarbonization (R.19-01-011), Long-Term Gas System Planning (R.20-01-007), and Demand Flexibility (R.22-07-005).[137]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Change in modeled and actual all-in costs of whole-home electrification, with attribution by use, and disaggregated by community/region;
- Total energy (MWh, MCF, MMBtu) and energy use intensity (energy used per square foot of conditioned space) reduction;
- Tenant comfort measurements;
- Affordability ratio, defined by the Commission as an essential utility services bill divided by the sum of household income minus nondiscretionary expenses;
- Customer cost savings (in dollars) in aggregate and by low-income household served;
- Energy utility bill cost savings in priority populations after program implementation; and
- Percent change in electrification in DVCs.[138]

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[136] Staff Proposal at 21. *See also*, ALJ Ruling Requesting Comments on Staff Proposal, issued November 20, 2023, at Attachment B, EPIC Strategic Goals Built Environment Workshop Report at 30.

[137] Staff Proposal at 21-22.

[138] *Id.*, at 21.

12.1. Positions of Parties

The CEC recommends that the Commission revise this proposed Strategic Objective to include commercial buildings, not just residential.[139] The CEC asserts commercial buildings are a critical segment of building decarbonization in need of innovation investment to reduce costs. The CEC states that commercial buildings account for a significant share of energy consumption and half of the GHG emissions from the building. Moreover, the CEC argues that commercial building decarbonization is essential for achieving meaningful progress toward climate goals while accelerating the innovations that enable knowledge transfer, scale deployment, and reduce costs.[140]

PG&E and SCE support removing the 50 percent cost reduction target as its achievement would depend on state and local policies, broader economic conditions, and market response that are outside of the scope of the EPIC Program.[141] Instead, PG&E recommends the framework to measure scalability and commercialization in Section 4 of the Staff Proposal could provide a method to track cost reductions and the attribution to specific EPIC projects.[142,143]

12.2. Discussion

The Commission adopts this Strategic Objective and associated metrics without revision on the basis that the "whole home" approach for residential

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[139] CEC, Opening Comments, filed March 28, 2025, at 6. PG&E, Reply Comments, filed April 4, 2025, at 3.

[140] CEC, Opening Comments, filed March 28, 2025, at 6.

[141] PG&E, Opening Comments, filed March 28, 2025, at 9. SCE, Reply Comments, filed April 4, 2025, at 5.

[142] PG&E, Opening Comments, filed March 28, 2025, at 9.

[143] The Staff Proposal includes a series of next steps for an additional phase in this proceeding or a new proceeding. As noted in Section 25, the Commission is closing this proceeding and delegating to Staff certain ministerial follow-up tasks.

building electrification should be less costly than piecemeal approaches. We decline to add commercial buildings to the scope of this Strategic Objective because it would significantly dilute the ability to make progress in residential sector costs. Further, electrification approaches for some commercial building types applicable to zonal electrification efforts may fit in Strategic Objective 6, Community-Scale Decarbonization. We also do not adopt PG&E's recommendation to remove the 50 percent cost reduction target because the CEC is the most likely Administrator to develop the required technology innovations and the CEC does not recommend this removal.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

13. Strategic Objective 5: Innovative Approaches for Difficult-to-Decarbonize Sectors

Staff proposes a Strategic Objective for EPIC where the program "will accelerate innovative approaches, strategies, and business models to achieve lifecycle cost-parity for difficult-to-decarbonize commercial and industrial

buildings and processes, with a specific focus on strategies that lead to the reduction of NOx, PM, and other surface-level pollutants impacting Disadvantaged and Vulnerable Communities."[144] This proposed Strategic Objective would fall under three Strategic Goals: Building Decarbonization, Achieving 100 percent Net-Zero Carbon, and the Coordinated Role of Gas.[145]

The gap that this proposed Strategic Objective intends to address is the high cost and lack of electrification solutions for difficult-to-decarbonize commercial and industrial sector applications.[146]

Industries requiring high heat and process emissions of carbon dioxide, that also include economic factors such as low profit margins, capital intensity, long asset life, and trade exposure are the most difficult industries to decarbonize.[147] In California, these types of industries include cement plants, glass manufacturers, paper manufacturers, chemical manufacturing, mining operations, stone, clay, metal processors, and food processors, as well as critical facilities such as hospitals that rely on fossil-fueled emergency backup power, and research laboratories requiring high temperature process heat.[148]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Cost metric improvements, analyzed by process decarbonization category;

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[144] Staff Proposal at 22.

[145] *Id.*, at 23.

[146] *Ibid*.

[147] *See*, ALJ Ruling Requesting Comments on Staff Proposal, issued November 20, 2023, at Attachment B. EPIC Strategic Goals Kick-Off Workshop Report at 6. *See also*, March 2025 Ruling, at Attachment 4, Building Decarbonization – Draft Strategic Objectives Workshop Report at 3.

[148] Staff Proposal at 22-23.

- Reduced GHG emissions and improved air quality in DVCs; and
- Relative standing of community (census tract) based on population characteristics and pollution burden (CalEnviroScreen to be used, where it identifies communities least able to afford increases in charges for affordable services).[149]

Staff asserts that this Strategic Objective will focus EPIC funding on cases where direct or indirect electrification innovation may cost-effectively abate GHG emissions from difficult-to-decarbonize sectors. Staff asserts that this proposed Strategic Objective supports California's goal of state-wide net zero GHG emissions by 2045, and aligns with the Commission's Environmental and Social Justice (ESJ) Action Plan and the following Commission proceedings: Electric Integrated Resource Planning and Related Procurement Processes (R.20-05-003); Long-Term Gas System Planning (R.24-09-012); and Building Decarbonization (R.19-01-011).

13.1. Positions of Parties

The CEC recommends that the Commission adopt this proposed Strategic Objective.[150]

PG&E advocates removing the words "to achieve lifecycle cost-parity" from this proposed Strategic Objective. PG&E argues that because EPIC's RD&D scope is limited to advancing emerging technologies, evaluating cost-parity for pre-commercial technologies is premature and would likely undermine the additional or underserved value the new technology is bringing to a sector. Instead of cost-parity, PG&E recommends including the following metrics in the

[149] *Id.*, at 23.

[150] CEC, Opening Comments, filed March 28, 2025, at 7.

optional Metrics section: emissions from both energy and non-energy processes, as well as square footage of new technology, which can support rapid replacement of technology, if the new solution is similar or smaller in footprint.[151]

13.2. Discussion

The Commission adopts this Strategic Objective and associated metrics without revision.

Encouraging RD&D projects that address the high cost and lack of electrification solutions for difficult-to-decarbonize commercial and industrial sector applications is important for the State's long-term affordability and ESJ concerns.

The Commission declines to accept PG&E's recommendation because characterizing the life-cycle cost of emerging technologies or innovative approaches is important to evaluate the potential to achieve life cycle cost parity at scale and avoid hidden or unintended consequences of pursuing any particular set of technology solutions.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the

[151] PG&E, Opening Comments, filed March 28, 2025, at 9.

Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

14. Strategic Objective 6: Community-Scale Decarbonization

Staff proposes a Strategic Objective where the EPIC Program demonstrates technology, deployment strategies, planning approaches and business models for achieving 100 percent neighborhood- or community-scale electrification at cost-parity, or on a cost-beneficial basis, and with a prioritization on addressing needs and obstacles of DVCs.[152] This proposed Strategic Objective will meet all five Strategic Goals.[153]

The identified gap this proposed Strategic Objective is intended to address is the high cost of community-scale decarbonization and the uncertainty of timing and nature of the transition from natural gas in furtherance of California's climate policies..[154] A 2023 CEC-funded study found that community-scale decarbonization, through electrification and gas decommissioning, will significantly challenge the funding and cost recovery mechanisms for California's gas distribution system. The study further found that targeted electrification and gas decommissioning offers a cost-effective approach to support building electrification in specific locations where the cost of new gas infrastructure can be avoided.

[152] Staff Proposal at 25.

[153] *Ibid*.

[154] *Id*.

The proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Number of and total customers within 100 percent electrified/decarbonized communities;
- Change in electricity, gas, fuel demand within 100 percent electrified/decarbonized communities;
- Change ($/household) in total energy costs for participants in neighborhood- or community-scale electrification;
- Change (percent) in customer satisfaction for energy services;
- Ratepayer cost savings in avoided upgrades to existing gas/electric infrastructure per household in the targeted electrified community and per household impact on all other ratepayers;
- GHG reductions and air quality improvements in the electrified communities, particularly in priority populations;
- Percent of participants at various income levels, percent of EPIC project funding invested in and benefitting DVCs;
- Health and safety issues abated (number of homes with percent frequency issues abated);
- Energy (MWh, MCF, MMBtu) and cost savings ($) for customers in aggregate or by low-income household served: Energy cost savings in priority populations after program implementation;
- Change (percent) in energy burden; and
- Scalability of project approach, including percent of utility customers meeting project eligibility criteria.

Staff asserts that this Strategic Objective will support meeting California's GHG and heat pump targets[155] in a cost-effective manner, as well as geographically concentrating decarbonization and avoiding gas pipeline replacement that could produce substantial cost savings. Moreover, Staff asserts that this Strategic Objective aligns with the Commission's Long-Term Gas Planning proceeding and complements the Building Decarbonization proceeding.[156]

14.1. Positions of Parties

The CEC recommends that the Commission adopt this proposed Strategic Objective, noting that successful community-scale decarbonization will require both advancement of technology and implementation, and that research to inform regulations, such as state and local policy, would support affordability, equity, and decarbonization goals.[157]

PG&E recommends adding "tools" into the description and removing the reference to "at cost-parity."[158]

14.2. Discussion

The Commission adopts this Strategic Objective and associated metrics with revisions to include "tools," per PG&E's comments, because doing so may improve the ability of the objective to make measurable impact. Avoiding disproportionate cost burdens on ratepayers that are the last to decarbonize and

[155] Letter from Governor Newsom to CARB including a request to incorporate a goal of deployment of 6 million heat pumps statewide by 2030 into the final CARB Scoping Plan. July 22, 2022. https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf.

[156] Staff Proposal at 27.

[157] CEC, Opening Comments, filed March 28, 2025, at 7.

[158] PG&E, Opening Comments, filed March 28, 2025, at 9.

least able to do so requires coordinated energy sector planning including avoiding upgrades to existing gas or electric infrastructure, innovation to reduce technology cost, as well as business models to support scaling and deployment.

Based on PG&E's request to remove "at cost-parity," we revise and adopt this Strategic Objective as follows: "The Strategic Objective for EPIC that the program demonstrates technology, tools, deployment strategies, planning approaches and business models for achieving 100 percent neighborhood- or community-scale electrification that considers the needs of participating and non-participating customers, on a coordinated timeline with long-term gas planning activities at the Commission, with a prioritization on addressing needs and obstacles of Disadvantaged and Vulnerable Communities."

This adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

15. Strategic Objective 7: Impacts Research for New Generation and Storage

Staff proposes a Strategic Objective where EPIC Program funds results in s new lifecycle and techno-economic analysis, as needed, to identify the emerging zero-carbon technologies with the lowest adverse and highest beneficial economic, land, air, water, net energy, health, and safety impacts on California communities, including DVCs.[159] This proposed Strategic Objective meets two Strategic Goals: Achieving 100 percent Net-Zero Carbon and DER Integration.[160]

Staff asserts lifecycle analysis has an essential role in revealing unintended consequences of energy technology deployment by using a "cradle-to-grave" approach in analyzing a technology's energy use and environmental impacts. Staff further asserts that techno-economic analysis has a critical role in evaluating energy technology lifecycle economic impacts and cost-effectiveness. Combining lifecycle environmental analysis with techno-economic cost analysis to monetize energy and environmental impacts provides a powerful tool for ensuring the EPIC Program's Strategic Goals will be met cost-effectively and with lowest environmental impact. Given the existing body of knowledge on energy lifecycle assessment, Administrators should assess existing electricity technology lifecycle analysis studies to avoid duplication and ensure that additional research is complementary and necessary to identify and address knowledge gaps that support this Strategic Objective. Criteria for technology analysis selection should be developed to determine a priority ranking of technologies to be examined. Such an approach can help steer EPIC funds to invest in innovation that will

[159] Staff Proposal at 28.

[160] *Id.*, at 29.

improve cost-effectiveness and reduce environmental impacts to ratepayers over the long lifetimes of electricity technology.[161]

The gap that this proposed Strategic Objective intends to address is the lack of California-specific analysis regarding the risk of unintended lifecycle impacts from emerging clean energy technology and processes, including achieving the State's goals cost-effectively in consideration of affordability.[162]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Increased understanding of risks and knowledge gaps of new generation and storage technologies, measured in impacted or targeted communities;
- Short, written plain language summaries used to convey all major impact research planning and results to stakeholders in a simple and easily understood manner;
- Number of community consultations held with community leaders;
- Responsiveness of planning processes to participation and fairness of decisions, as measured by perceived output legitimacy for DVCs; and
- Number and frequency of education and awareness sessions on curated topics.[163]

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[161] *Ibid*.

[162] *Ibid*. *See also*, March 2025 Ruling, at Attachment 5, Draft EPIC Strategic Objectives Report, Achieving 100% Net-Zero Carbon Emissions and the Coordinated Role of Gas, at 3. *See also*, ALJ Ruling Requesting Comments on Staff Proposal, issued November 20, 2023, at Attachment B, EPIC Strategic Goals New and Emerging Strategies Workshop Report at 23 and 27. *See also*, ALJ Ruling Requesting Comments on Staff Proposal, issued November 20, 2023, at Attachment B, EPIC Strategic Goals Kick-Off Workshop Report at 6. *See also*, March 2025 Ruling, at Attachment 4, Building Decarbonization – Draft Strategic Objectives Workshop Report at 3.

[163] Staff Proposal at 29-30.

15.1. Positions of Parties

PG&E recommends incorporating the aims of proposed Strategic Objective 7 into the proposed Market Transformation Framework to measure scalability and commercialization in Section 4 of the Staff Proposal, as this description relates to technology evaluation at different phases of a product lifecycle and does not relate to specifically advancing new generation and storage.[164]

The CEC strongly recommends that the Commission revise this proposed Strategic Objective to include cost-effective zero-carbon technology development and demonstrations. The CEC proposes that the title of the Strategic Objective be "Research and Development for New Generation and Storage," with the explanation of the Strategic Objective as follows:

> The EPIC program will analyze environmental, social, technical, and economic impacts of zero-carbon technologies throughout their life cycle, develop innovations to enhance ratepayer benefits and decrease negative impacts, and inform grid development to facilitate achieving the lowest adverse and highest beneficial economic, land, air, water, net energy, health, and safety impacts on California communities, including DVCs.[165]

Although life cycle analysis and techno-economic analysis are important tools for resource planning, the CEC argues that they should be part of a suite of research, development, and demonstration efforts supporting the achievement of the least adverse and most beneficial impacts of zero-carbon technologies for California communities. For this application, the CEC contends, impacts are

[164] PG&E, Opening Comments, filed March 28, 2025, at 10.

[165] CEC, Opening Comments, filed March 28, 2025, at 8, 10.

typically cumulative, dynamic, and too poorly known to be accommodated by life cycle analysis and/or techno-economic analysis alone.[166]

15.2. Discussion

The Commission adopts this Strategic Objective and associated metrics without revision. Better understanding of the costs, risks, and unintended consequences of emerging technology development and deployment will help focus investment on technologies with the greatest promise and least negative impact on Californians.

The Commission declines to accept the CEC's recommended revisions, as they would allow for all applied research and development (R&D) and technology development and demonstration projects with no specific objective. This Strategic Objective is intended to be narrow, where early demonstrations related to this Strategic Objective may still inform future research direction.

The Commission also does not share PG&E's position, because new lifecycle and techno-economic analysis is intended to inform EPIC priorities early-on in the applied R&D stage.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the

[166] *Id.*, at 8.

Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

16. Strategic Objective 8: Increase Predictability of Weather Impact on, Intermittent Resources, Climate Risks, and Load

Staff proposes a Strategic Objective where, by 2030, EPIC Program funds results in data analysis and development and/or improvement of modeling tools and technologies to measurably improve: a) predictions to electric system operational climate risk; b) intermittent electric resource supply forecasts and electricity demand forecasts under climate uncertainty; c) open-access data on grid equipment condition and capability; and d) coordination between weather observation, forecasting, and grid operations.[167]

The identified gap this proposed Strategic Objective is expected to address is the need for improved data analysis and modeling tools to better predict electric system operations and planning under increasing climate uncertainty.[168]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Development of advanced modeling tools to understand future load shapes of electrification, including transportation and home heating, in combination with current weather variability and extreme weather events;

[167] Staff Proposal at 32.

[168] Staff Proposal at 33. *See also*, March 2025 Ruling at Attachment 6, DRAFT EPIC Strategic Objectives Report - Distributed Energy Resource Integration; and Attachment 7DRAFT EPIC Strategic Objectives Report - Climate Adaptation.

- Development of locational near-term climate modeling that can better predict 12-hour, 24-hour, or 72-hour renewable generation and load profiles;
- Quantify correlation between Commission Energy Modeling Team predictions and EPIC work, particularly for (a) behind the meter photovoltaic energy generation, (b) variability of weather year managed and consumption peaks, and (c) consistency of predicted demand to historical trends in demand;
- Development of locational long-term climate modeling that can better predict the likelihood of extreme weather events that may impact infrastructure;
- Reductions in forecasting errors and mismatch with actual load;
- Reduced risk of loss of load, reduced number and duration of load shed events;
- Continued and enhanced open access to data;
- Reduction in system resilience variability among service areas, particularly in DVCs; and
- Locational changes in service interruption indexes including SAIDI, SAIFI, and CAIDI.[169]

Staff asserts improved technologies, such as sensors or improved modeling, can better predict the likelihood of extreme weather events in a given area, which can inform infrastructure planning, enhance the reliability of California's electric system, make electric bills more affordable and equitable, and reduce the curtailment of renewable energy and GHG emissions associated with meeting the state's future system load.[170]

[169] Staff Proposal, at 33.

[170] *Id.*, at 34.

16.1. Positions of Parties

PG&E recommends removing sub-part (c) of this proposed Strategic Objective, asserting that tools related to "open-access data on grid equipment condition and capability" may introduce increased physical risk or cybersecurity vulnerabilities to the energy system.[171]

The CEC recommends that the Commission revise this proposed Strategic Objective to include advancements in data resources. The Strategic Objective's title would be revised to read "Increase Predictability of Weather Impacts on Intermittent Resources, Climate Risks, and Load." The explanation of the Strategic Objective would be revised to read as follows:

> "By 2030, the EPIC program will conduct data analysis and develop and/or advance data resources, modeling tools, and technologies to measurably improve: a) predictions to electric system operational climate risks; b) intermittent electric resource supply forecasts and electricity demand forecasts under climate uncertainty; c) open-access data on grid equipment condition and capability; and d) coordination between weather and climate observation/projections, forecasting, and grid operations."[172]

The CEC asserts that the data resources listed above will provide a more comprehensive portrait of the evolving grid and how to optimize its performance in the face of increasingly challenging weather and changing climate patterns. Further, the CEC contends that granular data on system interruptions and related resilience processes will be critical for an affordable transition to a resilient and equitable grid as well as for operational decisions.[173]

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[171] PG&E, Opening Comments, filed March 28, 2025, at 10.

[172] CEC, Opening Comments, filed March 28, 2025, at 11.

[173] *Id*. at 10.

SDG&E seeks clarification regarding the definition of "open access data on equipment condition and capability." Assuming that "open access" includes real-time public access to sensitive data about electric utility equipment, SDG&E argues this policy could expose vulnerabilities.[174] To the extent Staff's definition of "open access" includes "information pertaining to facilities or assets covered by the CIP (Critical Infrastructure Protection) reliability standards or other NERC (North American Electric Reliability Corporation) reliability standards," SDG&E argues that "such access may be prohibited or at a minimum could add another layer of uncertainty and complexity to SDG&E's compliance with those federal rules."[175] SDG&E also "requests clarification on the value and trade-offs associated with open access," opining that "it is not inherently evident how this approach would contribute to mitigating climate risk."[176] SDG&E, SCE, and PG&E support removing the "open-access data on grid equipment and capability" component of this Strategic Objective, claiming that implementing systems to provide open access to equipment data could be costly and increase the regulatory burden on IOUs.[177]

SDG&E recommends removing "near term" from the proposed metric entitled "Development of locational near-term climate modeling that can better predict 12-hour, 24-hour, or 72-hour renewable generation and load profiles." SDG&E argues climate data is typically long-term and not used to predict the

[174] SDG&E, Opening Comments, filed March 28, 2025, at 4.

[175] *Ibid*.

[176] *Ibid*.

[177] SDG&E, Opening Comments, filed March 28, 2025, at 4. SCE, Reply Comments, filed April 4, 2025, at 5. PG&E, Reply Comments, filed April 4, 2025, at 3.

granular intervals discussed in the Staff Proposal. SDG&E also contends that removing "near term" also would align with the preceding proposed metric.[178]

16.2. Discussion

The Commission adopts this Strategic Objective and associated metrics, including the revisions proposed by the CEC, because this would provide a more comprehensive portrait of the evolving grid and how to optimize its performance. Advanced planning models with improved predictions, forecasts, and greater knowledge-sharing and transparency will provide better understanding of the impact of electrification on future load shapes across the transportation and built environment sectors, better predict the likelihood of extreme weather events that may impact infrastructure, and lead to improved electric system resilience.

The Commission does not adopt the revisions proposed by PG&E and SDG&E because cybersecurity already has been designated as a cross-cutting principle of EPIC Goals and this Strategic Objective already seeks to improve rather than degrade cyber and physical security. Additionally, we clarify that tools related to this Strategic Objective will not necessarily introduce increased physical risk or cybersecurity vulnerabilities to the energy system. Finally, the need for open-source data was repeatedly raised as an important need for this topic in the Technical Working Groups. In response to PG&E and SDG&E's concerns on the open-access provision, the Commission clarifies that EPIC-funded projects addressing this Strategic Objective demonstrate at the outset that the granularity of related open-access data will not increase physical risk or cybersecurity vulnerabilities to the energy system.

[178] SDG&E, Opening Comments, filed March 28, 2025, at 4.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

17. Strategic Objective 9: Leveraging Distributed Energy Resources for Grid and Community Resiliency

Staff proposes a Strategic Objective where the EPIC Program supports technology development, innovative deployment models, and real-world testing and evaluation for the demonstration of the use of clean Distributed Energy Resources (DERs) to reduce the impact of outage events, through strategies that allow critical and/or essential loads[179] and services to remain powered through such events and that reduce power restoration time for vulnerable populations, with a specific focus on solving challenges related to critical loads and services identified by DVCs as critical community resilience needs.[180] This proposed

[179] Essential load is the power demand of a system that must be constantly supplied but is not critical to the business function. An example is building HVAC services. Critical loads are loads which must be served all the time and cannot be shed regardless of the amount and cost of generation. An example is hospital life support equipment.

