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SAN FRANCISCO, CA 94102-3298

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Ratesetting

TO PARTIES OF RECORD IN APPLICATION 17-04-028 ET AL.:

This is the proposed decision of Administrative Law Judge Stephen C. Roscow. 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 October 11, 2018 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

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

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 8.3(c)(4)(B).

/s/ ANNE E. SIMON
Anne E. Simon
Chief Administrative Law Judge

AES:lil

Attachment

Decision **PROPOSED DECISION OF ALJ ROSCOW** (Mailed 9/11/2018)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of Pacific Gas and Electric Company for Approval of its 2018-2020 Electric Program Investment Charge Investment Plan. (U39E).	Application 17-04-028
And Related Matters.	Application 17-05-003 Application 17-05-005 Application 17-05-009

DECISION ADDRESSING APPLICATIONS OF PACIFIC GAS AND ELECTRIC COMPANY, SOUTHERN CALIFORNIA EDISON COMPANY AND SAN DIEGO GAS & ELECTRIC COMPANY FOR APPROVAL OF THEIR TRIENNIAL INVESTMENT PLANS FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE PROGRAM FOR THE YEARS 2018 THROUGH 2020, AND OTHER PROGRAMMATIC CONSIDERATIONS

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Summary

This decision resolves the remaining issues in this proceeding:

- The 2018-2020 Electric Program Investment Charge (EPIC) investment plans of Pacific Gas and Electric Company, Southern California Edison Company and San Diego Gas & Electric Company are reviewed and approved, with modifications;
- The findings and recommendations of the independent evaluation of EPIC are reviewed, and the EPIC administrators are directed to take certain actions;
- Refinements to the Policy + Innovation Coordination Group framework approved by the Commission in Decision (D.) 18-01-008 are adopted, and implementation actions are directed;
- The interaction between the EPIC program and disadvantaged communities in California is examined and the EPIC administrators are directed to take specific actions;
- The circumstances under which the California Energy Commission (CEC) may grant licenses to load-serving entities (LSEs) for EPIC-created intellectual property are clarified;
- Whether to provide flexibility for utilities to participate as subcontractors for CEC-funded EPIC projects;
- Proposals to replace the Tier 3 advice letter approval process for new projects initiated between EPIC plan approvals are denied; and
- Guidance is provided regarding whether the Commission should extend the general authorization for EPIC program funding beyond 2020, and address other programmatic issues, by initiating a new rulemaking.

This consolidated proceeding is closed.

1. The Electric Program Investment Charge

The Electric Program Investment Charge (EPIC or Program) is an energy innovation funding program established under the authority of the California Public Utilities Commission (CPUC or Commission). Organized around three program areas—Applied Research and Development (R&D), Technology Demonstration and Deployment (TD&D), and Market Facilitation—EPIC seeks to drive efficient, coordinated investment in new and emerging energy solutions. By the time this investment cycle is concluded, EPIC funds will have directly supported investments totaling over $1.5 billion – and significantly more than that amount, when match funding attracted by EPIC funds is considered.

EPIC investments are funded under the authorization of the Commission pursuant to Decision (D.) 11-12-035. D.12-05-037 designated the California Energy Commission (CEC), Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE) and San Diego Gas & Electric Company (SDG&E) as the administrators of the program, and requires the Commission to conduct a public proceeding every three years to review and approve the investment plans of each EPIC administrator to ensure coordinated public interest investment in clean energy technologies and approaches.

2. Procedural Background

Pursuant to the timeframe established in D.12-05-037, the administrators filed their 2018-2020 investment plans in Applications (A.) 17-04-028, A.17-05-003, A.17-05-005, and A.17-05-009 (filed by PG&E, the CEC, SCE, and SDG&E respectively). Each administrator served its application on parties in the 2015-2017 investment plan proceeding as well as on parties in each of the utility administrators' pending and/or most recent general rate case proceeding. Notice of the applications appeared in the Commission's Daily Calendar.

On June 5, 2017, the Office of Ratepayer Advocates (ORA) filed a consolidated protest to each of the four applications. PG&E, SCE, SDG&E and the CEC each filed replies to ORA's protest on June 22, 2017.

In response to a June 5, 2017 motion by ORA, on June 27, 2017 the assigned Administrative Law Judge (ALJ) issued a ruling consolidating all four applications because the applications concern identical or closely-related questions of law or fact.

The assigned ALJ and assigned Commissioner conducted a prehearing conference (PHC) on July 12, 2017. The August 18, 2017 Scoping Memo and ruling of the assigned Commissioner (Scoping Memo) established the scope and schedule for this proceeding. The Scoping Memo determined that the issues in this proceeding are primarily issues of policy and do not implicate reasonably contested material issues of fact, and for that reason hearings are not necessary. Instead, the record necessary to resolve the issues within the scope of this proceeding—beyond the triennial plans themselves—has been developed through public workshops and post-workshop comments and reply comments filed by the administrators and other parties in this proceeding.

2.1. Scope of this Proceeding

Our review of the triennial investment plans is primarily guided by the requirements of D.12-05-037, which requires that the administrators' triennial investment plans include certain specified information, and imposes additional requirements on the utilities' investment plans.[1] The Commission clarified the requirements established in D.12-05-037 in two subsequent decisions, D.13-11-025 and D.15-04-020. The current requirements for investment plan compliance with D.12-05-037, as clarified by D.13-11-025, and D.15-04-020, are provided in Appendix A to this decision.

In sum, in this proceeding we will review each investment plan for compliance with the requirements established in previous EPIC decisions, and determine whether the investment plan proposals offer a reasonable probability of providing the required electricity ratepayer benefits of greater reliability, lower costs, and increased safety. As required by D.12-05-037, the mandatory and primary guiding principle for our review is

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[1] D.12-05-037, Ordering Paragraphs 12 and 13.

this demonstration of the potential to provide those benefits.[2] That decision also found that certain complementary guiding principles include societal benefits, greenhouse gas emissions mitigation and adaptation in the electricity sector, and economic development,[3] but electricity ratepayer benefits are indispensable and must serve as the primary justification for the expenditure of EPIC funds.

The Scoping Memo also identified a number of additional matters that are within the scope of this proceeding.

First, the Commission determined in D.12-05-037 that an independent evaluation of the EPIC program should be conducted in 2016.[4] That evaluation was completed in September, 2017 and distributed to parties in this proceeding. The scope of this proceeding includes review of the results and recommendations contained in that report.[5] The evaluation focused on EPIC's core values of providing ratepayer benefits, advancing energy innovation, and supporting California's energy policy goals. The EPIC Evaluation reached the key findings listed below:[6]

- The EPIC administrators are in compliance with the *letter* of EPIC program requirements, but could better fulfill the *spirit* of some requirements;
- Each project in the EPIC project portfolio is meeting its objectives, but it is unclear if the portfolio as a whole is optimized;
- There is a need to prioritize among EPIC's many objectives;
- There is a need to supplement the administrative structure by convening an independent body to coordinate, facilitate and lend technical expertise; and

[2] D.12-05-037, OP 2.

[3] *Ibid.*

[4] D.12-05-037, Finding of Fact 12.

[5] Electric Program Investment Charge Evaluation Final Report, September 8, 2017 (EPIC Evaluation).

[6] EPIC Evaluation, Page 1-3 through page 1-11.

- The utility administrators, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement.

The EPIC Evaluation's detailed recommendations reflecting these key findings are listed in Appendix B to this decision, where we also summarize our determinations regarding each recommendation.

Second, the scope of this proceeding includes matters regarding the interaction between the EPIC program and disadvantaged communities in California. The CEC organizes its EPIC investment plan according to eight "Strategic Objectives", one of which is to "catalyze clean energy investment in California's disadvantaged communities."[7] The CEC states that its plan will target a minimum of 25 percent of EPIC technology demonstration and deployment funding for sites located in disadvantaged communities, with a focus on "scaling-up technology solutions best suited to meet the needs of residents in disadvantaged communities as well as the businesses and institutions that serve them."[8]

The CEC's plan stimulated discussion at the PHC regarding the question of whether the other administrators are engaging in similar targeting activities. Consistent with that discussion, the Scoping Memo determined that this proceeding shall include two broad topics regarding disadvantaged communities:

1. Funding decisions: determination of strategies and opportunities for directing EPIC projects, and/or their results, to disadvantaged communities. These strategies and opportunities should be informed by meaningful feedback from disadvantaged

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[7] CEC's Proposed 2018-2020 Triennial Investment Plan at 18.

[8] *Id*. at 19. The CEC bases this targeting on the results of its 2016 "Low-Income Barriers Study", which it conducted pursuant to SB 350, the Clean Energy and Pollution Reduction Act of 2015 (Stats. 2017, Chapter 547). The CEC's study explored barriers to and opportunities for expanding clean energy deployment in disadvantaged communities. According to the CEC, its study identified several barriers unique to disadvantaged communities: "Some barriers are structural, inherent to the conditions of poverty in California. These barriers may be mitigated but are difficult to eradicate. Other barriers stem from policy and program decisions, and these may be overcome through new policy development or program refinement."

communities that provides greater understanding of the R&D needs of disadvantaged communities.

2. Outreach and engagement: Determination of the best means of conducting outreach and engaging with disadvantaged communities in order to heighten local awareness of the opportunities for community members to (a) apply for EPIC funds, (b) ensure that beneficial projects are sited in their communities, and (c) benefit from the results of all relevant EPIC projects.

Further legislative developments since the Scoping Memo issued will also inform our decisions in this proceeding regarding the interactions between the EPIC program and disadvantaged communities. In October 2017, Governor Brown signed Assembly Bill (AB) 523, which formalizes the requirement that the CEC expend at least 25 percent of its EPIC funds for TD&D at sites located in, and benefiting, disadvantaged communities, and adds a new requirement that the CEC expend at least 10 percent of its EPIC funds for TD&D at sites located in, and benefiting, low-income communities located in the state.[9] AB 523 also requires the CEC to take into account, when applicable, the adverse localized health impacts of proposed EPIC projects to the greatest extent possible, and include in its annual EPIC report to the Legislature a brief description of the impact on program administration from the allocations required by the bill, including any information that would help the Legislature determine whether to reauthorize those allocations beyond June 30, 2023.

AB 523 reflects California's intent to make the state's clean energy programs more equitable by moving the state toward greater clean and renewable energy while increasing the participation of economically and environmentally vulnerable communities

[9] Stats. 2017, Chapter 551, amending Section 25711.5 of, and to add and repeal Section 25711.6 of, the Public Resources Code (PRC). "Disadvantaged communities" are defined as communities identified pursuant to Section 39711 of the Health and Safety Code. "Low-income communities" are defined as communities within census tracts with median household incomes at or below either (a) eighty percent of the statewide median income, or (b) the applicable low-income threshold listed in the state income limits updated by the Department of Housing and Community Development and filed with the Office of Administrative Law pursuant to subdivision (c) of Section 50093 of the Health and Safety Code.

in this transition. The Commission recognizes the alignment of AB 523 with goals previously established in Senate Bill (SB) 350, and supports the purpose of this bill.

Third, the scope of this proceeding includes items identified by ORA in its consolidated protest to the four administrators' applications (we do not repeat issues raised by ORA that we list elsewhere):

- Whether the 3rd EPIC Plans sufficiently describe policy justifications for proposed projects;
- Whether the EPIC administrators adequately inform the Commission how the completed projects will benefit ratepayers; and
- Issues regarding the investor-owned utility (IOU) administrators' requests to fund R&D and TD&D outside of EPIC, to ensure compliance with D.12-05-037.

Fourth, the scope of this proceeding includes items identified by the CEC in its application or at the PHC:

- Clarification of the requirements of D.12-05-037 with respect to whether EPIC funding collection amounts should be adjusted on January 1, 2018 by the amount of the change in the U.S. or California-specific Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W); and
- Clarification or modification of D.13-11-025, as necessary, regarding the circumstances under which the CEC may grant licenses to load-serving entities for EPIC-created intellectual property.

Fifth, the scope of this proceeding includes items identified by PG&E in its application:

- Whether to extend the general authorization for EPIC program funding beyond 2020 by rulemaking;
- Whether to provide flexibility for utilities to participate as subcontractors for CEC-funded EPIC projects;
- Whether to approve an increase in PG&E's total approved 2018-2020 budget by $7 million, which is proposed to be sourced by leveraging the forecasted unspent project and administration funds from the 2012-2014 investment period; and

- Whether to provide a more streamlined, expedited Tier 2 advice letter approval process for new projects initiated between EPIC plan approvals.

2.2. Issues Addressed in D.18-01-008

Previously in this proceeding, the Commission adopted D.18-01-008, which completed the following items that are part of the scope of this proceeding:

- Reviewed and approved the CEC's 2018-2020 investment plan;
- Established the overall three-year funding level of the EPIC program for 2018-2020 at $555 million;
- Allocated that amount between the CEC, PG&E, SCE and SDG&E;
- Directed the utilities to collect EPIC funds from their ratepayers;
- Modified D.12-05-037 to allow the Commission to use any reasonable method to adjust the triennial EPIC collection amount for inflation; and
- Established a framework for improved research and policy coordination by creating a Policy + Innovation Coordination Group (PICG) based, in part, on recommendations made in the recent evaluation of the EPIC program.

Decision 18-01-008 deferred other matters to a second decision in this proceeding, including (1) review of the investment plans of PG&E, SCE and SDG&E; (2) consideration of the remaining recommendations made in the EPIC evaluation; (3) consideration of the Energy Division proposal for the PICG, and parties' comments on that proposal; and (4) all the other issues identified in the scoping memo.

2.3. Workshop and Comment Process

The Scoping Memo determined that the issues in this proceeding are primarily issues of policy and do not implicate reasonably contested material issues of fact, and for that reason hearings are not necessary. Instead, the proceeding record has been developed through a public workshop process.

On September 8, 2017, the Commission hosted a workshop in order to provide a forum for stakeholders to discuss the administrators' 2018-2020 investment plans. Pursuant to the Scoping Memo, the intent of the workshop was to provide an opportunity for parties to clarify their understanding of the administrators' investment plans and their compliance with the requirements of D.12-05-037, as well as to discuss other implementation and programmatic issues, including investing in disadvantaged communities.

A comparison exhibit filed jointly on September 1, 2017 by the administrators provided additional detail on each proposal in the plans. Following a matrix format, administrators specified the scope and focus of each proposal, identified the Commission proceedings that are relevant to each proposal, explained the policy justification and how the proposal avoids duplication, and provided budget information. The comparison exhibit facilitated in-depth review and comparison of projects, and the collective effort of the administrators is acknowledged and appreciated.

The Research Center Coalition and Social Science Researchers filed post-workshop comments on September 20, 2017. Each administrator filed post-workshop comments on September 22, 2017, as did ORA, the California Environmental Justice Alliance (CEJA)/The Greenlining Institute (jointly), Angel Plus LLC and the California Clean Energy Fund.[10] Reply comments were filed on October 9, 2017 by each administrator, ORA and the California Environmental Justice Alliance/The Greenlining Institute (Greenlining) (jointly). On October 26, 2017 PG&E and SDG&E filed supplemental reply comments addressing ORA's opening comments.

As a result of the post-workshop comments and reply comments filed by parties, and the joint comparison exhibit, there is a robust record in this proceeding to enable the Commission to review and approve, with any modifications found to be necessary, the 2018-2020 EPIC investment plans. Furthermore, as discussed in the next section of this decision, the Commission received and reviewed a comprehensive independent evaluation of the EPIC program and its results to date.

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[10] Mark Miles Consulting Inc. filed comments on September 19, 2017 but they were rejected by the Commission's Docket Office.

3. The EPIC Evaluation

The Commission determined in D.12-05-037 that an independent evaluation of the EPIC program should be conducted in 2016.[11] Commission staff selected Evergreen Economics (Evergreen) to conduct the evaluation; Evergreen distributed its Evaluation on September 8, 2017.[12] Following the release of the Evaluation, Commission staff conducted a workshop where Evergreen's consultants presented their findings and recommendations and answered parties' questions. Following the workshop, Commission staff sent parties a number of follow-up questions. Parties filed and served comments and reply comments on the Evaluation and in response to the additional questions posed by Commission staff.[13] The Scoping Memo determined that the consultants' findings and recommendations will be addressed in this proceeding, "including whether any findings should be applied retrospectively to any unawarded or unspent funds."

In the Evaluation, Evergreen begins by describing the objectives and research questions that guided its study design. The overall objective of the study was to "conduct a comprehensive evaluation of EPIC to identify opportunities to improve program management and effectiveness."[14] The specific objectives of the evaluation included the following:

- Determining if the Program is being implemented in a manner consistent with the program objectives, requirements and intent of the CPUC and the California Legislature as set forth in a series of CPUC Decisions;

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[11] D.12-05-037, Finding of Fact 12.

[12] Electric Program Investment Charge Evaluation Final Report, September 8, 2017 (EPIC Evaluation, or Evaluation).

[13] Opening comments were filed and served on October 2, 2017 by the CEC, PG&E, SCE, SDG&E, ORA, and (jointly) the Greenlining Institute, the Center on Race, Poverty and the Environment, and the California Environmental Justice Alliance. Reply comments were filed on October 23, 2017 by the CEC, PG&E, SCE, SDG&E, and ORA.

[14] Evaluation at 3-1.

- Assessing the extent to which the Program supports key energy policies and public research code sections;
- Identifying best practices in research administration;
- Assessing the extent to which the Program is on track, thus far, in meeting its objectives to provide ratepayer benefits, advance energy innovation and support California's energy policy goals; and
- Providing recommendations for improvements to program requirements and practices.

As directed by Commission staff, Evergreen focused its Evaluation on EPIC's core values:

- Providing benefits to ratepayer of the electric investor-owned utilities;
- Advancing energy innovation; and
- Supporting California's energy policy goals.

With this guidance, Evergreen designed the Evaluation to address a series of specific research questions organized by topic area:

1. Program Management and Administration
    - Are the administrators effectively complying with program requirements?
    - Beyond mere compliance, are administrators functioning as world-class energy innovation program managers?
2. Investment Planning Process
    - Is the triennial investment planning process effectively identifying a broad range of potential energy RD&D[15] objectives, evaluating those objectives according to sensible criteria, and ultimately producing investment plans with a high likelihood of producing benefits for California ratepayers and achieving other EPIC goals?
3. Project Selection Process

[15] Evergreen uses the term RD&D to reference "research, development and demonstration" activities, and considers the EPIC program overall to be a RD&D program that covers the three more specific program areas defined by the Commission in D.12-05-037: Applied R&D, TD&D, and Market Facilitation. *See* EPIC Evaluation at page 1-1.

- Is the project selection process resulting in funds going to projects that are consistent with EPIC policy objectives and planning processes, in an open, effective and efficient manner?

4. Project Assessment Process
   - What is the status of EPIC investments?
   - Do the administrators do everything possible to track the progress of funded work?
   - Are ongoing projects showing reasonable indicators of success?
   - Are processes in place to determine project viability over time and disseminate project results to stakeholders?
5. Policy Alignment and Project Impacts
   - Looking beyond project- and administrator-specific considerations, what impacts does the Program overall have in a wider context?
   - How is EPIC situated in the broader innovation and policy landscape?

Having established these research questions, Evergreen next explains its specific research approach:

> The Evergreen team employed a theory-driven evaluation framework within which we assessed the Program's effectiveness.
>
> Guided by a series of logic models that we developed to support the theory-based design, we identified plausible causal mechanisms and tested related hypotheses that the successful implementation of key program activities involving multiple actors will lead to the expected outputs and that these in turn will eventually lead to the achievement of the short-, mid- and long-term benefits.
>
> Absent a logic model, much that can and should be measured in assessing a program's efficacy would be missed.[16]

[16] *Id.* at 3-2. Evergreen's logic models are summarized in Section 4 of the Evaluation, with more detail provided in Appendix B of the Evaluation.

The Evaluation reviews each of the topic areas listed above as sequential "steps" in a causal chain that is expected to ultimately lead to the achievement of EPIC's mid- and longer-term outcomes. After evaluating each step, Evergreen presents its findings, including several "key findings," along with recommendations that are responsive to those findings. We summarize Evergreen's findings here before turning to our detailed review of the Evaluation and parties' comments on Evergreen's recommendations. Evergreen's key study findings are listed below, organized sequentially by the study research areas listed above. Evergreen also offers two additional key findings, with associated recommendations, that they describe as "cross-cutting."