[180] Staff Proposal at 35.

Strategic Objective meets four of the five EPIC Strategic Goals: Transportation Electrification; Building Decarbonization; Climate Adaptation; and DER Integration.[181]

The identified gap that this proposed Strategic Objective is intended to address is that critical and/or essential loads and services in DVCs are not well-identified. Microgrid switching for grid power outage and grid power restoration may not be seamless for critical and/or essential loads.[182]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- The Commission's Resiliency Score Card metrics;[183]
- Strategies that successfully demonstrate ability to remain powered, recover quickly from, or otherwise mitigate outage events, the MW load served by such strategies, and duration load was served;
- Number of outages mitigated for individual projects;
- Percent of load and DERs identified as critical load maintained during outage events;
- Capacity (MW) of emitting backup generation replaced with zero-emission DERs;
- Cost of solution implementation (for project and at scale), before and after-tax credits and incentives;
- Number of circuits proactively addressed;

[181] *Id*. at 36.

[182] *Ibid*. *See also*, March 2025 Ruling at Attachment 4, DRAFT EPIC Strategic Objectives Report - Distributed Energy Resource Integration.

[183] The Resiliency Score Card is a component of the Commission's developing methodology of equitable resiliency evaluation and planning. The Score Card is a suggested tool that provides a basic benchmark of achievement but recognizes that more can be done. Information Session: Introduction to the Commission's Equitable Resiliency Study at 8. September 10, 2024. Available online under "Resiliency and Microgrids Events and Materials" at https://www.cpuc.ca.gov/resiliencyandmicrogrids.

- Operational and cost effectiveness of front of the meter and behind the meter solutions;
- Sandia National Laboratory Resilient Node Cluster Analysis Tool (ReNCAT) social burden metrics;[184]
- Duration (hours) of outages mitigated; the percent of load and DERs identified as critical load that maintains during outage events; MW of emitting backup generation replaced with zero-emission DERs; and the value of associated outages through the Interruption Cost Estimate Calculator 2.0;[185] and
- The number of DVC residents who had access to power during an outage, number of minutes of power supplied by alternative methods during an unplanned outage (wildfire, calamity, etc.).[186]

Staff asserts that strategies that allow critical and/or essential loads and services to remain powered through events such as extreme weather outages and summer peak load disruptions and reduce power restoration time for vulnerable populations can address the outsized burden that long-duration outages have on disadvantaged, low-income, ESJ, and Tribal communities. While cybersecurity for DERs did not rise to the forefront in the EPIC Technical Working Groups, Staff asserts that it appears to be a nascent area for EPIC innovation and should be the focus of particular research, development, and coordination - including at the federal level. Given the potential for severe impacts from cyber-attacks on utility infrastructure and communications, Staff contends that RD&D for

[184] Sandia National Laboratory, Resilient Node Cluster Analysis Tool. Available online at https://energy.sandia.gov/resilient-node-cluster-analysis-tool.

[185] U.S. Department of Energy. Interruption Cost Estimate Calculator. Available online at https://icecalculator.com/home.

[186] Staff Proposal at 36-37. Presentation from Kenneth Holbrook, Tribal Advisor, California Public Utilities Commission at EPIC Strategic Goals Equity in RD&D Workshop, August 17, 2023. Equity for Tribes at 9.

cybersecurity addresses a gap in reliability and safety.[187] Staff further asserts the proposed Strategic Objective will support optimizing DER integration for community resilience to avoid the negative impacts of distribution grid power disruption and align with the Commission's High-DER proceeding future consideration of rate impacts and alignment with the Commission's ESJ Action Plan, as well as the Commission's Microgrid proceeding.[188]

17.1. Positions of Parties

The CEC recommends the Commission adopt this proposed Strategic Objective, asserting its inclusive focus on technology development, innovative deployment models, and real-world testing and evaluation, as well as the resiliency benefits of DERs, specifically for DVCs, will allow the CEC to develop many creative initiatives in the EPIC 5 investment plan, and aligns with what EPIC is designed to accomplish.[189] The CEC seeks clarification about the difference between critical versus essential loads and services and whether such a distinction is necessary.[190]

PG&E supports the thirteen proposed Strategic Objectives, in general, with some modifications or additions,[191] but does not comment specifically on this proposed Strategic Objective.

17.2. Discussion

The Commission adopts this Strategic Objective and associated metrics without modification, as it addresses a clearly defined gap and is not opposed by

[187] Staff Proposal at 37.

[188] *Id.,* at 37-38.

[189] CEC, Opening Comments, filed March 28, 2025, at 12.

[190] *Id*.

[191] PG&E, Opening Comments, filed March 28, 2025, at 8.

any party. Improved understanding of clean DER capability to support grid resiliency combined with microgrid switching technology innovation will improve the ability of DERs to meet critical (must run, i.e. life support) and essential but non-critical load as well as reduce the disproportionate cost of power disruptions on DVCs and Tribal communities.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

18. Strategic Objective 10: Expediting and Streamlining Interconnection and Energization Processes

Staff proposes a Strategic Objective whereby the EPIC Program supports the acceleration of the development, testing, and integration of innovative technology, communication protocols, and modeling approaches to streamlining interconnection and energization processes for DER and electric vehicle charging infrastructure, with a goal to demonstrate the capability to significantly reduce interconnection and energization approval timelines under multiple high DER penetration and electrification scenarios, with a priority for addressing

challenges in DVCs.[192] This proposed Strategic Objective addresses two EPIC Strategic Goals: Transportation Electrification and DER Integration.[193]

The identified gap this proposed Strategic Objective is intended to address is the long lead times for DER and vehicle-grid integration (VGI) technology on constrained circuits which slows electrification and increases energy costs.[194]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Percentage decrease in time to receive electric service for energization customers and utilities;
- Percentage decrease in interconnection time from application to Permission to Operate for customers and utilities;
- Percentage of DERs and EVs interconnected with expedited timelines;
- Decrease in interconnection and energization costs over time due to reduced timelines;
- Affordability ratio, defined by the Commission as an essential utility services bill divided by the sum of household income minus nondiscretionary expenses; and
- Assess if the same, or modifications to the tools can be used by local jurisdictions to expedite the permitting process (i.e., time to permit before and after the EPIC project).

[192] Staff Proposal at 38.

[193] *Id.*, at 39.

[194] Staff Proposal at 40. *See also*, March 2025 Ruling, at Attachment 4, DRAFT EPIC Strategic Objectives Report - Building Decarbonization at 3. *See also*, March 2025 Ruling, at Attachment 3, DRAFT EPIC Strategic Objectives Report - Transportation Electrification at 3.

Staff asserts that this proposed Strategic Objective aligns with several components of the Commission's Streamlining Interconnection proceeding[195] including streamlining the process of interconnection to utility distribution lines by providing data necessary for future data-driven considerations of process improvements, as well as the Microgrids Proceeding, which streamlined the Rule 21 interconnection process and reduced interconnection costs for microgrid applications.[196] Staff also asserts that enhancements to the interconnection process will help bring new resources to market more quickly to meet near and mid-term reliability needs and will help mitigate scarcity pricing concerns, thereby addressing the identified gap.[197]

18.1. Positions of Parties

The CEC recommends the Commission revise this proposed Strategic Objective to include new loads, clean resources, and limited load profiles. The CEC's rationale is as follows:

> "Accelerating interconnection and energization processes is a valuable objective to the extent it aligns with EPIC's statutory requirements to "[a]ward funds for projects that will benefit electricity ratepayers and lead to...[t]echnological advancement and breakthroughs…" The use of EPIC funds, for example, for an entity to purchase a new software program or develop a web portal to facilitate the submission of interconnection or energization applications would not appear to meet this bar. The value of this strategic objective will be realized through innovative solutions such as limited generation profiles and limited load profiles as part of broader

[195] R.17-07-007, Streamlining Interconnection of Distributed Energy Resources and Improvements to Rule 21. D.20-06-017 at Conclusion of Law 14 and 28, and Ordering Paragraph 10.

[196] Staff Proposal, at 41.

[197] *Ibid*.

> operations-related strategies to reduce costs comprehensively and foster innovative and cohesive solutions.
>
> Moreover, by broadly considering all new loads (e.g., commercial and residential buildings) and clean resources (e.g., utility-scale generation and storage connected at the transmission level), in alignment with the Commission's Resource Adequacy proceeding (R.23-10-011), this strategic objective can enable work with entities like the California Independent System Operator on innovative approaches for expediting and streamlining transmission-level interconnection, where many of the cost drivers lay."[198]
>
> PG&E agrees with the CEC.[199]

18.2. Discussion

The Commission adopts this Strategic Objective and associated metrics with revisions.

The Strategic Objective is broadened to include all new loads, limited loads and limited generation profiles, as the CEC recommends, because these may impact the ability of EPIC projects to make measurable progress in DER and EV interconnection and energization timelines. Innovative approaches to reducing interconnection and energization approval timelines will accelerate electrification, allow quicker adoption of DER and EV technologies, and reduce energy costs. Thus, this revised Strategic Objective addresses the identified gap.

The Commission does not adopt the CEC's recommendation to include all clean resources, including utility-scale generation and storage connected at the transmission level within the scope of this Strategic Objective, because these are different use cases. There is a risk that doing so would dilute the ability to demonstrate measurable impact at the distribution scale.

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[198] CEC, Opening Comments, filed March 28, 2025, at 12-13.

[199] PG&E, Reply Comments, filed April 4, 2025, at 3.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and measurable of the Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

19. Strategic Objective 11: Providing Data Input into a Value of DER Framework

Staff proposes a Strategic Objective whereby the EPIC Program funds analysis, real-world demonstrations, and data collection to support the development and ongoing update of an evidence-based framework for the location-, time-, and performance-based values of grid services that are a) usable by grid operators to reduce costs to ratepayers and expand opportunities for distributed zero-emission technologies, and b) accessible by any DER, electric vehicle, or flexible load.[200]

In the 2022 Integrated Distributed Energy Resources Proceeding, the Commission determined that it must develop methods to value greenhouse gas emissions avoided costs.[201] In 2021, the Commission's Distribution Resources

[200] Staff Proposal at 42.

[201] D.22-05-002 at Ordering Paragraph 5. Adopting Changes to Avoided Cost Calculator in the Integrated Distributed Energy Resources proceeding.

Plans Proceeding determined the need to pursue additional refinement in locational benefit evaluation, cost-effective DER deployment mechanisms, and cost-effective DER integration into distribution planning consistent with the goal of yielding net benefits to ratepayers.[202] In its 2021 High DER Proceeding, the Commission considered twelve new and outstanding issues that remain to be resolved to ensure the grid can efficiently and cost-effectively support the growth of DERs.[203] Among these, and directly linked to this Strategic Objective, is the Commission's determination that DER value streams, including energy and ancillary services, greenhouse gas costs/credits, and resiliency remain untapped.[204] DERs, whether load reducing or load increasing, play a role in energization discussions as they impact grid management and reliability.[205]

The gap this proposed Strategic Objective is intended to address is the slow uptake of innovation to improve grid flexibility due to a lack of understanding of the value of grid services provided by distributed generation and flexible load, such as electric vehicles, battery storage, and VGI technology integration.[206] An evidence-based framework to characterize the market value of DER and flexible load grid services accurately will better inform the economics of deploying these technologies.

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[202] D.21-09-005 at 18-21.

[203] R.21-06-017, Order Instituting Rulemaking, Modernize the Electric Grid for a High DER Future at 13 and at Appendix C.

[204] R.21-06-017, Order Instituting Rulemaking, Modernize the Electric Grid for a High DER Future at Appendix C, Item (G).

[205] D.24-09-020 at 18.

[206] Staff Proposal at 43.

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- The establishment of standard procedures to evaluate distributed and flexible load grid services, baselines, and benefits;
- Open access to data to be evaluated by the framework;
- Number of calls for grid services;
- Units of grid service provided (kW, kWh, kVAR, etc.);
- Change in number of registered grid service providing assets;
- Change in number of customers enrolled in load flexibility, integrated load flexibility, and dynamic rate programs statewide;
- Extent of cost-effective peak load reduction ($/kW);
- Capacity (MW) and value ($) of deferred or avoided grid upgrades due to load flexibility;
- Share (%) of DVCs enrolled in relevant programs pertaining to DER, Transportation Electrification, Building Decarbonization, and/or dynamic rates;
- Documented impacts from community consultations held with community leaders; and
- Change in number of contractors offering more than two DER programs.[207]

Staff asserts that this proposed Strategic Objective supports the Commission's DER Action Plan in maximizing the ratepayer and societal value of millions of DERs on the grid, while advancing affordable and equitable rates

[207] *Id.,* at 43-44.

and aligns with the Commission's High DER[208] and Demand Flexibility[209] proceedings, as well as the State's goal to meet its target of achieving a renewable and zero-carbon power sector by 2045 in a cost-effective manner.[210]

19.1. Positions of Parties

The CEC supports adopting this proposed Strategic Objective but seeks clarification regarding whether EPIC Administrators or another entity would be responsible for developing the framework, or for conducting analysis, real-world demonstrations, and data collection to support the development and ongoing update of the framework.[211]

PG&E recommends replacing "zero-emissions technologies" with "DERs" to provide flexibility to potentially leverage hybrid plug-in EVs. Additionally, PG&E recommends the optional metrics section include reliability of DERs to provide grid services (e.g. "firmness" of DERs).[212]

19.2. Discussion

The Commission adopts this Strategic Objective and associated metrics without revisions. We clarify for the CEC that evidence-based framework development and operation will be a collaborative stakeholder-driven process in which roles and responsibilities would be more clearly defined, and would be conducted in coordination with relevant Commission proceedings.

[208] R.21-06-017.

[209] R.22-07-005.

[210] Staff Proposal at 44.

[211] CEC, Opening Comments, filed March 28, 2025, at 14.

[212] PG&E, Opening Comments, filed March 28, 2025, at 10.

We clarify that the flexibility PG&E seeks already exists as hybrid plug-in EVs are included in the category of DERs, electric vehicles, and flexible loads that may contribute to grid services.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

20. Strategic Objective 12: Optimizing Feeder / Circuit Operations

Staff proposes a Strategic Objective that, to support ratepayer affordability, the EPIC Program will accelerate innovation, demonstration, and deployment of novel and replicable methods to increase the utilization rate of a circuit and reduce circuit and feeder peak loads, in order to avoid or defer costly grid upgrades, through the coordination of DERs, EVs, flexible load, and grid intelligence, with a focus on circuits serving DVCs where increased adoption of zero-emission technologies can increase equitable benefits.[213]

[213] Staff Proposal at 45.

In October 2024, the Commission's High DER Proceeding established policies to enable swift evolution of IOU grid capabilities and operations to integrate solar, storage, electric vehicle equipment, and other DERs to meet the State's 100 percent clean energy goals.[214] These policies are aligned with implementation of the Commission-adopted Limited Generation Profile option to alleviate capacity distribution-level constraints and requirements for the IOUs to modify Integration Capacity Analysis methodologies to make use of Limited Generation Profile application information.[215]

The intended gap this proposed Strategic Objective is intended to address is the high cost of upgrading capacity-constrained feeder lines and circuits.[216]

A 2021 UC Berkeley study found that grid limits pose constraints for future DER deployment across utility territories and may exacerbate existing inequities related to DER adoption.[217] With all grid constraints enforced,[218] the study found over half of households served by PG&E and SCE lack grid access to adopt sufficient photovoltaic capacity to offset their annual electricity

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[214] D.24-10-030.

[215] D.24-10-030 at Ordering Paragraphs 32-33. Improvements to Distribution Planning and Project Execution Process, Distribution Resource Planning Data Portals, and Integration Capacity Analysis Maps.

[216] *Supra*., footnote 209." SCE estimates that it will cost US $14–44 million annually from 2021 to 2023 to reinforce its circuits for DERs." Staff Proposal at 46.

[217] Inequitable access to distributed energy resources due to grid infrastructure limits in California. Nature Energy volume 6, at 892–903 (2021). https://www.nature.com/articles/s41560-021-00887-6 and at https://escholarship.org/uc/item/6pc2k2tv.

[218] Grid constraints include (1) grid capacity limitations due to congestion and distribution overload and resulting curtailment of renewable generation, (2) voltage fluctuations due to changing demand, variable renewable energy output, unexpected outages. A grid constraint becomes "binding" when it limits the power flow between locations, which can lead to dispatch of units out of economic-merit order, potentially affecting the spot price.

consumption, on average. The study also found grid capacity for DERs decreases for priority populations as measured by the CalEnviroScreen indicators. Workshop participants noted that disadvantaged communities typically have the worst distribution lines in terms of capacity and reliability.

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Avoided grid capacity upgrade costs, on a per project basis, and extrapolated if deployed at scale;
- Transformer upgrade deferrals vs expectations;
- Changes in load factor for demonstration projects;
- Increases in flexible load capacity as a percent of peak power, both grid-wide and locally;
- Reduction in number and line-miles of DER capacity-limited feeders/circuits;
- IOU or Commission adoption of a planning model to compare leveraging DERs to a grid upgrade;
- Program Acceptance Rate (measured as the percent of DVCs enrolled in relevant programs pertaining to DER, Transportation Electrification, and Building Decarbonization);[219] and
- Community Acceptance Rating (Community Satisfaction Score indicating acceptance and support for investment).[220, 221]

Staff assert this proposed Strategic Objective aligns with several

[219] Pacific Northwest National Laboratory (2021). Metrics for an Equitable and Just Energy System. *See*, https://www.pnnl.gov/sites/default/files/media/file/Metrics%20for%20Energy%20Equity.pdf.

[220] *Ibid*.

[221] Staff Proposal at 46.

components of the Commission's High DER proceeding, as well as the Commission's Grid Modernization Framework[222] and the State's goal to achieve California's target of 100 percent clean electricity retail sales from eligible renewable energy resources and zero-carbon resources in a cost-efficient manner by 2045. Staff also argue that this proposed Strategic Objective supports the Commission's Transportation Electrification Policy and Infrastructure Proceeding[223] in addressing how the IOUs will effectively and affordably support the pace and scale of transportation electrification growth required to achieve California's zero-emission vehicle goals, including improved early identification of future transportation electrification load to support existing electric grid

[222] D.18-03-023 adopted a framework for Grid Modernization Guidance to inform future General Rate Cases through the following measures:

- Defines grid modernization with regards to its multiple objectives and the scope of Grid Modernization Plans;
- Establishes a classification framework to serve as a common vocabulary for grid modernization investments, and terminology to guide the organization and presentation of future GRC filings;
- Establishes the structure and timing of the grid modernization planning process, including the submission of Grid Modernization Plans and Grid Needs Assessments, and identifies how this fits into the larger Distribution Resources Planning (DRP) process;
- Provides guidance on how the Commission will evaluate the cost effectiveness of grid modernization investments proposed in future General Rate Cases, including net ratepayer benefits;
- Establishes submission requirements for the grid modernization portion of future GRC requests, including how to justify each request; and
- Identifies next steps.

[223] R.23-12-008, *Order Instituting Rulemaking on Transportation Electrification Policy and Infrastructure*, adopted December 20, 2023.

planning processes, and development of priority regions for transportation electrification load.[224]

20.1. Positions of Parties

PG&E supports the proposed Strategic Objective with modifications to both increase use, as well as reduce electric prices. PG&E recommends expanding this scope to include both transmission and distribution systems. PG&E also recommends broadening the scope of the passage "increase the utilization rate of a circuit and reduce circuit and feeder peak loads," by adding "to optimize asset utilization" and "to manage flexible load." Additionally, PG&E suggests that this Strategic Objective should not solely limit achieving these objectives "through the coordination of DERs…" but to instead expand the scope by including "through engineering innovation." Lastly, PG&E recommends removing "in order to avoid or defer costly grid upgrades," as many grid upgrades are not avoidable, and instead include metrics related to potential affordability impacts.[225]

WeaveGrid supports this proposed Strategic Objective. WeaveGrid agrees with the Staff findings and justification and asserts that other Commission studies or reports indicate that the objective of reducing feeder and circuit peaks can produce measurable, positive results for ratepayers.[226] WeaveGrid states that in 2023, two reports were published that highlighted the distribution impacts from EVs in California: Kevala, Inc.'s ("Kevala") *Electrification Impacts Study* commissioned by the CPUC and the Public Advocates Office ("Cal Advocates") *Distribution Grid Electrification Model* ("DGEM"). WeaveGrid asserts that both

[224] Staff Proposal at 47.

[225] PG&E, Opening Comments, filed March 28, 2025, at 10.

[226] WeaveGrid, Opening Comments, filed March 28, 2025, at 4.

studies showed that EV grid impacts would cost ratepayers tens of billions of dollars, $50 billion and $26 billion respectively, by 2035, as EV adoption is anticipated to continue to climb. The difference in the topline figures is due to differing assumptions in EV load management. WeaveGrid asserts that both studies indicated that EV load management can help contain these costs to ensure that ratepayer impacts are minimized. Moreover, in 2024, WeaveGrid notes that Cal Advocates released preliminary findings for a subsequent report, *DGEM 2.0*. WeaveGrid states that the updated initial analysis offered the following recommendation: "Locally targeted managed charging could have an especially large impact and save ratepayers additional money." The preliminary report added: "Feeder-level managed charging, responding to local capacity and local peak usage, can further reduce grid upgrade costs. Compared to system-level managed charging, feeder-level managed charging can provide even more savings."[227]

The CEC recommends the Commission revise this proposed Strategic Objective to shift its focus to more broadly optimizing the operations of feeders and circuits, rather than solely on reducing the peaks. The CEC asserts that increasing the capacity utilization and managing peaks on feeders or circuits is a valuable objective, but other factors, such as low reliability or climate risk, can also drive costly upgrades that are ultimately paid for by ratepayers. The CEC

[227] *Id.*, at 3. Kevala, CPUC Electrification Impacts Study Part 1: Bottom-Up Load Forecasting and System-Level Electrification Impacts Cost Estimates, May 9, 2023, https://www.kevala.com/resources/electrification-impacts-study-part-1.

Cal Advocates, DGEM, August 1, 2024, https://www.publicadvocates.cpuc.ca.gov/press-room/reports-and-analyses/distribution-grid-electrification-model-findings.