1. Program Management and Administration

   Key finding: The administrators are in compliance with the letter of EPIC program requirements, but could better fulfill the spirit of some requirements.

2. Investment Planning Process

   Key finding: There is a need to prioritize among EPIC's many objectives

   Key finding: The IOUs, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement.

3. Cross-cutting: Overarching Coordination and Collaboration

   Key finding: There is a need to supplement the administrative structure by convening an independent body to coordinate, facilitate and lend technical expertise.

4. Cross-cutting: On-Going Program Evaluation

   Key finding: Each project in the EPIC project portfolio is meeting its objectives, but it is unclear if the portfolio as a whole is optimized.

Evergreen also compared each administrator's processes and projects across the four administrators, with its most noteworthy finding being the difference in how the CEC approaches program administration as compared to the utility administrators. Evergreen also noted some differences in processes across the three utilities, as follows:

- Program management and administration is fairly similar, with only minor differences in administrative spending across IOUs;
- PG&E was the only IOU to submit a request to the CPUC for new and revised projects;
- With respect to investment plans, the IOUs provide a similar level of detail describing their plans; however, SDG&E is the only IOU to include project budget allocations;
- All the IOUs need to share more information about projects;
- All three IOUs are deficient (as is the CEC) regarding justifying their use of non-competitive bidding;
- PG&E and SDG&E have slightly larger organizational networks than SCE with which they engage and share project results, and PG&E has shared project results more frequently than SCE, although since only a small fraction of projects were completed at the time of Evergreen's research, the sample sizes were small; and
- Finally, nearly all of the IOUs' projects (in EPIC 1 and 2) are not intended to be commercialized.

These observations by Evergreen confirm how important it is for the Commission to periodically evaluate ratepayer-funded programs such as EPIC, because we intend to ensure that program benefits are maximized. Evergreen returns to these fundamental observations as it presents its remaining prioritized items.

As we review Evergreen's evaluation, we note two key findings at the outset: (1) the administrators are in compliance with the <u>letter</u> of EPIC program requirements, but could better fulfill the <u>spirit</u> of some requirements, and (2) the utility administrators, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement. As we explain in detail below, we find that it is imperative that the utility administrators immediately develop and implement reasonable process improvements that are responsive to Evergreen's findings and recommendations. Therefore, we require the utilities to prepare and serve a joint application containing a Research Administration Plan (RAP) that identifies the changes they will make to their administrative processes in response to Evergreen's recommendations. We note specific items for inclusion in the joint RAP application as we review the Evaluation.

Finally, at the conclusion of this decision, we discuss whether a new rulemaking should be opened to address post-2020 funding for EPIC. As we review the Evaluation below, we also note the findings or recommendations that would be best considered in such a rulemaking.

3.1. Program Administration

Evergreen's first step in its study addressed the research question of whether the administrators are effectively complying with program requirements. Evergreen examined the CPUC's EPIC program requirements according to nine categories:

- Statutory guidance
- Investment Plans
- Limitations on projects
- Contracts
- Stakeholder engagement
- Quantifying benefits/metrics
- Budget
- Annual reports
- Miscellaneous

Evergreen verified compliance with these requirements by reviewing program filings (e.g., Annual Reports and Investment Plans), a sample of projects for which Evergreen had more detailed information (supplemented by interviews with grantees, vendors and IOU/CEC project managers) and the sample of CEC solicitations/bids and IOU request for proposals (RFPs) and vendor bids. Evergreen also compared the utilities' administrative practices to other peer RD&D program practices. Here, Evergreen states that it observed a number of areas where performance could be improved.[17]

On the whole, Evergreen states that its review of program administrative procedures found that the four administrators are in compliance with program requirements. Evergreen also found that the administrators have sufficient administrative and technical expertise and capabilities and devote adequate staffing to EPIC-related positions. However, Evergreen "also identified additional areas where the minimum requirements are not sufficient to ensure best-in-class program administration (such as stakeholder engagement, coordination and information sharing.) In these cases, the administrators are technically compliant but could better fulfill the spirit or intent of the requirements."[18] We address these items identified by Evergreen as they come up in each study research area reviewed below.

Turning to Evergreen's recommendations regarding Program Administration, Evergreen identified two areas where the administrators are technically compliant, but are not meeting the intent of the requirements: non-competitive bidding practices (all administrators) and benefits tracking (the utilities). We address Evergreen's recommendations regarding benefits tracking in our discussion of Project Assessment Processes later in this decision; here, we address the Evaluation's recommendations regarding non-competitive bidding practices.

The Evaluation found that the utilities made excessive use of the direct award process. The Commission directs in D.12-05-037 that competitive bidding should be the selection process of choice, with limited exceptions justified separately and clearly in Investment Plans. However, the Evaluation found that 18 out of 96 utility projects (almost 19%) were sole-sourced and that justifications were uneven and sometimes not

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[17] Evaluation at page 11-5.

[18] *Id.* at 11-6.

included in Investment Plans. Evergreen makes three recommendations to address these concerns:[19]

> Recommendation 1a: The administrators should provide more detailed justification for non-competitive bidding in their Annual Reports. The current administrative processes do not provide enough information to allow for appropriate oversight.
>
> Recommendation 1b: The CPUC should consider requiring a review of the non-competitive bidding cases before they are contracted, since they are not being presented in the Investment Plans, where the CPUC could review these cases before contracts are awarded. By the time the administrators report on such cases in their Annual Reports, it is too late for review. (The CPUC intended that administrators indicate their noncompetitive bidding plans in their Investment Plans, but typically, the CEC and the IOUs are not far enough along with project plans to provide the determination and possible justifications in the Investment Plans.) We note that if there is a lengthy review period, there is the potential risk of delaying a project.
>
> Recommendation 1c: The CPUC should require the IOUs to specify the funding amount for the noncompetitive award to make it easier to assess the fraction of funding that is being directly awarded. (SDG&E provides budget information for vendors in its Investment Plans, so such information is available for SDG&E. However, budgets may change once projects are implemented and vendors are selected, so the actual budget amount being sole sourced should be confirmed.) Such information would be useful to determine how much project funding is being directly awarded versus competitively bid.

These recommendations are addressed by the CEC, PG&E and SDG&E.

First, regarding more detailed justification for not competitive bidding, the CEC states that while it does not object to providing details on non-competitive bids, the Evaluation's finding that the CEC is deficient regarding its justifications for its use of non-competitive bidding is incorrect. According to the CEC, the evaluator incorrectly relies upon D.12-05-037, instead of D.13-11-025. Pursuant to D.13-11-025 and Pub Res. Code section 25711.5, the CEC is allowed to use a sole source or interagency agreement

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[19] *Ibid.*

to award funds if the project cannot be described with sufficient specificity so that bids can be evaluated against specifications and criteria set forth in a solicitation for bid, and if both the following conditions are met: (a) the CEC, at least 60 days before making an award pursuant to this subdivision, notifies the Joint Legislative Budget Committee and the relevant policy committees in both houses of the Legislature, in writing, of its intent to take the proposed action; and (b) the Joint Legislative Budget Committee either approves or does not approve the proposed action within 60 days from the date of the notification. The CEC states that it satisfied these conditions when it made non-competitive awards.

SDG&E states that the Commission should analyze the reasons the utilities must resort to non-competitive bids, as explained in the Evaluation and in the utilities' annual EPIC reports. SDG&E recommends that the Commission modify the EPIC rules to de-emphasize competitive bids for certain types of projects (e.g., projects that require a specific type of contractor and the field of competitors is small, or projects that require a contractor with unique qualifications, or projects where the work to be completed is small scale).

Second, regarding the recommendation that the Commission consider reviewing non-competitive bidding cases before they are contracted, the CEC does not believe this is necessary. The CEC has statutory reporting and approval requirements and only uses non-competitive bids in extraordinary circumstances. For these reasons, the CEC recommends that the Commission not implement any new non-competitive award requirements for the CEC that would potentially conflict with the authority and legislative oversight contemplated by Pub Res. Code section 25711.5(h)(2).

PG&E also suggests that this review is unnecessary and inconsistent with the Commission's existing standards of review of EPIC and non-EPIC contracting. PG&E notes that it follows the Contractor Solicitation and Evaluation Guidelines adopted for utilities in D.13-11-025, and that standard competitive bidding requirements have already been adopted in the EPIC decisions. Further Commission review would be administratively costly in comparison to a case-by-case after-the-fact auditing approach.

Third and finally, regarding the recommendation that the Commission require the utilities to specify the funding amount for non-competitive awards, the CEC believes this recommendation is reasonable and consistent with current CEC reporting requirements. The utilities did not comment on this recommendation.

We find that the CEC is correct on this issue, and that there is no evidence that its use of the non-competitive bid process is improper. We are generally concerned with the divergence between our requirements on non-competitive bidding and the reality of its use by the IOUs. We seek to bring these into alignment while improving the program and increasing administrator accountability. We clarify that the preference and rules for competitive bidding (including the requirement that limited uses be proposed in Investment Plans) in our prior decision stands. With regards to the specific recommendations, we determine the following: for 1a, we adopt it. Annual reports should include a detailed explanation for why non-competitive processes were used, in every case. We do not adopt Recommendation 1b, since it would not be feasible for the Commission to review individual cases of non-competitive bids between application cycles, and doing so would cause administrative delays. We adopt Recommendation 1c and will require the IOUs to provide budget breakdowns for all competitively and non-competitively directed funding, by project.

At the same time, there are some cases where it is difficult to anticipate in advance the need for a direct award, and as SDG&E notes there are specific types of needs that are suited to direct award. We need to improve general notifications in advance as well as transparency about specific use of this process. First, the issue of non-competitive, direct awards would be appropriate for the future rulemaking contemplated in this decision, where we would expect the IOUs to offer proposals for (1) the types of uses for which they will employ non-competitive awards, which would be specified in advance in Investment Plans; and (2) the specific notification process the IOUs would use to notify the Commission whenever they award funds directly. Second, however, if the IOUs include any additional use of non-competitive bidding during the 2018-2020 investment cycle, they should include notification of the Commission in the joint RAP application that they will submit pursuant to this decision. This notification should include the specific justification for its use, the funding amount being directly awarded, the total project budget, and an overall updated total for direct awards and competitive awards for this investment plan cycle.

Such improvements, both in the short term and in any future investment cycles, would increase transparency and administrator accountability, and facilitate Commission oversight of funding processes.

3.2. Investment Planning Process

Evergreen's second step in its study addressed the research question of whether the triennial investment planning process is

- effectively identifying a broad range of potential energy RD&D objectives;
- evaluating those objectives according to sensible criteria; and
- ultimately producing Investment Plans with a high likelihood of producing benefits for California ratepayers and achieving other EPIC goals.

Evergreen addressed these questions in three sub-sections of the Evaluation.

3.2.1. Administrators Investment Planning Processes

Evergreen's findings distinguish between the planning process followed by the CEC and the processes followed by the utilities.

On the one hand, "the CEC's investment planning process produces plans that have a high likelihood of producing benefits for California ratepayers and achieving other EPIC goals." Evergreen finds that the CEC's administrative model is consistent with other peer RD&D programs in that there is strong explicit alignment of program initiatives with relevant energy policy goals and transparency in investment planning.[20]

On the other hand, "while each IOU project is related to at least one area of the state's energy policy, their TD&D portfolios focus on a much narrower set of investment areas compared to the CEC."[21]

Evergreen finds that IOU project ideas predominantly originate from internal IOU staff, and are organized according to the joint framework developed by the IOUs, which includes four investment framework elements (all within the TD&D area), each of which the IOUs have mapped to the electric system value chain. Evergreen finds that this process results in IOU projects that are more narrowly focused, primarily on grid communications and interactivity and grid maintenance, optimization, planning and management. Evergreen relays the utilities' response to its finding: "the IOUs noted that, while their projects are narrowly targeted toward the unique needs of their respective systems, they are certainly relevant to the needs of the other utilities both inside and outside California and benefit all ratepayers."[22]

Evergreen makes no recommendations on whether the utilities' TD&D portfolios should resemble the CEC's broader focus, noting that this is the Commission's policy decision to make. With regards to this finding, we clarify that although we have previously approved (and do so again in this decision) the IOUs' projects as organized by their investment framework, we may in the future reconsider whether their focus should be broader, as Evergreen suggests. Certainly, we do not intend for the existing IOU framework to limit or preclude improvements discussed elsewhere in this decision.

[20] Evaluation at 11-7.

[21] *Ibid.*

[22] *Ibid.*

3.2.2. Portfolio Optimization

Evergreen next examines the question of whether the administrators' investment planning frameworks are effective in creating a portfolio that has the optimal mix of projects. Here, Evergreen offers a challenging finding: although the administrators' investment planning processes "result in a collection of projects that together meet all the various EPIC program requirements," it is not possible to determine if the administrators' investment planning frameworks are effective in creating a portfolio that has the optimal mix of projects because the CPUC has not established priorities among many "principles, policies and strategic objectives" for investment in RD&D and/or emerging technologies.[23] Evergreen captures these observations in one of its "key findings": there is a need to prioritize among EPIC's many objectives. Evergreen explains its reasoning as follows:

> We have identified a need to prioritize the principles, policies and strategic objectives and operationalize what it means for a portfolio to be optimized, though we acknowledge that such prioritization must also balance the desire to "allow a thousand flowers to bloom" to ensure sufficient opportunities to sow broad innovation.
>
> Once prioritized, the administrators could then assess the extent to which each project addresses these principles, policies and strategic objectives. Doing this would assist decision makers in gaining a better understanding of what it means for a portfolio to be integrated into the broader innovation and policy landscape and the extent to which the EPIC portfolio meets that standard.
>
> A more refined assessment of the policy alignment then could be conducted to determine whether the portfolio is optimized.[24]

Evergreen makes three recommendations based on these findings; we review each in turn, assisted by parties' comments:

> Recommendation 2a: In this "priority recommendation" Evergreen recommends that "the CPUC establish priorities among its current

[23] *Id.* at 11-7 to 11-8.

[24] *Id.* at 11-8.

> policy goals and funding criteria to better guide the administrators in their investment planning."[25]

Evergreen explains the "each project is vetted, and they all meet the various criteria. However, funding is finite, and allocating that funding across too many policy goals and funding criteria runs the risk of diluting EPIC's impact."[26] For example, the Evaluation found that there is no clear set of priorities EPIC is seeking to address, or prioritization of research gaps or needs, stating:

- Every EPIC project may be likely to provide ratepayer benefits, but there is variation in how broad and/or direct those benefits are;
- Every EPIC project supports at least one energy policy area, but there are many relevant policy areas that lack clear prioritization;
- Projects are not categorized or tracked by technology or policy area, making it difficult to assess the effectiveness of EPIC on advancing key policy;
- EPIC focuses less on commercialization than peer RD&D programs, though EPIC's objectives are much broader.[27]

Evergreen describes its recommendations as intended to ensure that EPIC is generating the optimal mix of projects that maximize ratepayer benefits, lead to energy innovation and support the state's key policy goals.

In its comments on the Evaluation, the CEC states that it does not believe that prioritization of current policy goals is needed, but rather prioritization of strategies that support multiple policy goals:

> For example, to achieve the GHG (greenhouse gas) reduction targets of Senate Bill (SB) 32 (Statutes of 2015, chapter 547), the renewable energy generation target of SB 350 (Statutes of 2016, chapter 249), and the EPIC primary ratepayer benefits of lower costs and

[25] *Ibid.*

[26] *Ibid.*

[27] Evaluation at 1-5.

> increased reliability, a suite of technology advancements are needed.[28]

The CEC believes it has effectively prioritized various technology strategies. The CEC states that as the state's primary energy policy and planning agency, it regularly consults with stakeholders and the public through the Integrated Energy Policy Report and other public and transparent forums to identify challenges to and strategies for achieving the state's energy policy goals. These challenges and strategies form the foundation of CEC's EPIC initiatives.

The utilities all support more precise prioritization, but all recommend that this be implemented after the current investment cycle. SCE also asserts that the joint IOU framework is already mapped to key policy objectives at the funding area and initiative levels, so modifications of those existing environmental and energy policy goals would significantly impact the progress of the investment plans that we are reviewing in this decision. The CEC agrees with the IOU comments.

We take recommendation 2a seriously, and agree that clearer Commission direction on program priorities could be greatly beneficial to the program. We do not intend to remake EPIC into a fully directed program, since as the Evaluation notes we must balance the narrowing of focus that results from prioritization with the value of broad R&D investments. We also do not intend to re-order EPIC priorities during the current investment cycle, given the timing considerations raised by the administrators. We intend to focus closely on Evergreen's optimization recommendations and the overall question of directing more priorities within EPIC as part of the rulemaking contemplated in this decision. That said, we note that Recommendation 2a has not gone fully unaddressed: providing greater focus on and coordination around our priorities is a key purpose of the PICG.

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[28] CEC Comments at 7.

Evergreen's second recommendation to support optimizing EPIC's portfolio is targeted at improving the basic information that is made available regarding the EPIC portfolio:

> Recommendation 2b: The administrators should collaborate in categorizing and summarizing projects (such as by technology type and/or policy area) and review projects by topic areas to ensure that the portfolio of projects effectively supports key policy goals.[29]

Evergreen notes that the independent body it recommended be created by the Commission could also support an effort to categorize projects.

In its post-workshop comments, the CEC supports modifications to current CEC processes, as long as the resources required are not onerous. The CEC also notes that the Commission should specify the intended audience for these additional requirements, because the CEC already presents information on its EPIC funded projects via the EPIC Annual Report and the Energy Innovation Showcase. In similar fashion, PG&E and SDG&E state that the recommended collaboration is unnecessary because this on-going collaboration already takes place. Both cite the project comparison matrix that the EPIC administrators compiled and submitted earlier in this proceeding.

Recommendation 2b is based on Evergreen's portfolio characterization analysis, which showed little clear prioritization of projects or a consistent way of characterizing investments across administrators. Evergreen's analysis is an improvement over the existing project comparison matrix, which is simply a joint compilation of each administrator's list of projects. We find that improvements in this area would better allow the Commission and administrators to assess and coordinate EPIC work. The PICG Project Coordinator scope of work includes some synthesis activities that may inform this effort, which may especially be addressed by its website/database-related tasks. The administrators should engage with the PICG process to support that outcome. The Commission can consider additional steps to ensure that the overall portfolio of

[29] Evaluation at 11-8.

EPIC projects effectively supports key policy goals in the rulemaking contemplated in this decision.

Evergreen's third and final recommendation regarding portfolio optimization is more general:

> Recommendation 2c: the administrators' Investment Plans should be closely reviewed to ensure they not only meet program requirements, but that they are also effective in advancing the energy policy priorities that the CPUC identifies.[30]

By way of example, Evergreen notes that its recommended review "could focus on ensuring the CEC's strategic objectives are in line with state priorities and are not overly responsive to priorities that may be temporary (such as tree mortality). The review could ensure that IOU projects are effectively advancing state policy, beyond just being related to policy and proceedings."[31] Evergreen ties this recommendation to its recommendation elsewhere in the Evaluation that EPIC be independently evaluated on a regular basis, which would provide an opportunity for on-going assessment of EPIC program planning and implementation.

The CEC and ORA commented on this recommendation. The CEC states that its investment plan process is already subject to close review through both the CEC and Commission proceedings. ORA recommends that before extending the EPIC program beyond 2020, the Commission should conduct a more thorough assessment of its overall effectiveness relative to EPIC's stated goals.

The Commission has always acted consistently with Evergreen's recommendation from the inception of the EPIC program, subjecting the investment plans to close review. That said, we acknowledge the overarching findings and recommendations of the Evaluation that indicate a need for greater direction and prioritization—in effect, clearer

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[30] *Ibid.*

[31] *Ibid.*

and more intentional direction of EPIC at a broad level—and we can pursue these future-facing considerations in the rulemaking contemplated in this decision.