Cal Advocates, DGEM 2.0 Preliminary Results, October 21, 2024, https://www.publicadvocates.cpuc.ca.gov/-/media/cal-advocates-website/files/press-room/reports-and-analyses/241024-public-advocates-office-dgem-20-preliminary-results.pdf.

contends that framing the objective to optimize feeder/circuit operations provides greater opportunities to increase affordability and accessibility, as well as aligns with active topics in the Commission's Modernize the Electric Grid for a High DER Future Proceeding (R.21-06-017).[228]

20.2. Discussion

The Commission adopts this Strategic Objective and associated metrics with the revisions proposed by the CEC, because doing so aligns with Track 2 of the High DER Proceeding. In response to PG&E's comments, we also include optimization of asset utilization and flexible load management within this Strategic Objective because these activities may support the ability to demonstrate measurable impact at the distribution level and avoid or defer costly grid upgrades. Overall, this Strategic Objective addresses the identified gap because improved coordination among DERs, EVs, flexible load, and grid intelligence will defer the capital costs of upgrading capacity-constrained feeder lines and circuits.

We do not adopt PG&E's recommendation to include engineering innovation because this approach can be proposed at the Investment Plan level. We also do not adopt PG&E's request to include transmission systems as stated in PG&E's comments, because that use case is well outside the scale of circuits and feeders and would dilute the ability to demonstrate measurable impact at the distribution level. However, while PG&E did not articulate in its comments how innovation in transmissions systems might impact circuit utilization rates or circuit and feeder peak load reduction, allowing this to be proposed at the investment plan level is reasonable.

[228] CEC, Opening Comments, filed March 28, 2025, at 14.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

21. Strategic Objective 13: Cost-Effective Grid Hardening for Long-Term Climate Impacts

Staff proposes a Strategic Objective that by 2033, the EPIC program will develop and demonstrate tools, technologies, and frameworks that improve long-term planning and achieve more cost-effective capital investments for grid hardening for long-term climate impacts, with a focus on increasing affordability, reducing outage risk, and reducing social burdens of outages.[229]

In 2020, the Commission's Climate Adaptation proceeding required each large IOU to file a Climate Adaptation Vulnerability Assessment (CAVA) every four years.[230] The purpose of the CAVA is to serve as a report to inform long-term planning for 1) identifying vulnerabilities and risks to IOU assets, operations, and services caused by climate change impacts and 2) describe

[229] Staff Proposal at 47.

[230] D.20-08-046, at Ordering Paragraph 9.

adaptation solutions. As part of this consideration, the Commission also required the IOUs to simultaneously submit Risk Assessment and Mitigation Phase (RAMP) reports. Both reports consider best practice climate modeling[231] and historical observed data to inform the IOUs' General Rate Cases (GRCs) by justifying related proposed infrastructure investments, meaning that best practice climate modeling, which incorporates specific IPCC climate scenarios, should be used when assessing climate risks to grid infrastructure, which then informs when, where, and what kind of grid hardening capital investments are required. The two risk assessment approaches are related, but not identical. For instance, CAVAs consider a multi-decade long-term planning timeframe.[232]

The gap this proposed Strategic Objective is intended to address is the lack of capital investment planning tools and frameworks for grid hardening to address cost, service, and societal risks from long-term climate change impacts.[233]

Proposed metrics to measure progress were aggregated from the relevant Technical Working Group meetings and include:

- Number of new transformer technology, conductors, or other equipment tested or deployed to determine real-world performance and cost-effectiveness;
- Increased access to open climate data and analytics;

[231] D.24-08-005 at 30, at Finding of Fact 8, at Conclusion of Law 5, and at Ordering Paragraph 8. Updating Climate Change Adaptation Modeling Requirements and Refining the Climate Adaptation and Vulnerability Assessments.

[232] D.24-08-005, Attachment A at 2. Climate Adaptation and Vulnerability Assessments Investment Proposal Guidelines.

[233] Staff Proposal at 48.

- Locational changes in service interruption indexes including SAIDI, SAIFI, CAIDI and CEMI;[234]
- Change in amount (number, capacity, and $-value) of electric system infrastructure identified as vulnerable;
- Change in capital costs from baseline for climate-adaptation-related projects/circuits and extrapolated at scale;
- Change in operations and maintenance costs for climate-adaptation-related projects and extrapolated at scale;
- Changes in repetitive loss metrics (including capacity and $-value) for electric infrastructure and services;
- Usage of baselines developed under modeled conditions;
- Change in restoration time metrics, including Customers Experiencing Long Interruption Duration;
- Change in Social Burden as measured by Sandia National Laboratory Resilient Node Cluster Analysis Tool (ReNCAT) metrics;[235] and
- Duration (hours) of outages mitigated; the percent of load and DERs identified as critical load that maintains during outage events; MW of emitting backup generation replaced with zero-emission DERs; and the value of associated outages through the Interruption Cost Estimate (ICE) Calculator 2.0.[236]

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[234] System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), and Customers Experiencing Multiple Interruptions (CEMI). CEMI is a reliability index under IEEE 1366. It is the percent of customers who have experienced a given number or more sustained interruptions during the reporting period. For example, CEMI-5 measures the percentage of customers experiencing five or more sustained interruptions in a 12-month period.

[235] This includes current IOU collaboration with the Commission and Sandia National Laboratory on the ReNCAT tool, and IOU collaboration on open-source climate data through Cal-Adapt, an EPIC-funded project.

[236] Staff Proposal at 49.

Staff asserts that the development of increasingly sophisticated data, tools, and methodologies will aid the IOUs in better predicting potential climate impacts and proactively developing solutions to maintain resilient infrastructure, operations, and services. The Commission previously has found this data to be necessary for the IOUs to justify proposed investments in ratemaking proceedings that are prudent and demonstrate cost-efficient incremental solutions that will mitigate costs for ratepayers in the long run while ensuring their energy systems are reliable in the face of climate change.[237] In implementing this Strategic Objective, Staff states that Administrators should take care to coordinate with the IOUs as well as the proceeding's efforts to develop Equity Impact Metrics to avoid duplication.[238]

Staff also asserts that this Strategic Objective aligns with several components of the Commission's Climate Adaptation proceeding,[239] in particular: 1) considering how to address climate change adaptation for the IOUs to ensure safety and reliability of utility operations; 2) the usage of most up-to-date climate science data sources, tools, and other resources to inform climate assessments, adaptation proposals, and community adaptive capacity; and 3) the continued development of data, tools, and methodologies to improve assessments of and resiliency planning for potential climate impacts to IOU infrastructure, operations, and services. Staff opines that this proposed Strategic Objective supports the Commission's ESJ Action Plan, including: 1) Goal 4 to

[237] D.24-08-005, at 19-20. Updating Climate Change Adaptation Modeling Requirements and Refining the Climate Adaptation and Vulnerability Assessments.

[238] This includes current IOU collaboration with the Commission and Sandia National Laboratory on the ReNCAT tool, and IOU collaboration on open-source climate data through Cal-Adapt, an EPIC-funded project.

[239] R.18-04-019.

increase climate resiliency and adaptive capacity in ESJ communities; and 2) Action Item 4.1.1 to initiate climate adaptation planning with emphasis on disadvantaged and vulnerable communities.[240,241]

21.1. Positions of Parties

PG&E states that it supports the aims of this proposed Strategic Objective, but recommends broadening the scope to ensure that future EPIC investment plan cycles can support advancing novel technologies related to wildfire prevention, mitigation, and rapid suppression. To these ends, PG&E recommends replacing the existing phrase "grid hardening for long-term climate impacts" with "grid resilience to chronic climate impacts." PG&E states that broadening this proposed Strategic Objective would enable EPIC to advance technology solutions related to ignition elimination, reducing early ignition spread, cost-efficient forestry and vegetation management. As described in more detail in its 2024 RAMP Report, PG&E states that climate change continues to increase the likelihood of wildfire due to increased temperature and drought conditions that can affect health of vegetation and fuel mix. Additionally, PG&E contends that increased heat can accelerate the aging of PG&E assets, through increased load and sustained high temperatures during heatwaves. Given the recent catastrophic fires in Southern California and the increasing wildfire risk across the state, PG&E strongly recommends that this proposed Strategic Objective allow RD&D related to more comprehensive and cost-effective wildfire prevention, identification, mitigation, and suppression. PG&E argues this is

[240] Commission ESJ Action Plan 2.0 at 42-43. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf.

[241] Staff Proposal at 50.

especially important given that there is no other dedicated mechanism for the IOUs to work on RD&D for these topics outside of EPIC.[242]

PG&E supports Staff's recommendation that "Administrators should be required to demonstrate that their proposed Strategic Initiatives and Research projects have the potential to mitigate the cost of achieving the State's energy and climate goals."[243]

The CEC and PG&E recommend that the Commission revise this proposed Strategic Objective to ensure that improved operational practices are leveraged.[244] The CEC asserts this proposed Strategic Objective addresses an important gap faced by IOUs as they work to increase the resilience of grid infrastructure to climate impacts. Moreover, the CEC argues the proposed Strategic Objective has a greater chance to improve grid hardening and reduce costs by enabling investment in and focus on the full suite of tools needed to support strategic grid improvements.

The CEC recommends including consideration of technology that enables adaptive grid operations that maintain grid reliability and resilience. Cost-effective improvements to the grid require a combination of hardening physical infrastructure and implementing strategies, including DERs where appropriate, that maximize the adaptive capability of the grid. The CEC contends that EPIC research can support grid planners in prioritizing grid modernization investments that mitigate projected climate impacts, such as redirecting electricity delivery during extreme weather events and segmenting the grid to

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[242] PG&E, Opening Comments, filed March 28, 2025, at 11.

[243] *Ibid*.

[244] CEC, Opening Comments, filed March 28, 2025, at 15. PG&E, Reply Comments, filed April 4, 2025, at 3.

take better advantage of distributed generation. Such operational modernization, the CEC claims, befits the changing nature of supply (distributed, intermittent, and climate-vulnerable) to yield cost, reliability, and safety benefits. The CEC asserts this provides a higher level of flexibility that helps reduce the social burdens of outages and address equity considerations.

The CEC asserts that high-quality and granular data resources, including those providing accessible weather and climate data, facilitate cost-effective grid hardening and operational improvements. The CEC also states that they are also crucial for planning affordable and resilient supply resources. For example, existing open-access data on wind and irradiance are notably insufficient and are distinct from the data needs elevated in Strategic Objective 8, which focuses on shorter-term weather and load forecasting for day-to-day operations.[245]

PG&E agrees with the additional language CEC proposes.[246]

21.2. Discussion

The Commission adopts this Strategic Objective and associated metrics with revisions. Innovative tools, including best-practices climate modeling, will assess climate risks to grid infrastructure and inform requirements for grid hardening capital investments to reduce system vulnerabilities and mitigate service interruptions. The flexibility identified by the CEC may lead to more measurable impacts on grid hardening and reduced costs. Further, the need for open-source data was repeatedly raised as an important need for this topic in the Technical Working Groups. The revised title is Cost-Effective Grid Hardening for Long-Term Climate Impacts. The revised explanation is "By 2033, the EPIC

[245] CEC, Opening Comments, filed March 28, 2025, at 15-16.

[246] PG&E, Reply Comments, filed April 4, 2025, at 3.

program will develop and demonstrate data, tools, technologies, and frameworks that improve long-term planning and achieve more cost-effective operational practices and capital investments for grid hardening to maintain grid reliability and resilience to long-term climate impacts, with a focus on increasing affordability, reducing outage risks, and reducing social burdens of outages."

The Commission declines to add "Operational Improvements" to the title of this Strategic Objective because this already falls within the scope of the objective and the CEC may propose such initiatives in its Investment Plan. Additionally, the Commission does not adopt PG&E's suggestion because PG&E did not provide sufficient explanation. In our view, the phrase "long-term" has to do with a definite but lengthy time horizon and with impacts which EPIC may address over that extended timeframe, while the phrase "chronic" refers to existing conditions or to environmental conditions beyond EPIC's control. Chronic conditions also appear to be tasks that are already recoverable. Additionally, innovation to address wildfire-related issues is already covered under this Strategic Objective.

The adopted Strategic Objective is included in Appendix A.

When filing their EPIC 5 investment plan applications, Administrators should use the metrics listed above to identify how a specific project will be evaluated or propose another metric. If an Administrator proposes a metric not listed above, that metric (or metrics) must be of similar granularity and still allow for a measurement-based evaluation of progress towards the identified Strategic Objective. Further, the Administrator must describe and justify the basis for why the metric meets Commission guidance for that Strategic Objective. While the Commission does not want to be overly prescriptive regarding what metrics

Administrators may use, Administrators must ensure that the metric is measurable and justify why it is appropriate and reasonable for the specific project.

22. Party Proposals for Strategic Objectives

Cleantech San Diego and Los Angeles Cleantech Incubator urge the Commission to dedicate EPIC resources to Regional Energy Innovation Clusters, asserting these entities form a critical and necessary backbone of the State's innovation ecosystem. Thus, Cleantech San Diego asks the Commission to emphasize the importance of pathways for technology commercialization through dedicated support for entrepreneurship training, technical assistance, and in-market deployment and technology validation, thereby derisking technology and ensuring ratepayer benefit and reduced cost of technologies.[247]

The Bioenergy Association of California asks the Commission to include a Strategic Objective and scoring criteria focused on wildfire mitigation in the electricity sector, including bioenergy that uses forest waste biomass removed for wildfire mitigation. In support of its request, the Bioenergy Association of California notes the costs of wildfires on utility rates, the climate pollution caused by wildfires, and other impacts on public health and safety.[248] Asserting that increasing procurement of firm renewables, especially dispatchable renewables, will reduce the need for more diesel backup generators that undermine the state's climate change and air quality goals, the Bioenergy Association of California also asks the Commission to include a Strategic Objective focused on opportunities to accelerate production of renewable or

[247] Cleantech San Diego, Opening Comments, filed March 27, 2025, at 4. Los Angeles Cleantech Incubator, Opening Comments, filed March 28, 2025, at 4.

[248] The Bioenergy Association of California, Opening Comments, filed March 28, 2025, at 3-5.

decarbonized firm power.[249] PG&E supports this recommendation, noting that wildfire mitigation, risk, recovery, and adaptation has a significant impact on customers' energy bills.[250]

The CEC proposes a new Strategic Objective entitled "Advance Clean Energy and Climate Resilience Entrepreneurship in California," in which the EPIC program would support entrepreneurs developing, demonstrating, and commercializing clean energy and climate resilience technologies in California, from early-stage concepts to manufacturing scale-up, in order to deliver affordability and ratepayer benefits, create jobs and economic growth in the state, and achieve California's statutory energy goals."[251] The overarching purpose of this Strategic Objective would be to ensure that technology development under the 13 proposed Strategic Objectives delivers ratepayer benefits and contributes to achieving California's energy and climate goals by advancing new technologies to the market more quickly, affordably, and equitably than without EPIC support. The CEC, in administering previous EPIC Investment Plans, observed several critical funding gaps for entrepreneurs attempting to develop and commercialize clean energy technology. Traditional sources of capital, such as loans, internal corporate investment, and venture capital, were reluctant to invest in energy-related hardware technologies given the long development timelines and regulatory framework in which such technology is developed. These gaps occurred early on in concept development, as well as later in the development timeline when companies must demonstrate that they can produce their technology at scale. Over time, the CEC has

[249] *Id.*, at 6-7.

[250] PG&E, Reply Comments, filed April 4, 2025, at 3-4.

[251] CEC, Opening Comments, filed March 28, 2025, at 17.

developed highly effective programs to help de-risk technologies and increase their likelihood of successful commercialization and ratepayer benefits.[252]

PG&E advocates for adding a distinct Strategic Objective to focus on adoption of new technologies to improve operational efficiencies. The primary methods of reducing electric rates for customers are to 1) enable new load to be brought onto the system efficiently to spread total infrastructure cost across greater load, and 2) to broadly reduce utility costs associated with operating the existing system.[253] Many of the proposed Strategic Objectives support enabling new load, but none of them squarely address operational cost efficiency. To omit this second area from the Strategic Objectives, PG&E argues, would in turn significantly reduce the IOU EPIC Administrators' ability to introduce innovative approaches or technologies to reduce customer bills. PG&E advocated for the inclusion of "operational cost-efficiency" as a standalone EPIC Strategic Objective during the 2024 EPIC 5 Workshop series and through its subsequent written comments, and no parties or other EPIC Administrators objected to the addition of this new Strategic Objective.[254] PG&E proposes the following language to reflect recommendations from CEC, BAC, and PG&E:

> "By 2033, the EPIC program will develop and demonstrate data, tools, technologies, and frameworks that improve long-term planning and achieve more cost-effective operational practices and capital investments for grid resilience to chronic climate impacts, with a focus on increasing affordability, reducing outage risks, and reducing social burdens of outages."[255]

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[252] *Id.*, at 17-18.

[253] PG&E, Opening Comments, filed March 28, 2025, at 11.

[254] *Id.*, at 11-12.

[255] PG&E, Reply Comments, filed April 4, 2025, at 4.

PG&E asserts this Strategic Objective would "allow for future EPIC Investment Plans to advance cost-effective operations, grid resilience, and wildfire mitigation. These RD&D topics are critical to supporting long-term customer affordability and equitable outcomes in the face of a rapidly changing climate."[256]

Given that IOU Administrators currently can only conduct pre-commercial demonstration projects, SDG&E asks the Commission to reconsider allowing the IOUs to engage in RD&D.[257] SDG&E asserts this would allow the EPIC Program to better meet its goals, as well as the State's goals. SDG&E also argues that RD&D represents:

> "a valuable investment that would broaden the scope of potential projects that bring benefits to ratepayers. For example, allowing SDG&E to conduct R&D would foster innovation and efficiency within the energy sector by leveraging its unique position and expertise to identify and address specific challenges faced by the grid, leading to more effective and targeted solutions. Given the small amount of annual funding SDG&E receives through EPIC, if the Commission continues to limit IOUs to conducting pre-commercial demonstrations, it may not serve the public interest for SDG&E to continue with EPIC."[258]

22.1. Discussion

While the Commission understands the value of entrepreneurship in driving innovation, funding a specific set of innovators is a strategy, not a goal or target in and of itself. The CEC may propose this approach in its Strategic Initiatives and Research Topic Areas in its EPIC 5 investment plans, in

[256] *Ibid*.

[257] SDG&E, Opening Comments, filed March 28, 2025, at 2.

[258] SDG&E, Opening Comments, filed March 28, 2025, at 2.

achievement of the five EPIC Goals and 13 Strategic Objectives. The Commission also does not adopt PG&E's recommendations for four reasons. To begin, this appears to be a request for operational support rather than true innovation. Second, PG&E did not provide any linkage to Commission proceedings to support the request. Third, adopting the various improvements in operational practices in Strategic Objectives 12 and 13 will address this topic. Finally, new load activities were included in Strategic Objective 10.

23. EPIC Equity RD&D Framework

Staff proposes that the Principles for Equity in RD&D adopted by the Commission in D.24-03-007[259] also be applied in developing EPIC investment plans, including Strategic Objectives equity metrics, project execution, and program evaluation. Staff proposes a framework for equity that includes the following principles: 1) Prioritization;[260] 2) Engagement;[261] 3) Metrics;[262] 4)

[259] D.24-03-007 at 28-29.

[260] Prioritize investments and measure impacts on the most vulnerable communities, including reducing the energy burden and reducing air pollution in DVCs and non-attainment areas.

[261] Develop deeper and ongoing engagement with DVCs: 1) build trust, 2) better understand relevant needs, 3) educate communities on innovative technologies and processes, 4) design projects with community input from the start of the process in advance of and to inform portfolio development, 5) inform priority community stakeholders how their feedback was or was not incorporated into EPIC plans and why, 6) engage DVCs in project evaluation, and 7) develop sustainable, continuous community partnerships.

[262] Develop clear and measurable metrics for assessing the impact of RD&D investment in DVCs. Potential metrics recommended by workshop participants include energy burden, health and safety, program access and education, and financial and economic measures. Metrics should take into consideration that equity needs are regionally diverse, and one size may not fit all when measuring impacts.

Access;[263] and 5) Outreach.[264,265] The proposed framework is intended to be included in investment plans, to evaluate project proposals, collect equity data, and evaluate impacts in DVCs and Tribes of initiatives and projects in achieving EPIC's Strategic Objectives. To ensure public transparency and to support Commission oversight of this effort, Administrators should report on equity investments and direct DVC and Tribal impacts and keep this reporting up to date on a quarterly basis. Reporting data should include, but not be limited to:

- Quantify investment and realized impacts to DVC and Tribal locations;
- Forecast impacts to the identified DVC and Tribal locations;
- Provide rationale and methods for all data collected related to metrics;
- Identify baselines from which change in metric is to be compared; and
- Provide narrative giving context for the data and impacts.

[263] Make information on innovative technologies, incentives, and financial mechanisms easily accessible and understandable to DVCs. The Commission should provide guidance to Administrators in developing a consistent approach to simplify and streamline application processes, such as a "one-stop shop" to aid in applying to all available incentive programs. The Commission should establish policies to address the challenges of split incentives that renters face in decarbonization efforts, including consistent coordination across other CPUC programs and proceedings.

[264] Work to enable better integration and coordination with local communities throughout the entire RD&D process. EPIC Administrators, initiatives, and projects should meet DVCs at times and locations that work for them and consider the digital divide when hosting virtual outreach opportunities. Administrators should both acknowledge differences in communities and encourage opportunities for coordination and collaboration among them. Administrators should share among themselves information on community outreach. Administrators should at a minimum apply the Disadvantaged Communities Advisory Group (DACAG) Framework and seek input from the DACAG regarding project formulation and execution in DVCs.(j)

[265] Staff Proposal at 9.

23.1. Positions of Parties

The CEC supports the proposed framework but notes that although California Native American Tribes are included in the definition of DVCs, which includes "all California Tribal lands," this could more effectively signal the unique position and sovereignty of tribes. Accordingly, the CEC proposes that the current phrasing of "Disadvantaged and Vulnerable Communities, including Tribes," be modified to "Disadvantaged and Vulnerable Communities and California Native American Tribes." The CEC asserts that this modification helps to elevate the unique energy circumstances of Tribes wherein many areas have no access to grid-connected electricity experience power outages with especially high social costs. In addition to this change, further input from Tribes is needed to inform strategic objectives and metrics to assure that "[T]ribes are heard, understood, and valued in California's energy transition," as outlined by the Commission's Tribal Advisor.[266]

23.2. Discussion

The Commission adopts the equity framework. As part of our overall Climate Adaptation Equity process, which includes EPIC projects, we need to distinguish the needs of Tribes from other DVCs. Tribes should not be subsumed into a single DVC.