3.2.3. Stakeholder Engagement

The third and final subsection of the Evaluation that addresses the administrators' investment planning processes concerns stakeholder engagement. This is another area where Evergreen identifies significant differences between the CEC and the three utility administrators.[32]

First, Evergreen finds that the CEC provides comprehensive information to a broad array of stakeholders about its Investment Plans, and its processes are consistent with other peer RD&D programs.

The IOUs have a much narrower stakeholder group on which they typically rely for input: "the internal IOU stakeholders and EPRI (Electric Power Research Institute, which Evergreen describes as 'an electric utility-focused organization') are the main sources of expertise on which the IOUs rely to determine their EPIC investment priorities [where] EPRI identifies gaps and any redundancies with other utility efforts nationwide."

However, Evergreen also observes that both the CEC and IOUs engage stakeholders (besides EPRI) relatively late in their investment planning processes, and plans have not changed significantly as a result of stakeholder input:

> The EPIC administrators hold stakeholder workshops, document public comments and respond to these remarks in each of their Investment Plans, as required by the CPUC.

[32] In D.12-05-037 the Commission identified key stakeholders with whom the EPIC administrators would be expected to consult for strategic and technical advice and feedback on the investment plans and their implementation, and any other aspects of the program. The Commission listed the following entities: members of the Legislature, to the extent their participation is not incompatible with their legislative positions; government, including state and local agency representatives; utilities; investors; the California Independent System Operator; consumer groups; environmental organizations; agricultural organizations; academics; the business community; the energy efficiency community; the clean energy industry and/or associations; and these industry associations.

> However, the IOUs do not provide comprehensive information about their draft plans when they conduct stakeholder workshops, and, according to stakeholders, allow little time for input.
>
> The CEC also allows little time for input, though it offers more information and gives more time for input than the IOUs.
>
> Compared to other peer RD&D programs, the EPIC administrators appear to rely more on their own internal technical experts (and for the IOUs, EPRI), seeking input from external stakeholders after investment planning goals are established.[33]

On the positive side, Evergreen does note that the administrators' internal staff routinely collaborate with other external subject matter experts; this is consistent with the other peer RD&D programs reviewed by Evergreen, which also engage industry experts to help shape the focus of their initiatives.

Based on its review, Evergreen reaches another "key finding": the IOUs, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement. Evergreen offers four "priority recommendations" based on this finding; two fall within the investment planning process section of the Evaluation, and two fall within the following section, the project selection process, so we discuss those separately below.

Regarding the investment planning process, Evergreen recommends as follows:

> <u>Recommendation 2d</u>: The administrators should engage more stakeholders earlier in the investment planning process; and
>
> <u>Recommendation 2e</u>: The IOUs should provide more comprehensive information, to allow time for more meaningful engagement.

Evergreen explains that "with the current IOU approach, the Investment Plans are so close to final that stakeholder input at workshops does not materially change their plans. This issue is exacerbated by the fact that once the plan is approved, little

[33] Evaluation at 11-9.

information is shared with the public until the projects are described in the IOUs' Annual Reports."[34]

In comments, the CEC states that it is open to earlier engagement of stakeholders, but also believes that the Evaluation did not consider the input that occurs before the start of the formal investment plan development process. The CEC asserts that this input also informs the investment plan (e.g., the CEC's EPIC Idea Exchange, workshops, and Requests for Comments). PG&E suggests that the proposed EPIC advisory group (i.e., the PICG established by D.18-01-008) can support earlier stakeholder engagement in the process by coordinating input from members and other relevant stakeholders such as those representing DACs.[35] SCE makes a similar suggestion.[36] SDG&E suggests that EPIC program rules should be modified to allow utility administrators to propose investments in the areas of applied research and development (R&D) and/or Market Facilitation, in order to help EPIC reflect and address a wider set of stakeholder priorities, needs and gaps.[37]

The CEC responds to SDG&E's suggestion by restating its belief that EPIC Market Facilitation funds should continue to be administered by the CEC alone, because—as the Commission previously noted in this regard--the CEC does not have an inherent incentive to bias its investments to favor itself over competitors.[38] We agree and we do not revisit our determination in D.12-05-037. SDG&E also fails to explain why broadening the areas it can fund would improve its stakeholder engagement.

[34] *Ibid.*

[35] Opening Comments of Pacific Gas and Electric Company on Electric Program Investment Charge Evaluation Report and Workshop at 6.

[36] Comments of Southern California Edison Company to the Electric Program Investment Charge Evaluation Report Workshop at 6.

[37] Opening Comments of San Diego Gas and Electric Company on the Electric Program Investment Charge Evaluation Report at 5.

[38] Reply Comments of the California Energy Commission Regarding Electric Program Investment Charge Evaluation at 6, citing D.12-05-037 at 42.

ORA replies to PG&E and SCE's recommendations regarding advisory group support for an earlier and more engaging stakeholder process by noting that the Evaluation does not fault stakeholders for failing to participate at earlier stages of the investment planning process. Rather, the Evaluation finds that the IOU administrators rely more on their own internal technical experts and Electric Power Research Institute (EPRI), and provide insufficient time and information to stakeholders, which results in late participation and insufficient opportunities for active and informed stakeholder engagement. Therefore, ORA does not believe that the independent body is a solution to the issue of stakeholder non-involvement.[39]

We address parties' comments on these particular Evergreen recommendations immediately below, after introducing the two additional related recommendations.

3.3. Project Selection Process

Evergreen's third step in its study addressed the research question of whether the administrators' project selection process is being conducted in an open, effective, and efficient manner and resulting in funds going to projects that are consistent with EPIC policy objectives and planning processes. Evergreen presents its analysis of this question in five subsections.

3.3.1. Administrator Project Selection Processes

In this section of the Evaluation, Evergreen presents its third and fourth "priority recommendations" that follow from its key finding that the IOUs, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement.

Evergreen first notes that the CEC's project selection processes are rigorous and transparent, and are consistent with other peer RD&D programs: the CEC has

[39] Reply Comments of the Office of Ratepayer Advocates Addressing the Electric Program Investment Charge Program Evaluation Report at 7-8.

established rigorous selection criteria, strong alignment with overall program goals and objectives, and a peer review process for selecting and awarding project grants.

On the other hand, Evergreen finds that the IOUs' project selection criteria are not as robust as other peer RD&D programs or the CEC's: "there is a lack of transparency in the IOUs' project selection and research planning processes. The IOU project selection criteria could also be more transparent."

Evergreen offers the following "priority recommendations" based on these findings:

> Recommendation 3a: The utilities should develop more transparent project selection criteria, which determine the project areas that are described in their Investment Plans as well as the specific projects that are eventually implemented.

Evergreen notes that once the CPUC establishes priorities, these criteria could be reviewed and revised over time to ensure an appropriate focus on the highest priority areas for advancing state energy policy.

> Recommendation 3b: The utilities should share project research plans and budgets with the Commission and the public, at least one month prior to launch.
>
> Evergreen explains this recommendation as follows:
>
> - There is typically a substantial lag between the time when the IOUs decide whether or not to launch a project once their Investment Plans are approved and when they share information about each project in their Annual Reports, including such information as the budget, overview of project scope, and its current status (active, completed, cancelled or on hold).[40]
> - The IOUs do not share their detailed project research plans publicly or with the CPUC, so there is less transparency as compared to CEC projects (where detailed scopes of work are posted publicly once they are developed).

[40] Evergreen notes that SDG&E does provide project budget information (including a breakdown of SDG&E versus vendor budget) in its Investment Plans.

- The brief description in the Investment Plans and Annual Reports are all that is available to the CPUC and the public (with the exception of projects that are featured in presentations at EPIC workshops and the annual symposium or ad hoc communications).
- The IOUs may not conduct all projects that are described in the Investment Plans, so the Annual Reports are the best sources for determining which projects are being implemented.
- Though the IOUs comply with EPIC program requirements, Evergreen identifies the need for more timely reporting on projects after the Investment Plans are approved to increase transparency and ensure more effective CPUC oversight.

In its post-workshop comments, the CEC agrees that increased transparency on active utility projects and outcomes will be helpful in ensuring that the projects of all EPIC administrators are coordinated to avoid duplication and ensure that the research is helpful and used. The CEC adds that it would also be helpful if the utilities also shared project information from related non-EPIC programs such as pilots on energy efficiency, demand response, energy storage, electric vehicles, and the Emerging Technologies program. The CEC suggests that this will lead to greater visibility and more commercialization and deployment by utility incentive programs, customers and others.

The utility administrators offered only limited responses to Evergreen's observations and recommendations. PG&E and SCE were silent on two-thirds of the 32 recommendations made by Evergreen; SDG&E was slightly more responsive, responding to approximately half of the recommendations. In some instances, Evergreen singled out specific utilities, but that utility did not respond to Evergreen.[41] The utilities' limited engagement with this central aspect of this proceeding has had the effect of slowing our review of the Evaluation. As explained below, we add an additional filing requirement

[41] For example, Recommendation 4f suggests that SCE share its project results more widely with interested stakeholders, including delivering presentations at conferences and workshops, based on a finding that SCE was the least transparent in this regard. SCE did not respond to or comment on this recommendation.

for the utility administrators so that they can address Evergreen's findings and recommendations in sufficient detail.

3.3.2. Research Administration Plan

We have no intention to continue a situation where the utilities' administration of their respective EPIC programs falls short of peer program best practices. Therefore, we direct a number of remedial actions to be taken now, during the current investment cycle, while remaining mindful of the administrators' shared recommendation to avoid disruptive changes during the current investment cycle. The original intent behind requiring the EPIC evaluation was to inform our consideration of the plans submitted by the administrators for this investment cycle. Requiring that administrative process improvements be developed and implemented during the current cycle will not derail the investment plans for the next three years. The actions we require are limited to reasonable responses to the shortfalls identified by Evergreen.

First, we endorse each of Evergreen's recommendations 2d, 2e, 3a, and 3b. However, these recommendations are in many ways most appropriately implemented at the outset of a future investment cycle, if the Commission ultimately decides that EPIC funding should continue. To ensure that the utility administrators act expeditiously to develop and implement reasonable process improvements in the short term, in this decision we require the utilities to file a joint application containing a Research Administration Plan (RAP) that identifies the changes they will make to their administrative processes in response to each of Evergreen's recommendations, and how those changes will address the shortfalls identified by Evergreen.

The utilities shall follow the following process to jointly develop and submit their RAP application:

Required Application elements

- The following outline shall be followed in the joint RAP application:
    - Introduction and Summary
    - EPIC Evaluation Recommendations: for each of Evergreen's recommendations which the utilities are directed in this

decision to address in the RAP, each utility shall provide its response to the Evaluation, and detail the immediate steps it is taking to modify its program administration to implement the recommendation, as appropriate.[42]

  - Elements shall be detailed. For example, each utility needs to develop a plan for tracking and reporting benefits; these plans must include specific details about what will be tracked and how it will be reported.
  - Elements shall be coordinated. We direct a joint application in the interest of coordination and efficiency. Each utility does not need to re-create the wheel when developing its process for tracking benefits, as an example, and we would appreciate consistency in the processes.

- Utility-specific Modifications to 2018-2020 Investment Plans:
  - In separate sections, each utility shall identify any proposals included in its April/May application that the utility believes should be modified or withdrawn/replaced.

    For modifications, the utility shall explain how the modifications were developed in a manner consistent with the intent of the Evaluation recommendations adopted in this decision.

    For withdrawn proposals, the utility shall provide an explanation for that necessity.

    For any replacement proposals, the utility shall explain how it developed the proposal in a manner consistent with the intent of the Evaluation recommendations adopted in this decision.

Application Timeline and Process

- The joint RAP application shall be filed and served no later than 180 days after the effective date of this decision.
- Engagement with stakeholders:

[42] Appendix B of this decision provides a summary of the Commission's direction regarding each of Evergreen's recommendations 1a through 7e, including which shall be addressed in the RAP application.

- The utilities shall consult with CEC as they prepare their application, especially on those elements directed in this decision to be developed jointly with the CEC's input. We also intend that the IOUs adopt the best practices already in use by the CEC, as identified in the Evaluation and appropriate for the IOUs.
- The IOUs shall jointly conduct a pre-development technical workshop for initial input and recommendations, inviting California stakeholders and representatives from peer R&D programs such as those identified in the EPIC Evaluation. The purpose of this engagement is to gather other program administration insights that should inform the RAP.
- The joint RAP application shall document stakeholders consulted and their input into the application; parties representing or familiar with the interests of DACs, as directed for specific elements in the RAP, shall be consulted for their input.
- The IOUs shall share their completed draft application in a second workshop and document and respond to the feedback and input received at that workshop.

In order to ensure that reasonable, practical improvements are undertaken immediately, we also direct the utility administrators not to spend, commit or encumber one-third of their respective EPIC program budgets, as established and allocated in D.18-01-008, until the Commission approves their joint RAP application.[43] In plain terms,one-third of each utility's budget is not authorized for any use unless and until the RAP is approved. This will allow each utility's highest priority projects to move forward while ensuring the utilities are focused on and motivated to make these essential improvements

[43] In D.13-11-025 (Finding of Fact 115) we stated that "encumbered funds" should be defined as funds that are specified within contracts and grants signed during a previous triennial investment plan cycle and associated with specific activities under the contractor grant. Consistent with this definition, the utilities shall not sign any contracts or grants proposed within their 2018-2020 investment plans that would cause them to exceed two-thirds of their respective budgets. This differs from "committed funds", which we stated in D.13-11-025 (Finding of Fact 114) should be defined as funds identified during the planning for a specific project that will be needed to fund that project at the conclusion of a planned or released development or solicitation of the project.

to their administrative processes. Given the expected timeline for the RAP application and the triennial nature of funding collections, we find that one third of each utility's budget is a reasonable amount to leave unspent. To be clear: we resolve all substantive matters regarding each utility administrator's EPIC investment plans later in this decision. It is only one-third of the funding for those investments that we direct remain unencumbered pending our approval of the joint RAP application.

With respect to Recommendation 3b, we also agree with the CEC that the utilities should share project information from related non-EPIC programs such as pilots on energy efficiency, demand response, energy storage, electric vehicles, and the Emerging Technologies program. The utilities should include a proposal in their joint RAP application regarding how the utilities will share this information in a productive, efficient manner during the current EPIC investment cycle.

3.3.3. Administrator Coordination

The second part of Evergreen's review of the project selection process examined coordination between the four administrators. While Evergreen found that all four administrators coordinate program administrative activities on a regular basis, and the IOUs coordinate on individual projects, its study also found that there is less coordination between the IOUs and the CEC at the project planning level. Evergreen also identified the potential for increased coordination between the IOUs and the CEC in the future, once Applied R&D projects begin to mature. Finally, Evergreen suggests that it may have identified some cases of "apparent" duplication in the utilities' 2018-2020 investment plans.[44] Based on these findings, Evergreen offers the following recommendation:

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[44] Evaluation at page 11-11: "we did note some cases of *apparent* duplication in the IOUs' EPIC 3 plans. Once the projects are launched and more detailed research plans are developed, the IOUs should make those plans available (similar to what the CEC does) to allow for more vetting of projects." (emphasis in the original)

> Recommendation 3c: The Commission should review the utilities' project research plans (which Evergreen recommends be made public as they are developed) to ensure that there is no unnecessary duplication in their 2018-2020 projects.

No party commented on this recommendation. Our review of the utilities' plans did not reveal any unnecessary duplication, and we have always closely reviewed plans with this in mind. Finally, changes ordered in this decision will support the earlier, more in-depth review envisioned by Evergreen.

3.3.4. Match Funding

The third part of Evergreen's review of the project selection process examined match funding. The CEC explicitly seeks match funding from project applicants: it is required for TD&D projects, while for the other project types, applicants receive bonus points for offering it. Evergreen finds this to be consistent with three of the seven peer RD&D programs it reviewed for the Evaluation. The utilities do not require match funding (e.g., "cost sharing" or "in kind support"). Instead, they use informal means to negotiate cost sharing from their vendors. The utilities do not track any support received in this manner.

Evergreen reports that some stakeholders indicated that the CEC's match funding requirements may be too onerous, especially for small companies that lack the resources or track record to attract such funding. Evergreen's review of best practices of other peer RD&D programs found that two primary peer programs which focus on small businesses, the U.S. Department of Energy's Small Business Innovation Research [SBIR] and Small Business Technology Transfer [STTR] Programs, do not mandate match funding during the projects' Phase I implementation, but encourage it during Phase II when these projects are more established and better positioned to secure such funding.

Based on these findings and observations, Evergreen offers the following recommendation:

> Recommendation 3d: The CEC should consider modifying the match funding requirement for TD&D projects and make it optional.

Evergreen suggests that the CEC could instead give bonus points to TD&D project scores, as they typically do for Applied R&D and Market Facilitation projects, to ensure they are not rejecting good projects that are unable to secure funding (such as those from small businesses). Evergreen suggests that this might encourage more bids, especially from small businesses that in general have fewer options for securing match funding.

In its comments, the CEC acknowledges that there may be special circumstances in which waiving match funding is warranted, but cautions against wholesale elimination of match funding requirements. The CEC explains that EPIC funding for TD&D projects is used to verify and evaluate performance and cost effectiveness at or near commercial scale: "at this stage, it is important to ensure that there are other financial backers, partners, and stakeholders involved who can help deploy the project more broadly post-EPIC funding. The ability of a project to attract match funds provides a crucial signal that the private sector is interested and potentially willing to finance subsequent deployments if the project is successful."[45] Finally, the CEC cites other RD&D programs besides those cited by Evergreen to support its position that match funding is an integral requirement in other government programs besides EPIC.[46]

We do not find it necessary in today's decision to direct any changes in the approaches to match funding utilized by the CEC. The CEC offers a well-reasoned response to Evergreen, defending its current approach. We find it reasonable to require the utility administrators to track match funding during the current investment cycle. The joint RAP application should describe their proposed method for doing so. More broadly, this issue should also be explored in greater detail in our future rulemaking, especially in order to learn more from the small business community regarding the challenges reported by Evergreen.

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[45] CEC Comments at 11.

[46] *Id*. at 11-12, citing (1) DOE, Office of Energy Efficiency and Renewable Energy, (2) DOE, Advanced Research Projects Agency-Energy Program (ARPA-E), and (3) the New York State Energy Research and Development Authority's Technology and Market Development Program.

3.3.5. Intellectual Property Terms

As the CEC notes in its comments, intellectual property (IP) "has been a heavily debated topic since the beginning of EPIC."[47] We agree, and in this section we put that debate to rest, albeit to be renewed, we expect, in any future rulemaking.

As explained in detail below, we address the IP issue included in the scope of this proceeding by stating, in unequivocal agreement with the CEC, that the CEC may grant load-serving entities a free license to use models and analytical tools that can inform distribution planning and decision-making that benefits electric ratepayers. No licenses are to be granted by the CEC for any other type of developed technology.

We begin our explanation by reviewing the procedural history of this issue within the EPIC proceeding.

3.3.5.1. Procedural History

Questions regarding the proper approach to IP date to the inception of the EPIC program. When the Commission issued R.11-10-003 it invited interested entities to file responses to a number of detailed questions regarding the predecessor to the EPIC program, the CEC-administered Public Interest Energy Research (PIER) Program. One of those questions asked whether "any program changes need to be made on the issue of intellectual property rights?"[48]

The Commission subsequently framed the issues from its point of view in D.12-05-037:

> Intellectual property policy is a complex issue area with legal and practical implications.
>
> Retaining ownership of intellectual property by the administrators of EPIC, as well as requiring royalty payments from any technologies that are supported by EPIC funds and are ultimately commercialized, may

[47] CEC Comments at 37.

[48] R.11-10-003 at 13.