24. Clarification on Staffing

The Staff Proposal contains the following statement regarding budget transparency:

> "EPIC program administration itself should be prudent, efficient, necessary, and avoid duplication. Administrators should describe in their annual reports actions they are taking to reduce administrative – including staffing - or project costs

[266] CEC, Opening Comments, filed March 28, 2025, at 18-19.

> and report cost savings. Commensurately, in their Annual Reports, administrators should explain how reduced staffing impacts their ability to implement the program and what program impacts were incurred as a result."[267]

SDG&E, PG&E, SCE, and the CEC filed comments in opposition. SDG&E writes:

> "Such a request, while commendable, fails to acknowledge the increased burden and complexity around the administration of the EPIC program imposed by Commission decisions. Given the additional regulatory requirements of the EPIC program and that R.19-10-005 is an active proceeding, SDG&E is currently evaluating expanding its staff resources. At present, SDG&E is staffed with one full-time employee dedicated to EPIC program administration. Due to the increased complexity and volume of work required to comply with all EPIC requirements, it is not feasible to reduce staffing levels without significantly impacting SDG&E's ability to effectively implement the program.
>
> Reducing staffing would compromise the organization's ability to fulfill these obligations and could lead to inefficiencies and potential non-compliance."[268]

PG&E states that "the Commission and Administrators' focus should not be on narrowly exploring scenarios to reduce Administrators' staff."[269] SCE states that it supports transparency in its spending and shares the Commission's desire to ensure that EPIC addresses affordability among ratepayers, but also asserts that reducing staff will harm the Administrators' EPIC programs and SCE customers.[270] The CEC also asks the Commission to not engage in efforts to

[267] Staff Proposal, at 11.

[268] SDG&E, Opening Comments, filed March 28, 2025, at 2-3.

[269] PG&E, Opening Comments, filed March 28, 2025, at 7.

[270] SCE, Reply Comments, filed April 4, 2024, at 3.

reduce administrative costs. The CEC adds that EPIC Administrators already provide budget transparency through various filings and reports with the Commission.[271]

In response to the concerns raised above, we clarify that the intent of this language was not to encourage EPIC Administrators to reduce their staffing levels nor their administrative budgets, nor was the intent to create an additional report. Directives contained in the 2024-25 May Budget Revise and the Governor's Executive Order N-5-24[272] require agencies to reduce operating costs to promote affordability of energy bills for ratepayers. The direction is to provide transparency in annual reports on how such directives may impact Administrators' ability to implement the program and demonstrate program progress.

25. Next Steps

Although this decision closes this proceeding, additional Staff work will be required in the period after the adoption of this decision and prior to the Commission opening a new rulemaking to consider extending EPIC beyond 2030, and any necessary program revisions. This includes contract development and management, both ongoing administration, as well as for the 2028 Evaluation, as well as other administrative and ministerial tasks.

25.1. EPIC Oversight Funding Authority, Management, and Accounting

The Commission authorizes Staff to continue using EPIC oversight funds to manage the program. Staff shall revise the scope of work for the Policy + Innovation Coordination Group Project Coordinator (PICG Coordinator), as

[271] CEC, Reply Comments, filed April 4, 2024, at 3-4.

[272] Executive Order N-5-24, Office of the Governor, October 30, 2024.

necessary, to carry out the work in the EPIC 5 investment plan cycle required in this decision, including extending and managing the PICG contract.[273]

The work of the PICG Coordinator shall include facilitating Administrator strategic planning, public workshops,[274] and drafting summary reports to inform future Commission guidance on EPIC strategic direction, as well as updating and managing the EPIC research and development database. This includes at least one post-application public workshop facilitated by the PICG Coordinator in which Administrators are directed to present to stakeholders and subject matter experts how their submitted EPIC 5 investment plans would achieve EPIC's Strategic Objectives, demonstrate alignment with EPIC Strategic Goals and Commission proceedings, and detail what baselines and metrics would be used to measure progress.

To fund these activities, the budget of the PICG Coordinator contract is increased by up to an additional $3,500,000, equal to the amount required for EPIC 4, for a total PICG contract(s) of up to $6,500,000. Similar to when the Commission previously reauthorized the PICG Coordinator contract, if the contract budget exceeds $3,500,000, Staff may request Commission approval of the increase via resolution.[275] In the event the EPIC Program does not extend beyond 2030, unspent funds shall be returned to ratepayers.

25.2. Annual Reporting and Public Workshop

EPIC Administrators are required to hold two public workshops each year. In D.23-04-048, the Commission required that EPIC Administrators utilize their

[273] Created by D.18-01-008 and D.18-10-052.

[274] This includes facilitating a mid-cycle PICG meeting with Commission Staff and Administrators. This may be held the same day as the 2028 annual report workshop.

[275] D.23-04-042.

Annual Reports as a narrative to describe accomplishments in the EPIC database. Thus, the Annual Report and the EPIC database are both required to be complete to satisfy the Commission's annual reporting requirement.[276]

Staff is authorized to facilitate an annual public workshop reviewing EPIC Administrator annual report presentations prior to disposition of annual report Tier 2 Advice Letters. The workshop should be held in a timely manner after the submission of Administrators' annual reports. This recurring workshop may count as one of the mandatory annual EPIC Administrator workshops.

26. Returning Unspent EPIC Program Funds

The Commission requires EPIC Administrators to return program interest to ratepayers at the end of each multi-year EPIC investment cycle.[277] The Commission also requires EPIC Administrators to return unencumbered funds and uncommitted funds to ratepayers at the end of the EPIC Program if legally permitted to do so. The Commission requires that funds committed or encumbered for projects from one investment cycle do not reduce future investment cycle funds, though unspent funds remaining at the end of an investment cycle will offset future program funding requirements.

To support cost-containment, affordability, and timely investment of EPIC funds, Staff proposes modifying these requirements to 1) require return of EPIC program interest to ratepayers annually, and 2) require that any unspent or unencumbered Administrator funds be returned to ratepayers at the end of each program cycle rather than rolled over to the next investment cycle.[278]

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[276] *Id.*, at 38.

[277] D.13-11-025, at Ordering Paragraph 42; D.15-04-020, at Ordering Paragraph 12; and D.18-01-008, at Ordering Paragraph 9.

[278] Staff Proposal at 10-11.

26.1. Positions of Parties

No party commented on this proposal.

26.2. Discussion

The Commission adopts this proposal without revision.

To maintain continuity of the Commission's oversight function, we direct that EPIC Oversight funds shall continue to roll over until program end. Because EPIC oversight may need to continue past program close to dispose of the final EPIC annual reports and any other outstanding Commission EPIC requirements, unexpended EPIC Oversight funds and any accumulated interest shall be returned to ratepayers one year after the date of program close.

27. EPIC 5 Application Deadline Extended

On July 10, 2025, in a joint request from EPIC Administrators, the Commission's Executive Director extended the deadline for each EPIC Administrator to file their EPIC 5 investment plans to April 30, 2026. Given the Strategic Objectives adopted here, as well as other items, the Commission extends the application deadline to June 26, 2026.

28. 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. No relevant public comment appears on the Docket Card.

29. 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.

30. Comments on Proposed Decision

The proposed decision of ALJ Thomas J. Glegola 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 _____.

31. Assignment of Proceeding

Karen Douglas is the assigned Commissioner and Thomas J. Glegola is the assigned Administrative Law Judge in this proceeding.

Findings of Fact

1. Pursuant to D.21-11-028, prior to approving the IOU's EPIC 5 investment plan budgets, the Commission must review their performance as Administrators.
2. Staff conducted the compliance review and determined that each IOU has largely addressed the additional administrative requirements specified in D.21-11-028. In nine of the eleven topics considered, the IOUs have demonstrated significant progress. In one topic, progress has not yet been demonstrated, but the IOUs have clear plans in place to address the area going forward. In another topic, the IOUs have demonstrated partial progress with room for improvement.
3. Staff recommends that the IOUs continue as Administrators.
4. In D.21-11-028, the Commission found that the IOUs are best positioned to scale up and implement new technologies for grid operations, and these utilities remaining as EPIC Administrators effectively leverages their expertise.[279]
5. The 2024 EPIC Program Evaluation offers several useful recommendations on best practices that Staff and Administrators can implement without a Commission order.

[279] D.21-11-028, at Finding of Fact 2.

6. The 2024 EPIC Program Evaluation supports the IOUs continuing as EPIC Administrators for the EPIC 5 investment plan cycle.

7. Overall program success cannot be measured without program-wide evaluations to gauge overall program performance.

8. SCE requests that the Commission clarify intellectual property terms for EPIC funded projects, including projects that involve the work of federal government entities. SCE's request includes:

(a) The Commission waive California's march-in rights for EPIC projects working with governmental-related entities, such as national laboratories and universities;

(b) The Commission waive its requirement that EPIC IOU Administrators to ensure that both they and the State of California (with administration by the Commission) hold a direct license to the intellectual property with respect to IOU EPIC projects with national labs and other potential "governmental-related partners;"

(c) The Commission clarify that where the intellectual property of EPIC funded projects will be "open sourced" or otherwise provided freely to the public at large, the IOU need not include IP flow-down requirements in its contracts; and

(d) The Commission clarify that the EPIC IP flow-downs do not apply to the partner's existing IP, "including any enhancements via EPIC funds."

9. EPIC-funded projects with the national laboratories may represent an opportunity worth pursuing, however SCE did not provide sufficient detail to support its request for with a general waiver of California's march-in rights and direct-licensing requirements for EPIC projects.

10. When intellectual property from an EPIC-funded project is open sourced, California intellectual property requirements are not necessary.

11. The CEC has existing procedures regarding the intellectual property rights for projects with public entities such as national laboratories, including waivers for march-in rights and direct-licensing, in certain circumstances.

12. For the two examples provided by SCE to support its request to waive rights to enhancements to pre-existing intellectual property, the explanation provided by SCE addresses existing intellectual property, not enhancements to pre-existing intellectual property.

13. The October 2024 Ruling was served on the U.S. Department of Energy and the national laboratories. Thus, relevant federal entities received notice of changes to EPIC intellectual property rules that may impact them.

14. Strategic Objective 1: Reducing Medium and Heavy-Duty Vehicle Charging Infrastructure Costs addresses the current high cost of infrastructure to support California's MHDV electrification goals while increasing ratepayer affordability.

15. Strategic Objective 2: Overcoming Barriers to EV Benefits in DVCs addresses the lack of priority community access to transportation electrification benefits.

16. Strategic Objective 3: Smart Planning Tools for New Load and Clean Resources addresses the high capital cost of grid modernization to meet new load and underscoring that DVCs are insufficiently considered in grid planning.

17. Strategic Objective 4: Reducing Cost of Whole Home Electrification addresses the high cost of residential building electrification.

18. Strategic Objective 5: Innovative Approaches for Difficult-to-Decarbonize Sectors addresses the high cost and lack of electrification solutions for difficult-to-decarbonize commercial and industrial sector applications.

19. Strategic Objective 6: Community-Scale Decarbonization addresses the high cost of community-scale decarbonization and uncertainty of timing and nature of transition from natural gas.

20. Strategic Objective 7: Impacts Research for New Generation and Storage addresses the lack of California-specific analysis on the risk of unintended lifecycle impacts from emerging clean energy technology and processes, including the ability to achieve the State's goals cost-effectively in consideration of affordability.

21. Strategic Objective 8: Increase Predictability of Weather, Intermittent Resources, Climate Risks, and Load addresses the need for improved data analysis and modeling tools to better predict electric system operations and planning under increasing climate uncertainty.