> serve to discourage private entities from participating in the EPIC program in the first place.
>
> On the other hand, the opposite policies may result in a loss of ratepayer value for contributions made to technology development or other research areas.
>
> It is also the case that intellectual property policy may appropriately differ depending on whether the administrator of the funds is the CEC, conducting public interest RD&D, or whether it is a utility, investing in a technology to serve its customers' needs.[49]

In part because that decision also established the initial requirements for EPIC investment plans that were yet to be submitted, the Commission declined to establish an overall policy for IP in D.12-05-037.[50] Instead, the Commission found that the administrators should be required to make specific proposals for IP rights in each investment plan, where the specific types of projects proposed will be provided in more detail.[51] The Commission ordered that each administrators' triennial investment plan include a recommended approach to IP rights depending on the specific types of projects and funding proposed.[52]

The four administrators complied with the Commission's direction in their first triennial investment plan applications (A.12-11-001, et al., covering 2012-2014). Indeed, "each EPIC Administrator's application propose[d] various approaches for the treatment of IP realized or that may be realized from efforts supported by EPIC funds."[53] However, while the applications were still pending, legislation passed in 2013 added section 25711.5 to the PRC. In relevant part, Section 25711.5(b) provides

[49] D.12-05-037 at 78-79.

[50] *Id.* at 79.

[51] *Id.*, Finding of Fact 40.

[52] *Id.*, Ordering Paragraph 12.d.

[53] D.13-11-025, the Commission's decision addressing these applications, at 69.

> 25711.5. In administering moneys in the fund for research, development, and demonstration programs under this chapter, the commission shall develop and implement the Electric Program Investment Charge (EPIC) program to do all of the following:
>
> […]
>
> (b) 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. The commission, when determining if imposition of the proposed terms is appropriate, shall 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 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.

The Commission acknowledged the Legislature's directive, stating that although it had created and would oversee the EPIC program pursuant to its own Constitutional and statutory authority, "[a]t the same time, the Legislature has clearly placed PRC § 25711.5's directives for the appropriate treatment of IP generated by CEC awards and associated royalties on the CEC. The Commission accordingly incorporates the Legislature's directive into the EPIC program and this decision on the CEC's 2012-2014 investment plan."[54]

Consistent with the legislative developments just described, the Commission articulated its revised approach to IP in several Ordering Paragraphs of D.13-11-025.

First, in OP 30 the Commission stated that PRC section 25711.5 requires IP rights and royalties that may derive from EPIC-funded projects to accrue to the State and directed that "[t]o the extent that CEC determines that such IP rights and royalties should or may be licensed to PG&E, SCE, SDG&E, other LSEs, or other persons or entities, the

[54] D.13-11-025 at 70-71.

CEC must grant and administer such licenses and royalties as part of its role as an EPIC administrator."

Second, in OP 32 the Commission required that the utility administrators must either own the IP developed by EPIC-funded investments for the benefit of ratepayers, or, absent IOU ownership of the IP for the benefit of ratepayers, the IOUs must, at a minimum, hold a nonexclusive, transferable, irrevocable, royalty- and cost-free, perpetual license to be used for the benefit of the ratepayers that funded the IP.

Finally, in OP 50 the Commission directed that "[c]onsistent with state law and our decision concerning the fair licensing of IP to LSEs or other utility competitors serving ratepayers, to the extent the grantees' proprietary and competitive interests are appropriately and adequately protected, the licensing of IP must be done on fair, reasonable, and non-discriminatory terms, including but not limited to fair and reasonable licensing costs charged to LSEs or other utility competitors."

The Commission provided further clarification of its EPIC IP policy and requirements in D.15-04-020, its decision addressing the four administrators' 2015-2017 triennial investment plans (A.14-04-034, et al.). The Commission responded to IP-related requests by SCE and PG&E, as follows:

First, SCE requested that the Commission allow for flexibility for the administrators to forgo their IP ownership rights when the benefits therein are outweighed by other benefits. PG&E suggested that the Commission authorize administrators to file a Tier 1 Advice Letter (AL) when they wish to request a waiver or additional flexibility of the Commission's EPIC IP standards and criteria. The Commission responded by requiring that a Tier *3* Advice Letter must be filed when an administrator identifies a compelling need for a specific waiver of EPIC IP requirements, at the individual project/solicitation level (the CEC must file the non-IOU equivalent, which the Commission terms a "business letter").[55] Waiver requests must detail the

[55] D.15-04-020, OP 18.

specific requirements at issue and include a demonstration of quantifiable benefits that are at risk should the waiver not be granted.[56]

Second, the Commission responded to SCE's concern that "administrator access to nonexclusive licensing rights may deter potential bidders, who may fear the administrator will compete against them by sublicensing the IP to others" by clarifying that "the nonexclusive licenses granted to the IOUs do not require the IOUs to sublicense the IP to third parties."[57]

Third, the Commission responded to SCE's concerns about the EPIC IP requirement to indemnify the state of California (because many universities and laboratories cannot indemnify a third party for their actions) by stating that EPIC IP requirements should include an exception for the third party indemnification/hold harmless requirement for government entities that are prevented legally from indemnifying a third party.[58]

3.3.5.2. Clarification of D.13-11-025 Regarding Intellectual Property

The CEC's perspective on IP essentially mirrors that of this Commission, as first expressed in D.12-05-037 and quoted above. In the CEC's view:

> One of the basic benchmarks of any RD&D program is whether it results in new, commercially successful technology. IP rights play a significant role in commercialization.
>
> For example, IP rights that inappropriately share ownership or make proprietary information public would prevent the commercialization of new technologies. An entity would no longer have a competitive advantage, and thus no longer have the impetus for developing new technology.

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[56] *Id.*, OP 19. As will be clear from our discussion below, while the CEC must use the business letter process if, at its discretion, it wishes to <u>document</u> a specific grant of a waiver, it is not required to use that process for <u>any</u> waiver.

[57] *Id.*, Finding of Fact 15.

[58] *Id.*, Conclusion of Law 18.

> However, IP rights must also allow the sharing of new scientific knowledge which fosters further advances and prevents duplication of efforts by others, which in turn preserves RD&D funds for new efforts.[59]

Currently, the CEC's "EPIC Standard Grant Terms and Conditions" allows the CEC and the CPUC to grant IP licenses to LSEs, including the IOUs, that provide electricity to EPIC ratepayers. The licenses allow LSEs to utilize EPIC-funded IP "to enhance the entities' service to EPIC ratepayers."[60] The CEC requested that the scope of this proceeding include clarification or modification of D.13-11-025, as necessary, regarding the circumstances under which the CEC may grant licenses to LSEs for EPIC-created IP. Specifically, the CEC seeks Commission support for the CEC's interpretation of D.13-11-025: the CEC may grant LSEs a free license to use models and analytical tools that can inform distribution planning and decision-making that benefits electric ratepayers, but no licenses are to be granted by the CEC for any other type of developed technology.

The CEC explains in its application that its request is based on input it received when it conducted a public workshop in September 2016, in order to better understand potential barriers that may deter private sector companies from applying for EPIC funding opportunities. The CEC reports that workshop participants, including entrepreneurs and private investors, raised concerns that the EPIC Standard Grant Terms and Conditions provision that allows the CEC and the CPUC to grant IP licenses to LSEs deters EPIC applicants. More specifically, "[i]nvestors are hesitant to fund companies with pre-exiting IP commitments, which prevents companies, especially entrepreneurs and start-ups, from securing follow-on funding to advance early stage technologies and inhibits commercialization."[61]

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59 A.17-05-003, Attachment 1, CEC Proposed 2018-2020 Triennial Investment Plan at 260.

60 CEC's EPIC Standard Grant Terms and Conditions, Section 21.b.

61 CEC Comments at 37.

Parties addressed the CEC's request in comments on the EPIC investment plans (filed separately from parties' comments on the Evaluation), but we address all IP issues in this section of our decision because Evergreen discussed related concerns in its Evaluation.

The fourth part of Evergreen's review of the project selection process examined IP terms because some stakeholders reported that these terms were a barrier to participation. Evergreen reviewed public comments submitted to the CEC's EPIC Idea Exchange Docket, which is an electronic forum for stakeholders to provide public comments on the CEC's RD&D and Market Facilitation initiatives and on the EPIC program in general. According to Evergreen, its study determined that the second most commonly cited challenge for private sector companies was related to IP terms and conditions (first on the list was the combination of EPIC proposal requirements and the match fund requirement). According to Evergreen,

> Three respondents stated that the IP terms and conditions are a significant barrier to applying to or participating in EPIC. In general, they thought that the terms and conditions were "onerous" and rather limiting for potential grantees. Two of these individuals stated that the IP provisions very likely inhibit or prevent small business and entrepreneurs from even applying for grant funding.[62]

Evergreen notes that although peer RD&D programs have more flexibility regarding IP terms, "EPIC is very different from its peers because of the legislatively mandated ratepayer benefit requirement, which effectively constrains how IP may be treated for EPIC-funded projects."[63] Evergreen concludes by suggesting that there may

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[62] Evaluation at 7-21. One respondent suggested adopting IP language developed for the federal Small Business Innovation Research (SBIR) Program have developed template for a "Model Agreement for Property and Commercialization Rights," which is designed to help in the development of an agreement for allocating between small business concerns and research institutions' intellectual property rights and rights, if any, to carry out follow-on research, development, or commercialization.

[63] *Id.* at 11-12.

be more flexibility than what the CPUC has communicated in EPIC Decisions, and makes the following recommendation:

> Recommendation 3e: The CPUC should review IP rules or guidance developed for the Department of Energy's Small Business Innovation Research (SBIR) Program to explore possible opportunities for easing IP requirements. Regardless of the outcome of any such efforts, the CPUC should ensure that IP requirements are communicated effectively.

Thus, based on their respective encounters with entrepreneurs and other stakeholders, both Evergreen and the CEC are informing us that the Commission's current IP requirements are presenting challenges to prospective EPIC participants. And as the CEC observes, "fewer applicants mean less competition. Less competition can mean EPIC ratepayers are not receiving the best projects for their funds."

Regarding Evergreen's Recommendation 3e, the CEC agrees that IP rules should be revised for the EPIC program, but directs the Commission to its own proposed clarifications regarding IP rights.[64] PG&E opposes any changes to current IP terms, recommending instead that any possible exemptions or modifications regarding the IP requirements be reviewed on a case-by-case basis, as provided for in D.15-04-020. We decline to adopt Evergreen's recommendation, because we are affirming the CEC's intended approach to IP, and because we expect to address IP matters again in the near future, if the Commission opens a new rulemaking. There, the suggestions of Evergreen and the various approaches suggested by the CEC can be considered for adoption.

We turn finally to the matter upon which the CEC seeks clarification of D.13-11-025, namely that the CEC may grant LSEs a free license to use models and analytical tools that can inform distribution planning and decision-making that benefits electric ratepayers, but no licenses are to be granted by the CEC for any other type of developed technology.

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[64] CEC Comments on Evaluation at 12, citing the proposals in its application and its September 22, 2017 comments on the EPIC investment plans.

Comments addressing the CEC's request were filed on September 21 and 22, 2017 by the CEC, PG&E, SCE, SDG&E, California Clean Energy Fund (CalCEF), Angel Plus, LLC and Mark Miles Consulting, Inc. Reply comments addressing this issue were filed on October 9, 2017 by the CEC and PG&E.

PG&E opposes CEC's proposal, contending that "California ratepayers fund the new research and development and should benefit from the outcomes of the funding if IP is generated."[65] PG&E's recommendation matches its response to the Evergreen recommendation: instead of providing the CEC with the generic discretion to restrict access to IP, the CEC should be required to use the existing "case-by-case" waiver process that is applicable to utility-administered EPIC IP.[66] SCE makes the same recommendation, stating that while it understands there may be individual cases where it is necessary to waive the IP rules, utility customers are investing in the EPIC program and it is critical that these investments benefit those customers: if customers are investing in a technology within EPIC, they should not be asked to purchase this same technology's IP again.[67] SDG&E states that it "generally does not support such a narrow intellectual property licensing provision."[68] Like PG&E and SCE, SDG&E contends that all intellectual property, not just models and analytical tools, is funded by EPIC and should be available for the benefit of ratepayers "who have already paid for it."[69]

A number of parties in this proceeding approach IP issues from the perspective of the entrepreneurial and investment communities, and their comments recommended that the Commission significantly loosen or remove IP restrictions entirely. CalCEF recommends that the Commission remove the IP language that allows the CEC and the

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[65] Opening Comments of Pacific Gas and Electric Company on Electric Program Investment Charge 2018- 2020 Applications at 9-10.

[66] *Id.* at 10.

[67] SCE Response to the Electric Program Investment Charge Workshop, September 8, 2017, at 1-2.

[68] SDG&E comments in support of its 2018-2020 EPIC investment plan at 8.

[69] *Ibid.*

CPUC to grant IP licenses to LSEs that provide electricity to EPIC ratepayers, for two reasons:

- Some of the brightest entrepreneurs do not apply, or do apply and are selected but do not accept the award once they see the Terms & Conditions because they think they will prevent their commercial success; and
- They accept the money, but struggle to commercialize because future investors and funding sources see a red flag when they perform due diligence given this IP language and do not invest.[70]

Angel Plus, LLC supports removing the same language, as well as language providing for royalties, and adding language intended to ensure that ratepayers would still benefit from future success of projects. Angel Plus stresses that its recommendations are intended to forestall investor perceptions of EPIC-funded innovators as "a company whose assets have already been prematurely eroded or its revenue potential already compromised" by EPIC's current IP terms.[71] Mark Miles Consulting, Inc. recommends that the Commission adopt language equivalent to the SBIR language identified in the EPIC Evaluation.[72]

In reply comments, the CEC addresses the waiver process recommendations and the "ratepayers shouldn't pay twice" arguments of the utilities.

First, the CEC objects to the "case-by-case" waiver process recommended by PG&E and SCE because the CEC's responsibilities regarding IP are already established in PRC section 25711.5: pursuant to section 25711.5 the CEC, in consultation with the State Treasurer, has the right to establish IP terms for projects funded under EPIC.[73] The

[70] Opening Comments of California Clean Energy Fund on 2018-2020 EPIC applications at 5. CalCEF administers the California Sustainable Energy Entrepreneur Development (CalSEED) initiative, an EPIC-funded program intended to support 100 early stage clean technology entrepreneurs over the next 5 years (*see*, CalCEF comments at 4).

[71] Opening Comments of Angel Plus, LLC on 2018-2020 EPIC applications at 6.

[72] Opening Comments of Mark Miles Consulting, Inc. on 2018-2020 EPIC applications at 2.

[73] Reply Comments of the CEC in Support of its Application for Approval of Electric Program Investment Charge: Proposed 2018 Through 2020 Triennial Investment Plan, at 2.

CEC contends that PG&E's and SCE's recommendation contradicts that authority.[74] Furthermore, the CEC contends that "[t]he IOUs are requesting access to all IP with no regard to the grantee's interests and the impact that kind of IP licensing would have on the EPIC program at large, which contradicts the Commission's direction to the CEC."[75] The CEC references D.15-04-020, where the Commission discussed the need for exceptions to IP requirements and stated "we agree this could be desirable in some cases. The benefits of public interest RD&D programs extend far beyond those provided by IP, and the value of IP first depends upon the successful growth of the technology or approach it covers."[76] The CEC builds on the Commission's observation and states its own perspective, that public interest RD&D "necessarily requires a balancing of IP rights with benefits from projects." The CEC also notes that stakeholders have provided "numerous examples" of the burden IP limitations place on participation in EPIC and achieving growth for early stage technologies.[77] Finally, the CEC returns to PRC section 25711.5(b) and asserts that it is within the CEC's discretion to balance the potential benefit to the state from IP terms and the effect those terms may have on achieving the state's statutory energy goals.

Although the CEC has clearly stated its position on LSE licensing policy, the CEC nevertheless also provided an extensive "clarification on intellectual property rights" in its opening comments following the investment plan workshop. The CEC acknowledged that "for the most part, stakeholder feedback from the Commission's September 8, 2017 EPIC workshop indicated that CEC's proposed LSE license clarification is only a start, and that the CEC needs to consider further IP changes. Stakeholders repeatedly stated the need for the IP terms to not interfere with EPIC recipients' ability to obtain future

[74] *Ibid.*

[75] *Id.* at 3.

[76] *Id.* at 2, citing D.15-04-020 at 43.

[77] *Ibid.,* citing the comments of CalCEF, Angel Plus, LLC and Mark Miles Consulting, Inc.

funding from sources such as venture capitalists. Many indicated the current IP terms can prevent such follow-on funding."[78]

Based on the above, the CEC states that it may consider making additional IP changes, if warranted, such as the following:

- further limiting LSE licenses to only grid modeling analytical tools;
- limiting the license for governmental purposes;
- limiting all licenses to a certain timeframe;
- limiting licenses so they do not include free upgrades and support; and
- eliminating all licenses and instead increasing royalties, or giving recipients a choice between the two.

Before we resolve this issue, we review the CEC's response to the claims by PG&E, SCE and SDG&E that IP funded by EPIC should be available for the benefit of ratepayers and that ratepayers should not have to "pay twice" for the same IP. The CEC contends that "[r]atepayers receive a return on their investment through the successful commercialization of new energy technologies that provide cost and performance improvements over benchmark technologies or that provide a solution to a previous unmet customer need."[79] As such,

> The primary benefits to EPIC ratepayers come from successful projects. Successful projects can result in new products, information, jobs, and other improvements. IP rights can provide secondary benefits such as royalties and licenses…However, IP rights should be designed to increase, not hinder, the primary EPIC ratepayer benefits by helping to increase, not reduce, the number of successful projects.[80]

[78] Opening Comments of the CEC in Support of its Application for Approval of Electric Program Investment Charge: Proposed 2018 Through 2020 Triennial Investment Plan, at 39.

[79] CEC Reply Comments at 3.

[80] CEC Opening Comments at 37.

3.3.5.3. Discussion

We appreciate the CEC's willingness to first raise this issue at the inception of this proceeding, and then to engage with parties in an open-minded and thoughtful manner throughout this proceeding. As we stated at the beginning of this section of the decision, we are in complete agreement with the CEC that it may grant load-serving entities a free license to use models and analytical tools that can inform distribution planning and decision-making that benefits electric ratepayers. No licenses are to be granted by the CEC for any other type of developed technology.

The utilities expressed concern that ratepayers might "pay twice" for IP developed with support of EPIC funding, but offered no example of this having occurred, and do not describe a specific situation where it could hypothetically occur. More fundamentally, this Commission has already clearly stated its support for the CEC's statutorily-based prerogative to make its own decisions about licensing. In D.13-11-025 the Commission addressed PG&E's mischaracterization of the ALJ's Revised PD (where PG&E found a requirement that "any and all intellectual property developed using the Energy Commission's share of EPIC ratepayer funds must be licensed to and/or royalties shared with the utilities for the benefit of the ratepayers that funded the intellectual property") and stated

> As already discussed at length in this decision, only where the CEC "determines licenses may be granted to LSEs serving EPIC-funding ratepayers, then the CEC must, on behalf of the State, grant and administer such licenses and royalties as part of its role as an EPIC administrator." We do not order that the CEC require in all instances that grantees give licenses to the State; instead, the CEC will establish IP terms in accordance with [Public Resources Code] § 25711.5.[81]

With this clarification on our part, we consider this matter closed for the current investment cycle, and the administrators should now concentrate on implementing their respective investment plans. The CEC has also offered a number of ideas that it is

[81] D.13-11-025 at 85-86, footnote 85.

considering regarding further IP policy changes. We look forward to additional dialog on this matter in the future rulemaking contemplated in this decision.

3.3.6. Flexibility

The fifth and final section of Evergreen's review of the project selection process addressed issues regarding whether the administrators currently have sufficient flexibility to change projects. Currently, the administrators are permitted to add, modify or cancel a project by filing a Tier 3 Advice Letter with the CPUC.

This issue was also included within the scope of this proceeding at the request of PG&E, which requested that the Commission consider whether to provide a more streamlined, expedited Tier 2 advice letter approval process for new projects initiated between EPIC plan approvals:

> As a modification to D.15-09-005, PG&E requests that the Commission re-assess the level of approval process required when proposing project additions to an approved portfolio. PG&E proposes the CPUC revise the requirements to a Tier 2, instead of Tier 3, advice letter, which will still allow adequate time for evaluation of a proposed project based on that project's merits, while also making the approval process more nimble. This approach helps PG&E and the other IOUs stay current with new RD&D developments and propose projects that meet evolving customer needs and California's aggressive energy policy goals.[82]

SCE joins PG&E in asserting that the current Tier 3 advice letter process for initiating new projects does not provide the utility administrators the flexibility needed to react to new technology, energy policy goals, Commission proceedings, and outside funding opportunities. Like PG&E, SCE recommends the Commission lower the threshold from a Tier 3 to a Tier 2 approval.

SDG&E also believes that the current advice letter process does not provide sufficient flexibility for implementing new EPIC projects between application cycles, and supports revising the current Tier 3 advice letter process to a Tier 2 advice letter process:

[82] A.17-04-028, Attachment 1, PG&E EPIC Triennial Plan (2018-2020) at 8-9.

"the EPIC administrators need flexibility to rapidly respond to the dynamically changing technology evolution and the sporadic co-funding opportunities from federal agencies, other utilities, and other funding sources. The current Tier 3 advice letter requirement undermines the needed flexibility."[83] SDG&E also makes the broader point that "confining the program structure to triennial cycles is counterproductive in that it makes it difficult to establish significant long-term projects with greater potential payoff."[84]

The CEC states in comments that it cannot speak from experience to whether the approval process specified in D.15-09-005 is working well, but notes that the approval process must be flexible enough to approve new projects expeditiously so that the opportunity and value of the new projects is not lost to EPIC ratepayers.[85]

ORA recommends that the Commission deny the utilities' request. ORA reviews the Commission's previous decisions on this question and asserts that as a matter of law, the Commission concluded that the review and authorization of EPIC projects is a discretionary, not ministerial matter, and therefore the authority to approve new EPIC projects is the sole discretion of the full Commission and cannot be delegated to Staff through a Tier 2 advice letter.[86] ORA also contends that the utility administrators failed to justify a need to modify D.15-09-005.

PG&E suggests in its own reply comments that ORA's objections miss the point of the administrators' request for flexibility for new projects between EPIC plan approvals, which is that "innovative technology opportunities under EPIC come up rapidly and need to be addressed much sooner than the Commission's Tier 3 advice letter process allows. California's global-leading clean energy and environmental policies

[83] Opening Comments of SDG&E in Support of its Application for Approval of its EPIC Triennial Plan for Years 2018-2020, at 7.

[84] *Ibid.*

[85] CEC September 22, 2017 Comments at 21.

[86] Comments of ORA Addressing Applications of the CEC, PG&E, SDG&E and SCE for Approval of their Triennial Investment Plans for the EPIC Program for the Years 2018 Through 2020, at 9-13.

provide significant opportunities for research and development on new and innovative technological 'solutions' to the challenges facing California's utilities - but only if the utilities, the Energy Commission and researchers can move fast to take advantage of the opportunities."[87]

Returning now to Evergreen's evaluation of this issue, for the utility administrators, Evergreen found that "despite the IOUs' assertion that the need to submit an Advice Letter to add, modify or cancel a project is onerous, the evaluation team found that the IOUs have sufficient flexibility to make changes to projects that have been described in their Investment Plans as well as to put projects on hold indefinitely. Evergreen interprets the Commission's current requirements as stating that the administrators "would [only] need to submit an Advice Letter to add a completely new project that is not covered by one of the existing general descriptions in their Investment Plans. In such cases, Evergreen concedes that a lengthy review period could be a problem.

Nevertheless, Evergreen recommends that before the CPUC considers any changes to this process, the IOUs should address the issues Evergreen has identified related to transparency and information sharing. Specifically, Evergreen recommends the following:

> Recommendation 3f: The administrators should use the Advice Letter process only for requesting substantive changes to projects or adding new projects that are not covered by one of the existing general descriptions in their Investment Plans.

After considering the arguments on both sides of this matter, we conclude that the current Tier 3 review process should remain in place. The process has been used only once (with PG&E Advice Letter 5015-E filed in February 2017), and while PG&E asserts

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[87] Supplemental Reply Comments of PG&E to ORA Opening Comments on 2018-2020 EPIC Applications at 2.

that our review of that Advice Letter was not "timely," we disagree. The Advice Letter contained six new complex project proposals, raised budget issues, and failed to demonstrate the immediate need for two of the projects. The Advice Letter process would likely move more quickly if submittals were streamlined and met the basic requirements, which include "a demonstrable justification for why a project must be considered immediately outside the regular application process."[88] We also agree with ORA's well-supported argument that nothing has changed to justify modifying the Commission's previous determinations that it cannot delegate its authority to approve new EPIC projects to Commission staff by adopting a Tier 2 advice letter process. Such approvals must remain the sole discretion of the full Commission.

Evergreen also reviewed the same issues of flexibility as experienced by the CEC:

> As a public agency, the CEC does not always have the necessary flexibility to adjust a project scope of work to respond to rapid changes in technologies and markets. Other peer RD&D programs have structures in place to help projects identify and capitalize on opportunities to change course, when needed, to maximize a projects' success.

Evergreen acknowledges the contentions of the CEC and the other administrators that the technology innovation process often requires program administrators, grantees and others involved in the RD&D process to be able to quickly modify their scopes of work to maximize benefits. For the CEC specifically, Evergreen makes the following recommendation:

> Recommendation 3g: The CEC should explore how and whether it could add more flexibility to its grant request forms and/or research planning process to be able to respond to market and technology changes that occur between the time the project is proposed and the project is launched.

In its comments, the CEC appears reluctant to embrace Evergreen's recommendation. The CEC agrees that "there may be circumstances where changes are

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[88] Resolution E-4863, August 10, 2017 http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M193/K790/193790420.PDF.

needed to respond to market and technology changes between the time of a project proposal and project start." Similarly, changes may need to be made to a project agreement to facilitate its success. However, in the CEC's view "significant changes that alter the intended purpose of the project potentially undermine the competitive process through which the project was originally selected."[89] We interpret the CEC's response as an expression of its confidence in its project selection and management process; while we defer to its own experience regarding how to best pursue whatever flexibility is needed in its own rules to allow it to adjust a project scope of work, we suggest that the CEC include a more detailed discussion of the pros and cons of Evergreen's recommendation as part of its next annual report.[90]

3.4. Project Assessment Process

Evergreen describes project assessment as a critical third step in the causal chain that is expected to ultimately lead to the achievement of EPIC's mid- and longer-term outcomes. Evergreen formulated a series of key research questions related to the assessment of EPIC projects, the first being simply "what is the status of EPIC investments?" Evergreen provides the following summary:

- As of the end of 2016, based on the project status reports included in the administrators' 2016 Annual Reports, 250 projects were active and 19 projects have been completed (1 CEC project and 18 IOU projects).
- Of active projects, about half are scheduled to be completed by the end of 2018 and the remainder in 2019 or later.

[89] CEC Comments at 13.

[90] We clarify that although the CEC correctly notes that the CPUC's Advice Letter process does not apply to the CEC (*Id.* at 12) in D.15-09-005 the Commission specified that the CEC is authorized to submit the business letter equivalent of a Tier 3 advice letter for approval of new EPIC projects between triennial EPIC applications and for material changes to existing approved projects. Protests to such business letters shall be considered on the same basis as protests to Tier 3 advice letters, and a Commission resolution shall be required to resolve such business letters. D.15-09-005, Ordering Paragraph 2.

3.4.1. Project Status Reports

Evergreen's second key research question related to the assessment of EPIC projects was "do the administrators do everything possible to track the progress of funded work?"

Evergreen found that the administrators each have adequate processes in place to internally track the progress of projects and ensure effective project implementation, but all of the administrators could also improve upon the frequency, usefulness and transparency of project status reports. Evergreen explains that EPIC's four-administrator model makes it more difficult to classify and summarize projects across the overall EPIC portfolio. Furthermore, the EPIC Annual Reports that are the primary way that the CPUC and stakeholders monitor project status, consist of four different reports, posted to four different websites and distributed to different listservs, without any categorization of projects (beyond by investment period and investment area), such as by policy or technology area.

Evergreen finds that this process is not effective and impedes the ability of stakeholders and the public to fully engage with the Program. Evergreen also notes that providing key project information on a more frequent basis would be consistent with the peer RD&D programs it reviewed. Based on its findings, Evergreen provides two additional "priority recommendations":

> <u>Recommendation 4a:</u> The administrators should share information while projects are in progress with the CPUC and the public on a more frequent basis, such as quarterly.

Evergreen emphasizes that the Annual Reports, on their own, are not the most effective way to disseminate information about EPIC projects. It envisions quarterly reports with the following features: [91]

[91] Evergreen provides an example of a quarterly status report in Appendix D of the Evaluation.

- The reports would be distributed via a single EPIC website and listserv, so that the CPUC and stakeholders can more easily obtain information about all projects without having to review four separate reports;
- The reports would categorize projects by technology and/or policy, with sort/filter capability, so the CPUC and stakeholders can more easily obtain information about projects in a particular category without having to search through long lists of individual projects; and
- The reports would include current information about project outcomes such as recent or upcoming presentations, publications and interim knowledge dissemination.

> Recommendation 4b: The administrators should collaborate and jointly convene a quarterly workshop to share results about project status and lessons to-date on a topical basis, with engagement from stakeholders on topics that are of interest.
>
> Such workshops should be publicized in advance along with the topic or topics to be covered. All EPIC projects that fall under the announced topic should be discussed and organized topically. This process will ensure that: 1) information about EPIC projects is conveyed to the appropriate audiences, and 2) stakeholders can better anticipate the types of information that will be shared at EPIC workshops and thus be better prepared to participate in discussions about future research needs and EPIC investment areas.

In its post-workshop comments, the CEC states that it does not believe that regular updates to a form or a report are the best means to increase the frequency and effectiveness of information dissemination regarding EPIC funded projects. If the Commission prefers to use the template provided by the Evaluation Report in Appendix D, the CEC is open to modifying its annual reports to fit this template, but the CEC still recommends this reporting be done annually. The CEC believes that updates would be most effective in the form of thematic in-person or online meetings/webinars.

PG&E suggests biannual reporting rather than quarterly reporting, due to the limited updates anticipated for each project that averages 2-3 years in duration and the expected additional costs for more frequent reports. SDG&E echoes these two concerns, and also notes that EPIC currently requires two workshops per year and the "comprehensive" annual report, so before changing these requirements the Commission should assess how the current reports are being used and how often they are referenced. SDG&E is also open to other ideas on how to inform the public of the progress of EPIC projects, but such ideas should balance time and resource requirements with benefits gained.

In its reply comments, the CEC agrees with regarding the burdens of quarterly reporting, and again suggests that updates would be most effective in the form of thematic in-person or online meetings/webinars. The CEC also states that its online database, the Energy Innovation showcase, is currently updated on an annual basis but the CEC is open to updating it on a rolling basis to reflect new developments or provide new information. The CEC suggests that the IOUs create a similar database of their EPIC-funded projects.

ORA submitted reply comments that recommend biannual reporting, at a minimum, as a reasonable means to provide more transparency, and to allow better regulatory and public scrutiny of the EPIC program and the projects it is funding.

Regarding Recommendation 4a, we endorse the substance of Evergreen's findings and suggested response, but at this point we also agree with parties' comments that quarterly reporting would be too frequent. We expect that the PICG will address this matter and develop a workable solution.

Our observation regarding the burdens of quarterly activities (here, workshops) also applies to Recommendation 4b. Only the CEC commented on this recommendation, stating that it currently has a solicitation out for bid that will select a contractor to develop and execute a plan to increase sharing of EPIC project status and results.

We address the substance of Recommendation 4b below in our discussion of the PICG, where we establish requirements for additional public information sharing meetings and events as part of the PICG's activities. This will have the advantage of ensuring that these meetings are targeted on high-value and timely innovations. We agree with Evergreen that events should be better publicized, beyond the minimum approach of emailing a notice to service lists ten days in advance. While this meets agency notice requirements, it is not a standard best practice in outreach and stakeholder engagement. Therefore, we will additionally require that all EPIC workshops and the PICG forum be publicized as far in advance as possible including more detailed information about agendas, expected outcomes, and the intended audience.

3.4.2. Benefits Quantification

Evergreen's third key research question related to the assessment of EPIC projects was "are processes in place to assess project viability over time and disseminate project results to stakeholders?"

Evergreen found that the CEC has an effective, structured and transparent process in place for tracking project benefits, but the utilities are not effectively tracking and reporting on benefits metrics. Evergreen also identified a need for the administrators to coordinate on compiling and jointly reporting on project benefits.

The CEC's process for tracking project benefits consists of three project benefits questionnaires that grantees are required to complete. The IOUs track and report on project results and provide some information related to project benefit metrics in their project closeout reports, as required by the CPUC. However, Evergreen identifies room for improvement with respect to measuring project success and reporting on the metrics, suggesting that the IOUs may need to conduct additional data and information gathering in order to estimate and report project benefits. This is a consistent practice among other peer RD&D programs. Evergreen makes the following recommendation:

> Recommendation 4c: The IOUs should develop more detailed processes to quantify benefits associated with their projects. This would include:
>
> - The types of data that would be necessary and how they will collect these data;
> - A reporting structure and process that would document and report those benefits to all relevant stakeholders;
> - A plan to collect and report on project benefits metrics should be included in the IOUs' project scopes of work; and

- The IOUs should analyze and report on benefits in their project closeout reports and follow-up reports as necessary (since some benefits may take more time after project completion before they can be quantified).

PG&E disagrees with Evergreen's finding that the IOUs are not effectively tracking and reporting on benefits metrics, and Evergreen's resulting recommendation, "given that TD&D projects typically do not have large scale benefits."[92] PG&E does note, however, that EPIC projects have established metrics and necessary data for determining benefits at scale, which is currently included in EPIC annual reports and detailed project final reports. These benefits will then be further developed and covered in workpapers submitted through the general rate case (GRC) process (if project results indicate that is a required next step to implementing at a commercial scale).

We disagree with PG&E's comments. As an administrator, PG&E is accountable for ensuring that its investments create ratepayer benefits, but PG&E cannot reasonably do this without a process for assessing those benefits. We also reject SDG&E's suggestion that the independent body (the PICG) should be responsible for this task.[93] We find it critically important that the IOUs act now to make improvements in this area, and direct the IOUs to propose a specific process for improving their benefits tracking in their upcoming RAP application.

Regarding the need for the administrators to coordinate on compiling and reporting on project benefits, Evergreen suggests that this information should be shared with the CPUC, key stakeholders and the general public to widely publicize the Program's collective benefits. Again, this would be consistent with peer RD&D program practices. However, Evergreen notes that unlike EPIC, peer RD&D programs have a single administrator, making it much easier to produce a single report publicizing program benefits: it is more challenging for EPIC to categorize and summarize project

[92] PG&E Comments at 8.

[93] SDG&E Comments at 7-8.

benefits across the four administrators. Based on these findings, Evergreen makes another "high priority" recommendation:

> Recommendation 4d: The administrators should develop a process to jointly report on EPIC's short-, mid- and long-term project benefits across the portfolio on a routine basis (e.g., annually) to the CPUC, relevant stakeholders and the general public.

In its comments, the CEC reiterates its belief the best way to improve on current communication methods on EPIC projects, including their benefits to California ratepayers, is to conduct regular topical workshops. The CEC also notes that the Evaluation states that "The CEC's process [for benefits tracking] appears to be well thought out and thorough, and addresses the CPUC's requirements to measure and report on project benefits."[94] The CEC also notes the following:

- The Energy Innovation Showcase lists the expected benefits identified at the outset of the project;
- Subsequent reporting on benefits is included in the EPIC Annual Report and could be included in a project update field that can be added to the Energy Innovation Showcase; and
- Project final reports will include a complete description of ratepayer benefits resulting from the research.

We agree with Evergreen's findings that improving the tracking and reporting of benefits is an important goal. The CEC was found to have a sufficient process for tracking, and we have directed the IOUs to develop improvements for metrics tracking elsewhere in this decision. Jointly sharing short-, mid-, and long-term benefits would be a new activity for all the administrators. The PICG will provide a forum for the administrators to develop a joint process for doing so. We acknowledge, however, that it is not necessarily valuable for the possible benefits of every single project to be disseminated while the project is ongoing. The program area and portfolio-level benefits may be more useful.

[94] CEC Comments at 14, citing the Evaluation at 9-9.

3.4.3. Results Dissemination

The second half of Evergreen's research question regarding assessment of EPIC projects was whether processes are in place to disseminate project results to stakeholders.

Evergreen suggests that EPIC's four-administrator model may create some barriers and limitations to information dissemination since there is no program-wide communications mechanism or central repository of project information. That said, Evergreen found that the CEC has a robust process in place to disseminate project results and track knowledge gained. On the IOU side, PG&E has disseminated project results widely, while SCE has not. SDG&E had not yet completed projects at the time Evergreen conducted its research.

Evergreen qualifies its finding that the CEC's robust results dissemination processes are consistent with peer RD&D programs by noting that it is premature to determine whether the CEC's project dissemination tracking processes are effective at achieving their mid- and long-term objectives. This leads to the following recommendation:

> Recommendation 4e: the CEC's project benefits quantification process should be reviewed again once more projects are completed

In its comments on this recommendation, the CEC suggests that additional formal review of its project quantification process "is an appropriate topic for the post 2020 program discussion." The CEC believes its benefits quantification process is well aligned with peer R&D programs and it will continue internally to refine the process. The CEC is also planning to conduct in-depth case studies of several EPIC projects with external support. We understand this recommendation to reference an element that should be included in any future EPIC program evaluation, and we agree that is appropriate.

Regarding the IOUs' approaches to results dissemination, Evergreen reports that the IOUs document the results of their dissemination plans in their project closeout reports by identifying presentations they have made or plan to make: PG&E appeared to identify several external conferences to share results, whereas SCE reported far fewer information sharing plans.

Evergreen describes these results as consistent with its analysis of information dissemination by each IOU, with SCE sharing information about projects much less frequently compared to PG&E and SDG&E. On this basis, Evergreen makes the following IOU-specific recommendations:

> Recommendation 4f: SCE should share its project results more widely with interested stakeholders, including delivering presentations at conferences and workshops.
>
> Recommendation 4g: SDG&E's project closeout reports should be reviewed once projects are completed to ensure that results are widely disseminated.

SCE did not respond to Evergreen's recommendation in its comments. SDG&E states that it intends to widely share and distribute final results to interested stakeholders by making the final comprehensive report widely available and by publishing technical papers in serial publications and presenting at conferences. SDG&E believes this is another area where a potential independent body could assist the EPIC administrators by facilitating the dissemination of the final project reports and technical papers. In addition, the Commission should consider whether the independent body could serve as a sustainable entity to archive and maintain EPIC project results for public reference via a website.[95]

Evergreen concludes its review of the administrators' dissemination of project results by addressing what it sees as the inefficiencies of the four-administrator model regarding this task: each administrator uses its own website and listserv(s) to distribute information, but typically only about its own projects. Similarly, outreach prior to collaborative EPIC symposia is conducted separately even though there is possible

[95] SDG&E Comments at 8-9.

overlap in stakeholder interest across technologies investigated by the administrators. These observations lead to Evergreen's final recommendation in this area:

> Recommendation 4h: The administrators should jointly develop a single EPIC website and listserv to post and distribute project information for the CEC and IOU projects.
>
> Included on this website would be a single, downloadable Excel spreadsheet that contains key information for all EPIC projects. This would ensure that stakeholders have an easy way to obtain all relevant information about EPIC projects that support their particular areas of interest.

Evergreen suggests that more stakeholders might engage with the Program if it is easier for them to receive and organize all relevant information about the performance of individual projects, as well as the entire EPIC portfolio.

In comments, the CEC states that it believes the creation of a new EPIC website and listserv would be duplicative of what the CEC has already done, so the focus of this recommendation should be on creating a comparable resource for the IOU projects:[96]

- The CEC, as a public agency, has specific requirements with regard to issuing public notices before workshops.
- For joint workshops that include all EPIC administrators, the CEC sends out notices on its listserv and posts them on its website on behalf of all EPIC administrators.
- The Energy Innovation Showcase received over 18,000 visits to date in 2017, and
- the CEC's "research," "EPIC," and "opportunity" listservs had 8,559 subscribers as of January 2016.

We agree with the Evaluation that a single database would support transparency, information dissemination and stakeholder engagement. While the CEC may have an online project-level database, the other administrators do not: Evergreen recommends

[96] CEC Comments at 15-16.

creating a single resource encompassing all four portfolios. As discussed in the PICG section, this is a task that can be addressed within the scope of that group's work.