22. Strategic Objective 9: Leveraging DERs for Grid and Community Resiliency addresses Critical and/or essential loads and services in DVCs

23. Strategic Objective 10: Expediting and Streamlining Interconnection and Energization Processes addresses long lead times for DER and VGI technology grid integration on constrained circuits slows electrification and increase energy costs.

24. Strategic Objective 11: Providing Data Input into a Value of DER Framework addresses uptake of innovation to improve grid flexibility and is slowed by lack of understanding of the value of grid services provided by distributed generation and flexible load such as electric vehicles, battery storage, and VGI technology integration.

25. Strategic Objective 12: Optimizing Feeder / Circuit Operations addresses the high cost of upgrading capacity-constrained feeder lines and circuits.

26. Strategic Objective 13: Cost-Effective Grid Hardening for Long-Term Climate Impacts addresses the lack of capital investment planning tools and frameworks for grid hardening to address cost, service, and societal risks from long-term climate change impacts.

27. All thirteen Strategic Objectives align with the State of California's goals, either contained in statute, executive orders, or Commission-adopted decisions.

Conclusions of Law

1. Retaining the IOUs as EPIC Program Administrators is the most effective and efficient structure for sustaining the value that IOUs bring to EPIC, despite the concerns identified in the record.

2. The long-term value of ratepayer-funded research and development and deployment to address climate change, wildfire risk, equity, and other California policy priorities outweighs the benefit from a nominal reduction in ratepayer payments.

3. With the identified improvements, this Commission should authorize the EPIC IOU Administrators to continue in their roles as EPIC Administrators.

4. The Commission should conduct another EPIC Program evaluation in 2028.

5. It is not reasonable for the Commission to waive California's march-in rights for EPIC projects.

6. It is not reasonable for the Commission to waive California's direct licensing rights for EPIC projects.

7. It is reasonable for the Commission to clarify that where the intellectual property of EPIC funded projects will be "open sourced" or otherwise provided freely to the public at large, an IOU Administrator does not need to include IP flow-down requirements in its contracts.

8. The Commission should not grant SCE's request to clarify that the EPIC intellectual property flow-downs do not apply to enhancements to existing IP.

9. All thirteen Strategic Objectives align with the State of California's goals, and should be adopted.

10. Given the number of revisions we adopt in this decision, this Commission should extend the filing deadline for the EPIC Administrators to file EPIC 5 investment plans.

O R D E R

IT IS ORDERED that:

1. The thirteen Electric Program Investment Charge Strategic Objectives, as shown in Appendix A, are adopted.

2. Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (SCE) shall collect funding for the Electric Program Investment Charge (EPIC) in the total amount of $185 million annually beginning January 1, 2026, and continuing through December 31, 2030. The collections for the California Energy Commission's budget continues through 2030 under prior authorization. The prior annual authorization is $18.444 million for PG&E, $3.24 million for SDG&E and $15.131 million for SCE. Decision 21-11-028 permits all Administrators to propose to increase their EPIC 5 budgets by the rate of inflation, as calculated using the California Department of Finance's California Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) method. Responsibility for collection of the funding for the EPIC funds shall be allocated to the utilities in the following percentages: PG&E - 50.1 percent; SDG&E - 8.8 percent; and SCE - 41.1 percent.

3. No later than 30 days after the effective date of this decision, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall each file a Tier 1 Advice Letter modifying their tariff sheets to reflect the Electric Program Investment Charge (EPIC) surcharge in accordance with this decision and to authorize them to record authorized EPIC budgets and expenditures and to collect the EPIC funds through December 31, 2030, or as otherwise authorized by the Commission.

4. The Electric Program Investment Charge (EPIC) Administrators shall a) return program interest from the EPIC program budgets to ratepayers annually, and b) return unspent and unencumbered funds to ratepayers at the end of each program cycle.

5. The California Energy Commission, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall file their Electric Program Investment Charge (EPIC) 5 investment plan applications for Commission consideration by no later than June 26, 2026. Those applications shall be served on the Service List for this proceeding and the service lists for each utility's pending or most recent general rate case.

6. The California Public Utilities Commission's Energy Division Staff is authorized to develop a scope of work and undertake a Request for Proposal (RFP) process to select a contractor to conduct an evaluation of the Electric Program Investment Charge (EPIC) Program and manage the selected contractor. The evaluation shall focus on program strategy, project portfolio impacts, and EPIC Administrator performance.

7. The budget of the Policy + Innovation Coordination Group Project Coordinator (PICG Coordinator) contract is revised to include up to an additional $3,500,000. This amount is in addition to the $1,200,000 PICG budget

authorized for Electric Program Investment Charge (EPIC) 3 and the $1,800,000 budget authorized for EPIC 4. The total PICG budget for EPIC 5, including all of these amounts, is a maximum of $6,500,000 for work done from the effective date of this decision through December 31, 2030. If the contract budget exceeds that, the California Public Utilities Commission's (Commission) Energy Division Staff must receive Commission approval via Resolution.

8. The California Public Utilities Commission grants the waiver request of Southern California Edison Company for Electric Program Investment Charge (EPIC) projects administered by Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company (collectively, investor-owned utility (IOU) "IOU Administrators") where the intellectual property of EPIC-funded projects will be "open sourced" or otherwise provided freely to the public at large. IOU Administrators do not need to include intellectual property flow-down requirements in such contracts.

9. The California Public Utilities Commission denies t the requests of Southern California Edison Company to waive California's march-in rights, direct licensing requirement and intellectual property rights for enhancements to existing intellectual property for Electric Program Investment Charge projects administered by Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company.

10. Rulemaking 19-10-005 is closed.

This order is effective today.

Dated _____, at Santa Maria, California

APPENDIX A

Adopted Strategic Objectives

Appendix A

Adopted Electric Program Investment Charge Program Strategic Objectives

Electric Program Investment Charge Program Strategic Objectives		
Strategic Objective 1	Reducing Medium and Heavy-Duty Vehicle Charging Infrastructure Costs	The EPIC program will accelerate innovation, demonstration, and innovative approaches to deployment that support the reduction of the IOU cost of medium- and heavy-duty charging infrastructure installations, and associated IOU cost of grid upgrades by a stretch goal of 50% by 2035 to achieve the state's transportation electrification goals in a cost-effective manner.
Strategic Objective 2	Overcoming Barriers to EV Benefits in DVCs	The EPIC program will accelerate innovation, demonstration, and innovative approaches to deployment to overcome obstacles to equitable transportation electrification benefits (including alleviation of pollution, bridging transportation access, and addressing energy burden) in Disadvantaged and Vulnerable Communities, low-income communities, and non-attainment air districts.
Strategic Objective 3	Smart Planning Tools for New Load and Clean Resources	The EPIC program will support the development, integration, and updating of transparent, open-access grid planning tools that a) substantially increase the forecasting and predictability of intermittent resources, electric vehicles, building electrification, flexible load, and distributed energy resources, b) enable widespread adoption of demand flexibility, c) provide transparent and coordinated inputs into utility capital planning processes, and/or d) inform utility operations for the enablement of grid services and dynamic operation with the goal of reducing ratepayer costs over time and ensuring Disadvantaged and Vulnerable Communities are not left behind in benefits from the transition to zero-emission technologies.

Electric Program Investment Charge Program Strategic Objectives		
Strategic Objective 4	Reducing Cost of Whole Home Electrification	The EPIC program will accelerate innovation, demonstration, and reliable and scalable approaches to deployment that help reduce the all-in cost of whole-home electrification and enable demand flexibility / automated response to process signals or dynamic rates for single-family and multi-family buildings and manufactured housing by 50%, while decreasing residents' energy costs, by 2035.
Strategic Objective 5	Innovative Approaches for Difficult-to-Decarbonize Sectors	The EPIC program will accelerate innovative approaches, strategies, and business models to achieve lifecycle cost-parity for difficult-to-decarbonize commercial and industrial buildings and processes, with a specific focus on strategies that lead to the reduction of NOx, PM, and other surface-level pollutants impacting Disadvantaged and Vulnerable Communities.
Strategic Objective 6	Community-Scale Decarbonization	The Strategic Objective for EPIC that the program demonstrates technology, tools, deployment strategies, planning approaches and business models for achieving (100 percent) neighborhood- or community-scale electrification that considers the needs of participating and non-participating customers, and with a prioritization on addressing needs and obstacles of Disadvantaged and Vulnerable Communities.
Strategic Objective 7	Impacts Research for New Generation and Storage	The EPIC program will conduct new lifecycle and techno-economic analysis, as needed, to identify the emerging zero-carbon technologies with the lowest adverse and highest beneficial economic, land, air, water, net energy, health, and safety impacts on California communities, including DVCs.

Electric Program Investment Charge Program Strategic Objectives		
Strategic Objective 8	Increase Predictability of Weather Impact on, Intermittent Resources, Climate Risks, and Load	By 2030, the EPIC program will conduct data analysis and develop and/or advance data resources, modeling tools, and technologies to measurably improve: a) predictions to electric system operational climate risk; b) intermittent electric resource supply forecasts and electricity demand forecasts under climate uncertainty; c) open-access data on grid equipment condition and capability; and d) coordination between weather and climate observation/projections, forecasting, and grid operations.
Strategic Objective 9	Leveraging DERs for Grid and Community Resiliency	The EPIC Program will support technology development, innovative deployment models, and real-world testing and evaluation for the demonstration of the use of clean distributed energy resources to reduce the impact of outage events, through strategies that allow critical and/or essential loads and services to remain powered through such events and that reduce power restoration time for vulnerable populations, with a specific focus on solving challenges related to critical loads and services identified by Disadvantaged and Vulnerable Communities as critical community resilience needs.
Strategic Objective 10	Expediting and Streamlining Interconnection and Energization Processes	The EPIC Program will support acceleration of the development, testing, and integration of innovative technology, communication protocols, and modeling approaches to streamlining interconnection and energization processes for DER and new load including and electric vehicle charging infrastructure, with a goal to demonstrate the capability to significantly reduce interconnection and energization approval timelines under multiple high DER penetration and electrification scenarios, with a priority for addressing challenges in Disadvantaged and Vulnerable Communities.

Electric Program Investment Charge Program Strategic Objectives		
Strategic Objective 11	Providing Data Input into a Value of DER Framework	The EPIC Program will conduct analysis, real-world demonstrations, and data collection to support the development and ongoing update of an evidence-based framework for the location-, time-, and performance-based values of grid services that are a) usable by grid operators to reduce costs to ratepayers and expand opportunities for distributed zero-emission technologies, and b) accessible by any DER, electric vehicle, or flexible load.
Strategic Objective 12	Optimizing Feeder / Circuit Operations	To support ratepayer affordability, the EPIC Program will accelerate innovation, demonstration, and deployment of innovative and replicable methods to increase the capacity utilization rate of circuits/feeders and reduce circuit and feeder peak loads, and/or dynamically optimize other feeder/circuit operations in order to avoid or defer costly grid upgrades, through the coordination of DERs, EVs, flexible load, and grid intelligence, with a focus on circuits serving Disadvantaged and Vulnerable Communities where increased adoption of zero-emission technologies can increase equitable benefits.
Strategic Objective 13	Cost-Effective Grid Hardening for Long-Term Climate Impacts	By 2033, the EPIC program will develop and demonstrate data, tools, technologies, and frameworks that improve long-term planning and achieve more cost-effective operational practices and capital investments for grid hardening to maintain grid resilience and reliability to long-term climate impacts, with a focus on increasing affordability, reducing outage risk, and reducing social burdens of outages.

(END OF APPENDIX A)