3.4.4. Project Networks

Evergreen notes that "for programs such as EPIC to be successful, they must collaborate to some extent with other experts and transfer the knowledge gained from their investigations to other stakeholders. The diffusion of such information is critical if others are to adopt these technologies and tools and/or to conduct further research to improve upon them."[97] To this end, the IOU and CEC EPIC project teams make formal and informal connections with a wide range of other organizations beyond the project team to share knowledge and experience. Organizations such as government research laboratories, private research and consulting companies, universities, utility associations and manufacturers are included in these project networks.

Evergreen states that its analysis of knowledge dissemination activities and the relational networks of projects that it sampled and interviewed suggests that projects are developing broad networks of stakeholders and other market actors: "the wide range of entities that is already engaged in projects suggests that the projects are well positioned to lead to wide dissemination of knowledge once projects are completed."[98] In short, Evergreen finds that the administrators have been effective even at this early stage of the Program's implementation in developing networks and disseminating knowledge.

Evergreen does note that the CEC engages with more organizations than the IOUs, with much more focus on public organizations; Evergreen sees this as corroborating its findings regarding the much narrower focus of IOU projects and the lack of transparency of IOU projects compared to the CEC:

- On average, the CEC engages with 18 organizations per project during implementation, while IOUs engage with 7.

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[97] Evaluation at 3-15.

[98] *Id.* at 11-18.

- The type of organizations with which the CEC and IOUs engage also differs to a great extent. Ninety percent of organizations that the IOUs engage are private compared to 36 percent for CEC TD&D projects.
- The IOUs' networks consist mainly of manufacturers, private companies and other utilities, with very few government/policy-making organizations included.
- The CEC engages more often with its project networks as compared to the IOUs, which may be due to having fewer formal relationships with external organizations (20 percent formal agreements in place for the IOUs versus 57 percent for the CEC).

Evergreen makes no recommendation on whether the IOUs should engage a higher percentage of public agencies in line with the CEC's approach, since the program rules regarding the dissemination of information do not distinguish between public versus private organizations. Based on our own review, we agree that the utilities should increase and improve stakeholder engagement. While the utilities' focus and approach is intentionally utility-focused, their EPIC investments would still benefit from more transparent, formal networking. The upcoming RAP application should explain how the utilities plan to improve in this respect.

3.5. Project Impacts and Policy Alignment

In this section of the Evaluation, having addressed program administration, investment planning, project selection, and project assessment, Evergreen examines the wider impact of the EPIC projects. The key research questions that Evergreen addressed were (1) are ongoing projects showing reasonable indicators of success, and (2) looking beyond project- and administrator-specific considerations, what impacts does the Program overall have in a wider context?

Evergreen finds that the overall EPIC portfolio appears to be on track in meeting its short-, mid- and long-terms objectives: EPIC is both broad and deep, and administrators take steps to integrate projects into the broader innovation and policy landscape.

While projects appear to be consistent with the Program's objectives and core values, Evergreen also finds that “the Program as a whole is not consistent with other peer RD&D programs, which have a much greater focus on support for commercialization.” Evergreen explains this observation by noting that “EPIC reflects the diversity of projects encouraged by CPUC Decisions, which contain a more broadly defined set of objectives.” For this reason, Evergreen reiterates the need to prioritize the principles, policies and strategic objectives and operationalize what it means for a portfolio to be optimized.

With respect to each of the three investment areas designated by the CPUC, Evergreen reports the following:

- Overall, when viewed as a portfolio, EPIC’s <u>Applied R&D projects</u> show some progress with respect to knowledge and awareness among potential users, follow-on research and development, technology demonstrations, potential private investment, patents and early adoption.
- In general, the <u>TD&D portfolio</u> also appears to be on track, thus far, in meeting its short-, mid- and long-terms objectives.
- EPIC’s <u>Market Facilitation projects</u> are clearly consistent with the goal of addressing non-technical barriers with projects aimed at enhancing permitting and market and technical analysis predominating, thus far. We found that projects generally are on track to achieve their research objectives and expected benefits.[99]

On the whole, Evergreen found that “the diversity of projects with respect to technologies and commercialization in the EPIC portfolio adequately addresses EPIC’s multiple policy goals. However, Evergreen also concluded that until the Commission prioritizes its policy goals, it cannot be determined “whether each administrator is expending the right level of effort to address each of these policy goals, delivering project results quickly

[99] *Id.* at 11-19.

enough and bringing important innovations to market or the public domain.[100] On this basis, Evergreen offers the following recommendation:

> Recommendation 5a: The Commission should consider characterizing the EPIC portfolio by types of technologies and their commercialization status as baselines against which to compare future EPIC iterations.

In its comments, the CEC agrees that characterizing by technology type can be a useful baseline to compare future EPIC iterations, as long as there is flexibility to account for the potentially non-linear and unexpected nature of research. The CEC's Energy Innovation Showcase categorizes projects by technology type; the Joint Comparison Matrix also characterizes the proposed projects/initiatives by technology type.

> Recommendation 5b: The Commission should regularly evaluate EPIC to confirm that the CEC is ensuring the Market Facilitation Projects are effectively connected to and serving the needs of the Applied R&D and TD&D projects.

In its comments, the CEC states that it is not opposed to the CPUC evaluating Market Facilitation projects in the next periodic review to ensure they are effectively connected and serving the needs of the Applied R&D and TD&D projects. However, the CEC does not consider Market Facilitation to be strictly the third stage of the energy innovation pipeline, but rather to be strategic support at key stages of a new technology's development to increase the likelihood of market adoption and commercial success.

Finally, Evergreen identified future opportunities for more coordination at the project level between the CEC and the IOUs, with the IOUs considering demonstration projects that could build on CEC Applied R&D projects, once those are further along. Given the current lack of extensive coordination between the IOUs and the CEC at the project level, such opportunities may not happen unless a more formal process is introduced. This leads to the following recommendation:

[100] *Ibid.*

> Recommendation 5c: EPIC administrators should establish a process to ensure that once Applied R&D projects are completed by the CEC, administrators consider the results and identify potential TD&D projects.

Evergreen suggests that its recommended process "would ensure that projects that have evaded the Technological Valley of Death do not subsequently fall into the Commercialization Valley of Death." Evergreen contends that this view is consistent with the underlying theory that supports the three phases of the administrator's innovation pipeline.

In its comments, the CEC agrees that further coordination among EPIC administrators at the project level can help identify Applied R&D projects that may serve as good candidates for IOU TD&D projects. The broad programmatic Recommendations made in 5a, 5b, and 5c should be considered in any future EPIC rulemaking. However, the administrators can take immediate steps to identify possible ways to address Recommendation 5c now; the IOUs' upcoming RAP application should suggest potential approaches to coordinate their TD&D investments with Applied R&D efforts.

3.6. Overarching Coordination and Collaboration

Having proceeded through each of the sequential steps in its causal chain that should ultimately lead to the achievement of EPIC's mid- and longer-term outcomes, Evergreen ties together the themes that emerge from the findings and recommendations discussed above by presenting another "key finding": there is a need to supplement EPIC's administrative structure by convening an independent body to coordinate, facilitate and lend technical expertise.

Evergreen states that its Evaluation "has identified a critical need for improving administrative coordination and stakeholder engagement that the administrators are not currently addressing due to limitations associated with the administrative model and their reliance on minimum project reporting procedures, [and to] supplement the existing administrative structure by convening an independent body that provides coordination and facilitation support to the administrators and compiles and helps disseminate information."[101] This finding leads to the following "high priority" recommendation:

> Recommendation 6a: The CPUC and/or the administrators should fund and convene an independent body to coordinate, facilitate and lend technical expertise.

Evergreen envisioned that such a body would be able to increase transparency and stakeholder engagement and ensure the Program is most effectively directing EPIC funds toward energy innovation that meets the highest priority state policy goals.

We responded to Evergreen's recommendation in D.18-01-008 by creating the Policy + Innovation Coordination Group (PICG) and directing Commission staff to develop and circulate a detailed organizational proposal for consideration by parties. We address the results of that process below.

3.6.1. PICG Framework

As noted, in D.18-01-008 the Commission established a framework for a new PICG in order to create a formal process to improve overall coordination of the EPIC program.[102] The Commission envisioned that the PICG would "conduct specific coordination functions to achieve one overarching goal: to ensure that EPIC investments are optimally aligned with and informed by key Commission and California energy innovation needs and goals."[103] As explained by the Commission,

> The framework we adopt in this decision focuses on two related goals: establishing a coordination-focused working group with an overarching view of the program, and ensuring targeted coordination among EPIC and the Commission while avoiding creating an additional administrative burden for the administrators.[104]

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[101] Evaluation at 1-7.

[102] D.18-01-008, Ordering Paragraph (OP) 2.

[103] *Id.* at 24.

[104] *Id.* at 26.

The Commission directed the Energy Division to prepare a Staff Proposal to provide further detail regarding how the PICG framework should be implemented. The proposal would be circulated for parties' comments, after which the Commission would adopt the final operational structure, tasks, budget and a competitive selection process for the PICG in a subsequent decision in this proceeding.[105]

The Energy Division prepared its Staff Proposal and the assigned ALJ issued the proposal by ruling on February 22, 2018. The CEC, PG&E, SCE, SDG&E, ORA, and Greenlining/(CEJA (jointly) filed and served comments on March 8, 2018. The CEC, SCE, and ORA filed and served reply comments on March 15, 2018. Those comments and reply comments also included responses to a number of additional questions posed by Commission staff regarding the proposal.

3.6.1.1. Comments on the PICG Framework

The CEC is supportive of the goals of the PICG and Staff Proposal, but opposes some elements of the approach and work areas outlined in the Staff Proposal. In particular, the CEC has concerns that the approach implies the PICG would have the power to adjust research in the middle of an investment plan cycle, which they assert is contrary to the limitations and framework articulated in D.18-01-008. More specifically, the CEC suggests that the proposals for an annual PICG forum, a new public listserv, and a consolidated database are redundant to existing procedures and mechanisms. The CEC suggests that it could host the utilities' EPIC research products in the CEC's database, if the Commission were to augment its administrative budget for this purpose.

The utilities generally caution that the Commission's decision on PICG matters should not delay approval of the utilities' EPIC 3 investment plans. They generally support the Staff Proposal, and otherwise their input includes suggestions about additional administrative tasks the PICG could take over for the administrators.

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[105] *Id.*, OP 3.

ORA recommends that the Staff Proposal be amended to direct the PICG to ensure that the EPIC administrators are identifying and documenting ratepayer benefits, as well as subsequently verify that those benefits are actually accruing to ratepayer. ORA also wants to see greater feedback and coordination between Commission proceedings and programs and the EPIC administrators' triennial investment plans.[106] Finally, ORA proposes that the PICG should compile a complete list of the EPIC administrators' approved and executed EPIC projects. This list should be categorized by policy and Commission proceeding to avoid duplication, to assess the level of attention and investments on particular policies, and identify investment gaps.

Greenlining/CEJA request revision of the Staff Proposal to provide additional information on how the Project Coordinator will use DAC Advisory Group feedback, and whether the Project Coordinator will solicit feedback from DACs directly.

With regard to the CEC's concern that the PICG would have authority to re-direct research or otherwise modify the Commission's approval of an Investment Plan, we clarify that the PICG would not have that authority. At the same time, good-faith coordination that yields new knowledge may naturally lead to changes in the focus of a research effort, and we intend the PICG to support this kind of productive coordination. For example, if an administrator learns that learning more about a particular inverter communication process is of high importance to Commission staff or stakeholders, and placing more focus on that area of a project is consistent with the approved investment plan, we expect the administrator to make a demonstrable effort to do so. We urge the administrators to support our intentions here.

[106] For example, ORA notes that in R.14-10-003 the Commission ordered the utilities to execute one distribution deferral demonstration project and up to three additional demonstration projects. ORA asserts that the utilities have failed to explore the EPIC Program as an appropriate vehicle for these projects. ORA also asserts that EPIC was underutilized to serve the TD&D needs of the distributed resources planning (DRP) proceeding.

We disagree with the CEC's comments that some aspects of the PICG are redundant to existing procedures and mechanisms. While Evergreen's evaluation did credit the CEC for developing and implementing many best practices, this is not the case for every EPIC administrator. Our focus is on overall program improvements, and the Evergreen evaluation makes clear that such improvements will benefit even an administrator like the CEC that is already well down the road toward an effective program structure.

Regarding the IOUs' suggestions that the PICG take on administrative tasks such as benefits tracking and reporting, and information dissemination, and other, that is not the role we envision for the PICG. Such activities would be inconsistent with the clearly limited framework we established in D.18-01-008. Elsewhere in this decision, we have established the joint Research Administration Plan process for the IOUs to address these improvements in program administration, as part of their non-delegable administrative responsibilities.

We also decline suggestions from ORA that would inappropriately broaden the PICG's tasks beyond its narrowly defined mission statement. Benefits tracking is an administrative task, and program oversight is exclusively a Commission responsibility. However, ORA's suggestion that the PICG should compile a complete list of projects is an appropriate task. The Staff Proposal suggested that we direct the creation of a single website-based database for all EPIC projects. The PICG coordinator will necessarily review all EPIC reports and Investment Plans, and will be circulating other program-wide information as well. It would be most efficient to provide the resulting compiled information online, in a format accessible to stakeholders. This will also respond to a major theme expressed throughout the Evaluation. Therefore, we include this task in the PICG Project Coordinator scope of work outlined below.

Greenlining/CEJA seek additional information on how the PICG coordinator will use DAC Advisory Group feedback, and whether the coordinator will solicit feedback from DACs directly. We address these suggestions below in our discussion of the process for PICG stakeholder engagement.

In sum, then, based on our review of the Staff Proposal and parties' comments, this decision finalizes the operational structure, PICG activities, budget and the competitive selection process for the PICG coordinator. These determinations enable Commission staff to move forward with selection of a PICG Project Coordinator, and shall serve as initial guidance regarding the scope of work to be undertaken by the PICG.

3.6.1.2. PICG Mission Statement

This decision makes no changes to the PICG Mission Statement adopted in D.18-01-008, which is repeated here:

> The PICG is dedicated to (1) the technical, complex coordination task of identifying timely opportunities for substantive feedback and coordination among EPIC investments and California's energy innovation needs and goals, and (2) providing the support functions to allow this feedback and coordination to occur effectively.

3.6.1.3. PICG Structure

Pursuant to D.18-01-008, the PICG will be an independent support body and will take direction from the Commission with input from the administrators. The members of the PICG are the CPUC, each EPIC administrator, and the PICG Project Coordinator, as defined below.

3.6.1.3.1. Membership and Member Responsibilities

- <u>Project Coordinator</u>

  The Project Coordinator shall be selected using a competitive solicitation process, as detailed below. The Project Coordinator shall be an independent contractor and, as an entity, should include a team lead and main PICG representative, technical lead(s) for the Policy + Innovation Partnership Areas described below, and other technical and support team members. The team should have expertise in the following areas:

  - energy policy and energy R&D;
  - project management and meeting facilitation;

  - technology innovation, with a firm understanding of an R&D program's role in driving technology development, informing policy, and shaping regulations; and
  - a strong understanding of Commission proceedings and processes.

  Responsibilities: The Project Coordinator will be primarily responsible for creating an environment for coordination between the Commission's energy policy and planning needs, and the energy R&D supported by EPIC funding.

  As the dedicated entity that provides support for improved coordination, the Project Coordinator will organize and facilitate PICG activities and produce deliverables and activities as specified in the scope of work provided below (e.g., expert review, report preparation, meeting facilitation). This arrangement will allow other members of the group to focus on substantive input and creating meaningful dialogue.

- One representative from each EPIC administrator

  Administrators may rotate the individual who is their formal representative on the PICG as needed, but these representatives should be at the program management/leadership level (i.e., Commissioner and/or Division Director/Deputy for the CEC; senior leadership level with oversight over EPIC and innovation projects for the IOUs).

- Commission staff: one staff representative, and Commissioners

  The Energy Division Director or a designee will be the main Commission staff representative on the PICG. Commissioners may attend PICG functions and provide input as leadership members.

  Responsibilities: the EPIC administrators, CPUC Commissioners, and Commission staff members will be responsible for serving in advisory and guidance roles, providing input on priority areas. Commission staff and EPIC administrator members should leverage their expertise and insight in their respective organizations to align the key policies of EPIC's oversight body with the practices of EPIC's administrators.

3.6.1.4. Limitations on the PICG

Pursuant to D.18-01-008, the PICG has no oversight authority over the EPIC administrators. That responsibility is solely delegated to Commission staff.

The PICG shall operate within the budget limitations established by the Commission and be accountable for ensuring that its activities do not create undue burdens on the EPIC administrators.

The PICG will not provide any formal direction or binding guidance to administrators regarding which projects they should fund, nor how they should administer their approved investment plans. Its role is to support the development of the administrators' capacity to understand Commission policies and proceedings, and how their projects best align with those policies and proceedings; and to support the Commission's capacity to understand and leverage energy innovations in key policy areas.

3.6.1.5. Ex Parte Compliance

The PICG exists to facilitate feedback loops between Commission energy goals and needs and EPIC innovations. As such, communications about issues in CPUC proceedings may occur. To the extent that the coordination work by the PICG involves *ex parte* communications, parties should take care to maintain regulatory compliance, pursuant to Article 8 of the Commission's Rules of Practice & Procedure, as mandated by Public Utilities Code Section 1701.1 et seq.

3.6.2. Process for Selection of Project Coordinator

The Project Coordinator shall be selected using the following competitive solicitation process, in order to secure the services of an independent contractor with expertise in the areas listed below; this list should serve as the basis for criteria in the Request for Proposals:

- energy policy and energy R&D;
- project management and meeting facilitation;
- technology innovation, with a firm understanding of an R&D program's role in driving technology development, informing policy, and shaping regulations;
- a strong understanding of Commission proceedings and processes; and
- a strong understanding of the economic and technological need of disadvantaged communities in California.

We designate PG&E to serve as the fiscal manager of the contract that is ultimately reached with the Project Coordinator selected through this competitive process. To begin, the Energy Division should work collaboratively with the EPIC administrators to draft a Request for Proposals (RFP), including development of bid evaluation criteria and the weighting of those criteria. PG&E shall then issue the RFP and coordinate receipt of proposals. Only Commission staff shall be responsible for scoring proposals, interviewing bidders and selecting the winning bidder. At that point, PG&E shall enter into a contract with the winning bidder, and shall serve as the fiscal manager of the contract without exercising control over that entity's activities. Commission staff will oversee the Project Coordinator's activities.

The following steps shall be followed to develop and complete the competitive solicitation:

Milestone	Date--no later than:
RFP drafted and finalized	Completion date to be determined by the Director of the Energy Division
RFP issued by PG&E	30 days after receiving the finalized RFP content from Commission staff
Bids due to PG&E	45 days following issuance of RFP
Commission staff scores bids, interviews top scoring bidders, and selects winner bidder	30 days following receipt of bids
Contract finalized and executed by PG&E and the winning bidder.	45 days following selection of winning bidder
Work begins	

3.6.3. PICG Scope of Work

We adopt a scope of work for the PICG based on the scope described in the Staff Proposal, as informed by parties' subsequent comments. We summarize changes made in response to those comments here.

In D.18-01-008 we stated that in order to achieve its mission statement, the PICG would need to undertake four broad activities; the Staff Proposal condensed that list into three activities. Here, we describe those activities and identify more specific tasks to be completed by the Project Coordinator and the PICG as it pursues each activity.

The Staff Proposal's first two work areas have been condensed into one work area and reordered. The CEC expressed concern that the process as proposed was "excessive in scope"; we have reordered the process so that PICG work more directly stems from priorities identified as a result of consultation with Commission staff and Commissioners. It also more specifically details the EPIC materials that the Project Coordinator should review as it begins its work. This will help narrow the scope of work and avoid the "mission creep" the CEC is concerned about.

The work area describing the process used to identify "Policy + Innovation Partnership Areas" (PIPAs) has been modified to require the Project Coordinator to identify PIPAs with the input of the PICG members, not unilaterally. This change was made in response to comments from the CEC, which proposed a very similar process wherein the PICG overall determined the areas for feedback.

The work area describing the PIPA meeting process has been revised based on various party comments. First, we clarify that PIPA meetings are meant to foster substantive feedback among EPIC administrators and CPUC staff, not to serve as a venue for redirection of approved investment plans. This is primarily in response to the CEC's strongly voiced concerns about the original language in staff's proposal. The CEC states, "the proposal for the PICG to potentially adjust research in the middle of an investment plan cycle is contrary to the limitations and framework set forth in D.18-01-008." We understand the CEC's concern as a valid administrative issue—changes to a plan can be difficult to manage, and it would be untenable for the CEC to attempt to manage its hundreds of millions of dollars in EPIC funds if the direction or approval from the Commission were continually changing. At the same time, we clarify we expect that if administrators become aware of valuable ways to bring EPIC into better alignment with policy needs, consistent with approved plans and contracts, they will do so. This is something the administrators already do; the PICG is intended to support ongoing coordination that makes these kinds of adjustments possible.

3.6.3.1. First PICG Activity: Identifying opportunities for Policy + Innovation coordination

This activity involves identification of the Commission's goals or needs related to research, followed by identification of EPIC research that could inform Commission policy. The purpose of this activity is to identify opportunities for worthwhile coordination and feedback that the PICG can then support. The PICG should pinpoint areas of common ground (i.e., issues that support the state's energy goals that yield substantive research results) and focus on supporting the exchange of data related to policy goals in these areas.

Task 1.1 Identify key EPIC results, plans, and other developments

Task 1.2 Identify key CPUC needs and goals for research

- Review existing materials to identify efforts yielding key results
- Consult with Commission staff

3.6.3.2. Second PICG Activity: Providing expertise, knowledge and analysis

This activity refers to how the PICG will leverage its assets and qualifications to complete the tasks for which it is responsible. The PICG must be able to efficiently analyze information from researchers and policymakers and organize the exchange of information while applying relevant knowledge. This will require an understanding of energy research, the Commission policymaking process, and energy policies central to Commission proceedings.

Task 2.1 Identify Policy + Innovation Partnership Areas (PIPAs)

> The Project Coordinator should identify areas or issues where current EPIC research and findings appear highly relevant to stated Commission energy policy needs and goals. These "Policy + Innovation Partnership Areas" (PIPAs) are issue areas of common interest and substantive opportunity, around which the PICG will engage in targeted coordination. This coordination would focus on a few areas (approximately 3-5 per year) of high value. The Project Coordinator shall consult with PICG members on potential PIPAs before selecting them and moving forward. Once selected,

the Project Coordinator should undertake the activities described below for each PIPA.

Task 2.2 Ongoing PIPA Coordination

The Project Coordinator should organize and facilitate at least one targeted coordination and feedback meeting for each PIPA. In these meetings, PICG members, policymakers and researchers will discuss their perspectives on EPIC-funded projects and related state policy goals, and receive input from interested stakeholders. The Project Coordinator should invite knowledgeable external groups that can share lessons learned from non-EPIC energy R&D.

Prior to the meeting, the Project Coordinator should conduct all the technical and administrative background work to support a successful and substantive coordination meeting. Deliverables in this regard may include briefing documents that provide attending parties a balanced understanding of issues and developments.

To encourage transparency and provide opportunity for stakeholder input, PIPA feedback meetings should be open to interested stakeholders. The main purpose of the feedback meetings should be the coordination and information exchange between EPIC administrators and CPUC staff; however, where appropriate, the PICG should create an opportunity for comment or question from interested stakeholders. Feedback from stakeholders will ensure that important issues such as environmental equity are considered within discussions of EPIC priorities.

3.6.3.3. Third PICG Activity: Supporting substantive coordination and feedback

This activity encompasses the PICG's tasks that will support coordination and feedback within the EPIC environment: facilitation of meetings, gathering data, producing deliverables, organizing public forums and private working sessions, and any other similar activity that advances the PICG's mission.

Task 3.1 Hold an annual Policy + Innovation Coordination forum

The PICG should share the year's results from PIPA-related coordination at an annual Policy + Innovation Coordination forum. The purpose of this forum is to share the results and work of the prior year with the Commission and stakeholders and solicit high level input from the Commission on the following year's coordination work and policy priorities. These conversations will set the framework for future Policy + Innovation coordination opportunities. The Project Coordinator, with input from the other PICG members, will organize and facilitate the forum. The forum should be coordinated with Commission needs and schedules to facilitate maximum participation, especially from those interested in recent or future PIPAs.

Task 3.2 Coordinate information-sharing and outreach to stakeholders

PICG activities should be visible to interested stakeholders Although the PICG's policy-research coordination rests largely on the exchange of ideas between CPUC staff and EPIC administrators, other stakeholders should have the opportunity to understand and provide input to this effort.

Stakeholders should have the opportunity to provide comments to the PICG on issues raised at the PIPA feedback meetings, as well as issues articulated within the PIPA meeting reports. Such issues include any discussions regarding changes to the PICG's structure or activities.

Task 3.3 Self-evaluation and assessment activities

The Project Coordinator should propose evaluation criteria and processes to assess the efficacy of the PICG on an annual basis, targeting PICG member input and recommendations for improvement of the process. The Energy Division director may make adjustments to the structure and framework as needed, as a result of this process. The Commission's intent is for the PICG to fulfill its mission statement; if individual tasks are not optimal, they should be changed.

Task 3.4 Program Web Database

Creation and maintenance of an EPIC-program wide website-based database, containing information and status of each project. The Project Coordinator should build off of existing websites and information, and can link to individual administrator project pages when available, but should focus on creating a single, consistent, updated web resource intended to provide interested stakeholders a way to find information about all program investments. This effort should maximize the connection to the PICG's mission statement, such as by including information about PICG activities and update PIPA efforts for related projects.

3.6.4. PICG Budget

D.18-01-008 authorized and set aside half of the Commission's oversight budget for the EPIC 3 period (2018-2020) for the PICG. This amounted to $1,387,500. Energy Division staff subsequently proposed a maximum budget of $250,000 per year ($750,000 in total) for the Project Coordinator, given the Project Coordinator's proposed scope of work. However, additional changes were made to the PICG process and the IOUs' timeline for EPIC implementation. We also provided for additional detail on database and website tasks, which will increase costs. Additionally, costs may vary as the PICG's first-year startup activities may require more resources, and we do not find it necessary to establish an annual budget (similarly, the EPIC administrators do not have an annual budget limitation, just a single budget for the investment period). Therefore, a more flexible budget is adopted for the Project Coordinator than was proposed by staff: $1,2000,000 over the same period applying to current investment period funds. While the PICG will remain in place until otherwise ordered by the Commission, future funding beyond this level would need to be separately approved.

The RFP shall specify that bids proposing a budget higher than $1,2000,000 or with a contract term longer than the 36-month period commencing with the date of this decision will not be accepted.

3.7. On-Going Program Evaluation

Evergreen's final set of findings and recommendations concerns future program evaluations. Evergreen states that it has identified the need for on-going assessment of the program and project benefits.

Based on its study, Evergreen concludes that "due diligence is being done to identify projects that, absent EPIC funding, would not move forward or move forward more slowly." However, Evergreen contends that "this is a necessary but not sufficient condition for establishing a causal connection between EPIC funding activities and any measureable changes in metrics associated with the mid- and long-term outcomes." Evergreen suggests that the probability that these outcomes will eventually be achieved will increase substantially only through the combination of successfully designed and implemented projects and the diffusion of these technologies and tools over time in their targeted markets. While projects appear to be on a good trajectory to disseminate knowledge, it is too early in the program life to determine the full extent of more concrete knowledge benefits such as patents, journal articles and existence of follow-on research. It is also premature at this time to assess if these activities will be sufficient to encourage further research and technology adoption after the EPIC projects are completed. Evergreen concludes that a more complete case for attribution must be built on an on-going, theory-driven evaluation that, based on the preponderance of the evidence, will assess the extent to which these mid- and long-term outcomes have been achieved and the extent to which EPIC is responsible for any of these achievements. Evergreen's reasoning leads it to offer its final two "high priority" recommendations:

> Recommendation 7a: Using the theory-driven framework developed for this evaluation, monitor and report key performance metrics on an on-going basis and conduct a comprehensive evaluation every three to four years.
>
> All of these evaluation activities should be conducted by an independent evaluator in close collaboration with the four administrators to avoid any duplication of efforts and to ensure that the results will be useful to all stakeholders (e.g., the CPUC, state legislators, and the four administrators and other stakeholders).

Evergreen explains that although its Evaluation documents what is working and what could be improved, the EPIC program "is still very young and should undergo ongoing independent assessment to ensure it remains on track and addresses the issues we have noted." In addition, Evergreen notes that conducting independent program evaluations is consistent with the best practice of peer Research, Development and Demonstration (RD&D) programs.

In its comments, the CEC cites a number of Evergreen's findings regarding the merits of the CEC's program and practices, and conclude that it does not see a need for continued evaluation of the CEC's EPIC program going forward. Instead, the CEC suggests that the Commission's own investment plan approval process provides a vehicle for the Commission to evaluate, redirect, and adopt priorities and make any needed mid-course adjustments: "another evaluation would require a significant amount of resources and distracts from program implementation."[107]

We decline to adopt Recommendation 7a and establish an on-going evaluation process at this time. Elsewhere in this decision we address questions regarding the future of the EPIC program, funding for which is currently authorized only through 2020. In that discussion, we note that the Commission can begin to consider the Program's future —including the timing of future evaluations--in a new rulemaking.

Evergreen's second recommendation would generate the information needed to support an on-going evaluation process:

> Recommendation 7b: The administrators should create a single, centralized database containing all relevant information on active and completed EPIC projects along with monitoring and quarterly reporting of key performance metrics, in order to support the on-going evaluation of the Program.

In comments, the CEC expressed concern that a centralized database for all of the administrators would be duplicative of the Energy Innovation Showcase that the CEC has already developed, and would represent an unnecessary ratepayer expense. Instead, the CEC suggests that the Commission periodically send out notices directing stakeholders to sources of information on the EPIC program and existing EPIC projects. If the Commission does decide to create a single centralized database, the CEC recommends that all data associated with the database be kept at the Commission, not with a third-party database developer. Finally, if a database is created, the scope of database should be expanded beyond just EPIC projects to include additional relevant utility projects.

It is foundationally important for the administrators to have clear metrics and consistently report on their investments' progress. While Evergreen contemplated a third-party coordination and facilitation body that would assist in broader support for the program, the PICG framework and activities we establish have a more targeted focus on

[107] CEC Comments at 19.

policy to innovation coordination support. Thus, we adopt Recommendation 7b in a few different ways.

First, as detailed in the PICG section, that entity will establish a centralized database website where program information – including existing metrics information— can reside.

Second, we do not find it necessary to require additional metrics tracking for the CEC, but we do find this necessary for the IOUs. This is because the Evaluation found that while the administrators do include metrics against which investments will be tracked in their Investment Plans, quantification and tracking of metrics varies: the CEC has a process in place to do this via its benefits questionnaire and tracking system, while the IOUs do not have plans to systematically quantify and report on project benefit metrics.[108] This decision directs the IOUs to file a joint Research Administration Plan containing their plans to revise and correct the deficiencies identified in the evaluation, as detailed in Section 3.3 of this decision. This plan must contain their plan for tracking metrics.

Finally, at the evaluation workshop, the administrators expressed concern about over-frequent reporting of metrics (such as quarterly, as suggested by Evergreen), stating it would be of limited use and an administrative burden. Beyond reiterating that projects' progress toward stated metrics should be included in existing reports, we make no new reporting frequency requirement. However, we include in the PICG section a discussion of how all four Administrators should provide metrics updates within the PICG process for projects that are of particular relevance to timely Commission policy goals.

Evergreen concludes the Evaluation with several recommendation that reflect the evolution of its own understanding of the EPIC program as it conducted its study:

> Our initial understanding of EPIC was based on the Triennial Investment Plans and other CPUC documents. However, through our interviews,

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[108] Evaluation report, Section 6 at 7.

document reviews and analysis of the EPIC portfolio, we now understand that the Program is far more complex. This theme of greater complexity is woven throughout this report.

Based on its deeper understanding, Evergreen identifies a need to better characterize the Program to support future assessment efforts. The list below highlights the key areas of complexity identified by Evergreen:

- EPIC projects do not follow a linear process: EPIC is not characterized by a linear progression from Applied R&D projects to TD&D projects and on to Market Facilitation projects, as Evergreen initially expected.
- The sources of proposed Applied R&D and TD&D projects are diverse.
- The types of projects are diverse.

Evergreen recommends that the CPUC work with the administrators with the support of the coordination body to achieve the following:

Recommendation 7c: Modify (and continually update as needed) the characterization of the Program to more accurately reflect its complexity.

Recommendation 7d: Modify (and continually update as needed) the EPIC program theory and logic models to better reflect the more complex character of the Program.

Recommendation 7e: Revisit the key performance metrics that should be tracked and the frequency with which they should be tracked and reported.

In its comments, the CEC recommends that consideration of potential program modifications such as these suggested by Evergreen be reserved for discussion of the program beyond 2020: "the investment plans currently under consideration by the Commission represent the third of three plans that have operated on a consistent set of project characterizations and performance metrics. Any significant changes at this point would be overly disruptive to the implementation of the 3rd EPIC Plan and delay critical R&D innovation needed to assist ratepayers and meeting state energy policy goals."[109]

[109] CEC Comments at 20.

We agree with the CEC that these final recommendations would be best considered in the future rulemaking contemplated in this decision.

4. Matters Regarding the Interaction between the EPIC Program and DACs in California

The Scoping Memo determined that this proceeding shall include two broad topics regarding DACs:

1. Funding decisions: determination of strategies and opportunities for directing EPIC projects, and/or their results, to disadvantaged communities. These strategies and opportunities should be informed by meaningful feedback from DACs disadvantaged communities that provides greater understanding of the R&D needs of disadvantaged communities.
2. Outreach and engagement: Determination of the best means of conducting outreach and engaging with DACs in order to heighten local awareness of the opportunities for community members to (a) apply for EPIC funds, (b) ensure that beneficial projects are sited in their communities, and (c) benefit from the results of all relevant EPIC projects.

After the Scoping Memo issued, in October 2017 Governor Brown signed Assembly Bill (AB) 523, which formalizes the requirement that the CEC expend at least 25 percent of its EPIC funds for TD&D at sites located in, and benefiting, disadvantaged communities, and adds a new requirement that the CEC expend at least 10 percent of its EPIC funds for TD&D at sites located in, and benefiting, low-income communities located in the state.[110] We addressed the relationship of AB 523 to the CEC's 2018-2020

[110] Stats. 2017, Chapter 551. "Disadvantaged communities" are defined as communities identified pursuant to Section 39711 of the Health and Safety Code.

"Low-income communities" are defined as communities within census tracts with median household incomes at or below either (a) eighty percent of the statewide median income, or (b) the applicable low-income threshold listed in the state income limits updated by the Department of Housing and Community Development.

AB 523 also requires the CEC to take into account, when applicable, the adverse localized health impacts of proposed EPIC projects to the greatest extent possible,

Footnote continued on next page

investment plan in D.18-01-008. Here, we note that AB 523 reflects California's intent to make the state's clean energy programs more equitable by moving the state toward greater clean and renewable energy while increasing the participation of economically and environmentally vulnerable communities in this transition. The Commission recognizes the alignment of AB 523 with goals previously established in SB 350, and supports the purpose of this bill.

The broad topics of DAC-related funding decisions and DAC-related outreach and engagement were addressed at the September 7, 2017 workshop. Participants agreed that Commission staff would develop and distribute questions related to DAC issues, so that parties could address these questions in their post-workshop comments, which were filed and served on September 22, 2017, followed by reply comments on October 23, 2017. Parties' comments are reflected in the determinations we reach in this decision.

Before we turn to the DAC-related issues within the scope of this proceeding, we begin by clarifying the definition of "disadvantaged communities" as used within this decision. We agree with the recommendations of Greenlining/CEJA and PG&E that this proceeding should use the definition the California Environmental Protection Agency (CalEPA) developed pursuant to Section 39711 of the Health and Safety Code, which provides:

> The California Environmental Protection Agency shall identify disadvantaged communities for investment opportunities related to this chapter. These communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:
>
> (1) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

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and include in its annual EPIC report to the Legislature a brief description of the impact on program administration from the allocations required by the bill, including any information that would help the Legislature determine whether to reauthorize those allocations beyond June 30, 2023.

(2) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment.[111]

4.1. Funding Decisions

Parties' comments addressed strategies and opportunities for directing EPIC projects, and/or their results, to disadvantaged communities.

Greenlining/CEJA recommend that DAC-related goals be included when the Commission identifies its prioritized research gaps and needs, as recommended by Evergreen. We agree, and direct that the PICG should identify "DAC-benefitting", or "DAC-located" projects. Stakeholders (including environmental justice and consumer advocacy groups) should be encouraged to comment on issues raised at PIPA meetings, as well as on PIPA meeting reports that are circulated by the PICG Project Coordinator.

Greenlining/CEJA also request a venue at which DACs can participate in the design of EPIC projects. Although opportunities for participation in project design may have already passed for this investment cycle (except for, potentially, any additional proposals included in the RAP application), the DAC workshops we describe below should discuss the evolving clean energy needs of DACs, as well as the potential location of EPIC 3 projects within DACs.

The CEC summarized in its own investment plan its current efforts to target investments in DACs and to engage with DACs, particularly as scoped in its Barriers Report. The IOUs, while they state their support for many of the goals recommended by

[111] Cal. Health & Safety Code § 39711. CEJA and Greenlining further recommend using the most recent version of CalEnviroScreen, which was developed by the CalEPA pursuant to Section 39711 to "identify communities in California most burdened by pollution from multiple sources and most vulnerable to its effects, taking into account socioeconomic characteristics and underlying health status." In particular, CalEnviroScreen was designed to assist CalEPA "in carrying out its environmental justice mission to conduct its activities in a manner that ensures the fair treatment of all Californians, including minority and low-income populations. Greenlining/CEJA Opening Comments on the EPIC Program, September 22, 2017, at 4.

CEJA and Greenlining, oppose any siting or funding target requirements, and assert that all their investments benefit DACs generally via broad benefits.

At this time, we find that we should not establish a specific DAC-related set-aside within the current triennial investment period, beyond those required of the CEC pursuant to AB 523. However, the utilities may invest in DAC-related projects beyond the targets in AB 523. We encourage the utility administrators to maximize opportunities to locate their projects in DACs, and to propose future projects that benefit DACs. To this end, we direct the IOUs to explain in their upcoming RAP application how they plan to better incorporate DAC input into their investment planning process. For example, the application should expressly consider how community-based organizations (CBOs) could be leveraged for improved information sharing, as recommended by CEJA and Greenlining: we suggest that the IOUs seek input from stakeholders such as CEJA and Greenlining in developing their plans. Like the CEC, the utilities should also describe the steps taken to locate projects in DACs in their next annual reports to the Commission.

4.2. Outreach and engagement

Parties commented on the best means of conducting outreach and engaging with DACs in order to heighten local awareness of the opportunities for community members to (a) apply for EPIC funds, (b) ensure that beneficial projects are sited in their communities, and (c) benefit from the results of all relevant EPIC projects.

CEJA/ Greenlining state, "The evaluation of the advantages, risks and tradeoffs for developing a specific project should happen through a meaningful public participation process that can be facilitated through community-based organizations." Those parties also provided extensive input regarding how projects could be better sited in DACs, be driven by input from DACs, and how the program could differently assess benefits to DACs, including non-energy benefits. These joint parties recommend strategies for providing better technical assistance, and recommend leveraging CBOs for information sharing.

The administrators signaled a willingness to increase awareness and accessibility of EPIC funding in DACs through workshops. We find that at least two workshops (at least one in Northern California and one in Southern California) on DACs should be conducted for the purpose of providing technical EPIC support and training to DACs and interested CBOs. These workshops should be tasked with developing approaches to effectively integrating DACs within the EPIC program. The workshops should consider how to fill the gaps regarding EPIC-related informational resources needed by DAC communities and CBOs. The Greenlining/CEJA recommendations regarding targeting DACs, and especially their suggestions for changes to benefits assessment, should be helpful in this regard.[112] The Greenlining/CEJA recommendations for better public participation, especially via CBOs, should also be considered in the scoping and implementation of these workshops.

Finally, we specify that this outreach work should first be informed by consultation with the Disadvantaged Communities Advisory Group established by the Commission and the CEC. The administrators should consult with this Advisory Group for its input on the outreach and engagement activities to be reviewed in the workshop process described above.

5. Review of the Utilities' 2018-2020 Investment Plans

As one of the utility administrators explains in its plan, "the utility-administered portion of the EPIC Program is intended to fund grid-specific projects that advance the EPIC guiding principles, including enhancements to grid safety, reliability and cost-efficiency while advancing California's clean energy goals. The program's focus is to test pre-commercial or not yet widely commercialized strategies and/or technologies in

[112] Separately from the workshop process described here, these elements should also be considered as a possible broader change to the program in the future rulemaking contemplated in this decision.

the utility-specific environment and guide them through to commercial deployment for the benefit of electricity customers."[113]

As stated in our discussion of the scope of this proceeding, our review of the triennial investment plans is primarily guided by the requirements of D.12-05-037, as clarified by D.13-11-025 and D.15-04-020 (these requirements are listed in Appendix A to this decision). All three utilities assert that their plans meet these requirements. ORA protested each of the EPIC administrators' plans on the general basis that the plans do not sufficiently describe policy justifications for proposed projects, and suggested that the administrators had not informed the Commission how the completed projects will benefit ratepayers. The Scoping Memo determined that the issues raised by ORA should remain in the scope of this proceeding because the planned workshops would provide an opportunity for all stakeholders to resolve their differences on the adequacy of the administrators' showings.

ORA also makes several specific recommendations based on its review of each utility's plan, stating that the Commission should:

- Reduce SCE's 2018-2020 budget because SCE funded a previously authorized EPIC project with GRC funds;
- Deny SCE's request to re-litigate the funding of research institutes;
- Require program administrators to file more detailed plans for Cyber Security for Industrial Control Systems; and
- Deny the utility administrators' second-life EV batteries program, and require future RD&D applications to be coordinated among the IOUs to sufficiently demonstrate that no duplication of efforts is made.

We review each of ORA's recommendations, and the utilities' replies, as we consider each utility administrator's investment plan below.

[113] "Pacific Gas and Electric Company 2018-2020 Triennial Electric Program Investment Charge Investment Plan" at 1-2.

At the outset of our review, we also refer back to the EPIC Evaluation findings and recommendations addressed previously in this decision: the Evaluation found that the utilities, while technically compliant with the letter of program requirements, could better fulfill the spirit of many of those requirements, and should improve several aspects of their program administration practices. Areas needing improvement include metrics tracking and reporting to quantify project benefits, as well as improving stakeholder engagement and transparency throughout the entire investment planning and implementation process. This is why we directed the utilities file a joint application containing a Research Administration Plan that details the actions they will take to improve their processes in response to the findings and recommendations in the Evaluation.

Finally, we note that we are issuing our decision on the utility administrators' investment plans approximately 9 months after our decision addressing the CEC's plan. It is possible that projects proposed in the utilities' plans have been affected by the passage of time. Therefore, if PG&E, SCE or SDG&E find that it is necessary to revise or replace any proposed project, they should include that information in the joint RAP application. Any proposed replacement projects should include a description of how the utility incorporated any of the Evaluation recommendations in the course of developing that project. We also specify in this decision that the utility administrators are authorized to fund their EPIC 3 projects for a full 36 months from the effective date of this decision, rather than only through the end of 2020.[114]

5.1. PG&E's 2018-2020 Investment Plan

PG&E's 2018-2020 EPIC Investment Plan contains 41 potential projects. Pursuant to D.18-01-008, PG&E's authorized funding for the triennial period is $55.6 million. PG&E categorized its potential projects according to the jointly developed IOU funding categories, and explains the focus of each area and its relation to the value chain:

[114] This authorization extends to the CEC as well.

TD& D Investment Area	Objectives	Value Chain Relation
Renewables and Distributed Energy Resource Integration --11 potential projects	Integrate distributed energy resources, generation and storage; improve transparency of resource information; increase generation flexibility	Maps to Grid Operations / Market Design under EPIC
Grid Modernization and Optimization --13 potential projects	Optimize existing grid assets; prepare for emerging technologies; design and demonstrate grid operations of the future	Maps to Transmission and Distribution (T&D) under EPIC
Customer Service and Enablement --8 potential projects	Drive customer service excellence through new offerings for customers and enable greater customer choice; integrate Demand-Side Management (DSM)	Maps to DSM under EPIC
Cross-Cutting/Foundational Strategies and Technologies --9 potential projects	Support next generation infrastructure, including smart grid architecture, cybersecurity, telecommunications and standards, as well as other "foundational" activities in support of all three program areas above	Maps to the entire electric value chain

PG&E reiterates in its post-workshop comments that its 2018-2020 plan, as filed, addresses how that plan meets each of the Commission's requirements.[115] In its plan, PG&E asserts that its proposed project portfolio meets the primary guiding principle of the EPIC Program, which is to provide electricity customer benefits, defined as promoting greater reliability, lower costs, and increased safety. In addition, PG&E states that its portfolio also addresses complementary EPIC guiding principles, including the following: demonstrating societal benefits; greenhouse gas emission reductions;

[115] PG&E also provides a tabular demonstration of the same information in its September 22, 2017 comments (as corrected by its October 9, 2017 reply comments).

advancing the Commission's Loading Order; supporting low-emission vehicles and transportation; economic development; and efficient use of ratepayer monies.[116]

Two of ORA's comments on the utilities' investment plans elicited responses from PG&E.

First, regarding ORA's recommendation that the Commission require PG&E and SCE to file more detailed plans for Cyber Security for Industrial Control Systems, PG&E states that it does not object in principle to providing additional project details, under appropriate security protocols. However, PG&E urges that such a requirement not delay approval and implementation of the project, given the high priority the utilities and policymakers have placed on mitigation of cybersecurity risks to California's electricity grid. PG&E recommends that ORA's request be rejected, but without prejudice to PG&E and SCE providing ORA and Commission staff with additional project-specific details that demonstrate that the project does not duplicate the California Energy Systems for the 21st Century (CES-21) project and is consistent with the technology demonstration criteria for utility EPIC projects.

Second, regarding ORA's recommendation that the Commission deny the utility administrators' second-life EV batteries program because they are duplicative, PG&E notes that ORA generally supports the usefulness of second-life EV battery projects, and asserts that ORA's claim here that the four administrators' second-life EV battery projects are duplicative is not supported by the facts, as demonstrated in the replies to ORA's protest filed by PG&E and the other administrators. Finally, PG&E disagrees with ORA over whether the IOUs' projects should have been submitted in their SB 350 Transportation Electrification applications. PG&E asserts that there is nothing in the

[116] PG&E's 2018-2020 Triennial EPIC Investment Plan at 7, footnote 8: "the loading order is priority list of electricity sources set by the CPUC. The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs to meet customer demand. Then, energy from renewable sources should be prioritized, such as wind, solar and geothermal. Only after all those supplies are exhausted may the utilities purchase power from fossil fuel plants."

Commission's guidance on the SB 350 Transportation Electrification applications that requires all EV technology demonstration projects to be filed in that proceeding, nor is there anything in the Commission's EPIC decisions that limits the administrators' ability to seek approval of EV projects in their EPIC plans.

We find that we need not direct PG&E to modify its battery storage or EV projects based on ORA's concerns. We agree with PG&E that the Commission has not barred the administrators from submitting EV projects in their EPIC plans. Furthermore, as discussed below in our review of SDG&E's investment plan, SDG&E provided information that demonstrates that the four administrators' second-life EV battery projects are not duplicative of one another.

In its own review of PG&E's plan, Energy Division staff identified several projects for which we require PG&E to provide additional information. Appendix C contains specific guidance and direction to PG&E on those projects.

Overall, with the limited exceptions for which we require more information as outlined in Appendix C, we find that PG&E's plan is in compliance with D.12-05-037, D.13-11-025, and D.15-04-020. PG&E has demonstrated how each of its projects maps to the electricity value chain, and PG&E's plan makes the requisite showings pursuant to OP 12 of D.12-05-037. PG&E's plan also identifies energy savings, cost savings, job creation and economic benefits related to its initiatives, where applicable. We also disagree with ORA's overall critique of the administrators' investment plans and find that PG&E has sufficiently described policy justifications for proposed projects and informed the Commission how the completed projects will benefit ratepayers.

Lastly, we return to some of the EPIC Evaluation findings as they apply to PG&E, and specify that PG&E must address these shortcomings in the joint RAP application. For example, even though PG&E's application includes basic metrics for projects as required by D.12-05-037, we cannot assume that PG&E will be effectively tracking these, since the Evaluation found the PG&E does not have a process in place to do so.[117] The Evaluation findings also indicate that all of the IOUs' investment plans were developed with limited stakeholder input and with low transparency.[118]

5.2. SCE's 2018-2020 Investment Plan

SCE's 2018-2020 EPIC Investment Plan contains EPIC investment plan Pursuant to D.18-01-008, SCE's authorized funding for the triennial period is $45.6 million. SCE categorizes its potential projects according to the jointly developed IOU funding categories:

Joint IOU Framework Categories	Overall Purpose of Categorized Projects	Possible SCE Initiatives
Renewable and Distributed Energy Resources (DER) Integration --8 potential projects	Supports safe and reliable integration of DERs	Strategies and technologies to increase renewable resources on the grid, adaptive protection strategies and grid-scale storage strategies and technologies
Grid Modernization and Optimization --8 potential projects	Addresses the need for the grid to become more flexible and responsive to integrate DERs and respond to the changing energy needs of SCE's customers	Strategies and technologies for optimizing assets, preparing for emerging technologies, and designing and demonstrating grid planning and operations of the future
Customer-Focused Products and Services Enablement and Integration --3 potential projects	Recognizes that California's environmental and clean energy policy goals are helping to drive changes in how customers consume and manage electricity	Leveraging the smart meter platform to drive customer service excellence, integrating demand side management to optimize the grid and responding to emerging grid integration issues.

[117] Evaluation report, Section 6 at 7

[118] *Id.*, Section 11 at 10 and 9, respectively.

Joint IOU Framework Categories	Overall Purpose of Categorized Projects	Possible SCE Initiatives
Cross-Cutting/Foundational Strategies and Technologies --5 potential projects	Addresses challenges that cut across the previous three funding categories	Systems architecture and cybersecurity

SCE responded to ORA's overall criticisms of the administrators' proposals in its response to ORA's protest of the EPIC applications. SCE repeated the logic underlying its proposed investment plan, which tracks the table above:[119]

> The principles of SCE's Portfolio adhere to the Joint IOU Framework, which includes key policy drivers. These key policy drivers include both California energy and environmental goals, as well as Commission requirements. …
>
> These four areas are supported by initiatives, which explain the issue and/or challenge being addressed and delineate how the initiative supports California environmental and energy goals, as well as how the initiative supports the Commission in its proceedings. Each of the referenced initiatives are further supported by potential projects.
>
> All of the potential projects included contains a section titled "Concern, Problem or Gap to be Addressed." This section carefully describes the severity of the problem, issue, or opportunity. Furthermore, each of these potential project write-ups also includes a section on prioritization. That prioritization section provides further context on why the concern, problem or gap is applicable to SCE. SCE selects these potential projects based on significant demonstration opportunities to assist California in achieving its energy and environmental goals and support the Commission in its proceedings.

Regarding ORA's suggestion that the administrators' plans "contain numerous projects exploring similar technologies and techniques, even though the administrators

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[119] Reply of Southern California Edison Company to the Office of Ratepayer Advocates' Protest to its 2018-2020 EPIC Investment Plan Application, June 22, 2017, at 4.

claim to have coordinated efforts to prevent duplication" (ORA protest at 4), SCE responds that the administrators have closely coordinated plans and have held numerous calls, as well as three joint stakeholder engagements.[120] SCE also states in its investment plan that the EPIC Administrators "jointly met with the EPRI and hosted an in-depth discussion on gaps that exist in the utility industry that could be filled by technology demonstrations and deployments. EPRI determined that these industry gaps could be addressed by the technology demonstrations and deployments proposed by the EPIC Administrators and that no duplication exists between investment plans."[121]

In its comments on the Evaluation, ORA alleges that SCE violated the Commission's direction in D.12-05-037 that the "EPIC triennial application process is intended to supplant the GRC RD&D proposals" and that "[t]he utilities shall no longer make RD&D proposals in their GRCs, and should make every effort to detail all of their planned RD&D investments in each triennial EPIC investment plan." According to ORA, SCE requested multiple RD&D projects in its 2015 and 2018 GRC applications, a violation of the Commission's direction in D.12-05-037. ORA lists three projects SCE requested in its 2015 GRC application and one project in its 2018 application. ORA contends that each of these projects meets the Commission's definition of TD&D in D.12-05-037 and therefore should have been requested in EPIC, not a GRC proceeding:

> <u>Technology demonstration and deployment</u>. The installation and operation of pre-commercial technologies or strategies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments to enable appraisal of the operational and performance characteristics and the financial risks.[122]

SCE responds to ORA and asserts that ORA is incorrect because, for example, the energy storage pilots for which SCE sought funding in its 2018 GRC use commercially

[120] *Ibid.*

[121] SCE Investment Plan at 3.

[122] Amended Comments of ORA addressing the EPIC program evaluation report at 20, citing D.12-05-037, OP 3(b).

available technology and therefore are not appropriate candidates for EPIC funding. SCE cites the definition of the "technology demonstration" stage of the product development cycle provided in D.12-05-037: "this area supports assisting technology development through the 'valley of death' and toward commercialization"[123] and argues that because the GRC-funded storage pilots use commercially available technology, by definition they are not EPIC-eligible.

We agree with SCE's differentiation between EPIC-funded TD&D and GRC-funded pilot programs. The discussion section in D.12-05-037 that addresses and adopts the definition of TD&D for the EPIC program is illuminating in this respect:

> The staff proposal defines technology demonstration as the installation and operation of pre-commercial technologies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments, <u>to enable the financial community to effectively appraise the operational and performance characteristics of a given technology and the financial risks it presents</u>. This is a reasonable definition and we will adopt it.[124]

The underlined text above is not included in the definition of TD&D adopted in Ordering Paragraph 3.b. of D.12-05-037, but it sheds light on the Commission's intent in adopting EPIC investment categories that corresponded to the four stages in the product development cycle and its related determination that the utility administrators should only fund EPIC projects that required assistance through the so-called "valley of death" as the product or technology moved toward commercialization. ORA has not convincingly demonstrated that SCE's GRC-funded projects are at this stage of the product development cycle. To the contrary, SCE has demonstrated that those projects rely on technology that has moved beyond the TD&D stage.

We also disagree with ORA's overall critique of the administrators' investment plans and find that SCE has sufficiently described policy justifications for proposed

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[123] D.12-05-037 at 32.

[124] *Id.* at 39, emphasis added.

projects and informed the Commission how the completed projects will benefit ratepayers.

That said, Energy Division staff identified several projects for which we require SCE to provide additional information. Appendix C contains specific guidance and direction to SCE on those projects.

Overall, with the limited exceptions for which we require more information as outlined in Appendix C, we find that SCE's plan is in basic compliance with D.12-05-037, D.13-11-025, and D.15-04-020. SCE has demonstrated how each of its projects maps to the electricity value chain, and SCE's plan makes the requisite showings pursuant to OP 12 of D.12-05-037. SCE's plan also identifies energy savings, cost savings, job creation and economic benefits related to its initiatives, where applicable.

Lastly, we return to some of the EPIC Evaluation findings as they apply to SCE, and specify that SCE must address these shortcomings in the joint RAP application. For example, SCE appears to have complied with the letter of our requirements regarding coordination between the EPIC administrators as they plan their projects. But consistent with the Evaluation finding, we find that SCE could have better fulfilled the spirit of those requirements. The utilities shared basic project titles – without any details about what their investment plans would propose—with stakeholders at the three workshops prior to filing their applications. This checks a compliance box but is not reflective of best practices for information sharing and does not meaningfully support coordination or engagement in the investment planning process. Furthermore, as the Evaluation discusses, coordination with EPRI is not the same as broad-based coordination such as we see with CEC, and does not serve as evidence of an optimized portfolio. All the issues and findings we discuss above in relation to PG&E apply equally, and even more so, to SCE, which was individually the subject of specific Evaluation recommendations for improvement. SCE shall include specific proposals for addressing those recommendations in the joint RAP application required by this decision.

5.3. SDG&E's 2018-2020 Investment Plan

SDG&E's 2018-2020 EPIC Investment Plan contains seven potential projects. Pursuant to D.18-01-008, SDG&E's authorized funding for the triennial period is $9.768 million. SDG&E categorizes its potential projects according to the jointly developed IOU funding categories:

Joint IOU Framework Categories	SDG&E's Proposed Projects
Renewable and Distributed Energy Resources (DER) Integration --2 potential projects	Integration of Battery and Photovoltaic Systems into Utility Operations Energy Storage Performance Evaluation
Grid Modernization and Optimization --4 potential projects	Application of Advanced Metering Infrastructure Data to Advanced Utility System Operations Safety Training Simulators with Augmented Visualization Unmanned Aircraft Systems with Advanced Image Processing for Electric Utility Inspection and Operations Repurposing Post Electric Vehicle Batteries for Utility, Commercial, and Mass Transit Applications
Customer-Focused Products and Services Enablement and Integration --1 potential project	Demonstration of Multipurpose Mobile Battery for Port of San Diego and/or Other Applications
Cross-Cutting/Foundational Strategies and Technologies --no potential projects	

SDG&E responded to ORA's overall criticisms of the administrators' proposals in its response to ORA's protest, and augmented that response in its reply to ORA's post-workshop comments, filed and served October 26, 2017.

First, regarding ORA's overall assertion that the administrators' plans do not sufficiently describe policy justifications for proposed projects, SDG&E cites its own investment plan, which SDG&E contends includes detailed policy explanations for each project, including the mapping of each proposed project to the Joint IOU Framework.

Second, regarding ORA's assertion that the administrators have proposed duplicative projects, SDG&E (like SCE) notes that the administrators presented their proposed projects to stakeholders numerous times in advance of filing the applications to ensure that there was no duplication.

Third, SDG&E responds to ORA's view the various administrators' proposed second-life battery projects are duplicative and its recommendation that the Commission approve the CEC's second-life EV battery project and reject the IOUs' second-life EV battery projects. SDG&E asserts that while these projects each involve EV batteries, the projects are unique in their scope and demonstration focus. SDG&E's explanation is summarized in the table below:

EV Battery Re-Use Project	Description	Categorization
SDG&E's Project 6	proposes to develop and demonstrate post-EV energy storage in a method that will minimize installation and integration costs by reusing [original equipment manufacturer (OEM)] vehicle hardware, such as battery packs, power electronics, as well as software" for the benefit of utility system operations, commercial customers, and/or mass transit (such as electric trolleys or transit buses).	not intended as "a grid-scale storage" as claimed by ORA, but is intended to "demonstrate reuse of OEM EV battery packs, electric hardware, software and communication pathways to the extent feasible and document the opportunities and challenges of reusing OEM technology for stationary uses."
CEC's Initiative 3.2.2	seeks to "develop battery monitoring technologies or test methods to better characterize battery cell condition."	applied research and development (R&D) focused on technology/systems to inform plug-in EV owners of battery health information and to characterize the state of health of the battery to determine whether it would be optimal to reuse.
PG&E's Project Number 08	aims to determine if second-life batteries "are fully functional for stationary utility applications."	PG&E intends to focus on validating both the technical capabilities and limitations of reused EV batteries for utility grid support with functions potentially including demand responses and/or frequency regulation.

As noted in our discussion of PG&E's plan, we have reviewed the information provided by SDG&E and we find no duplication in the EV projects listed above. We also disagree with ORA's overall criticisms of SDG&E's investment plan, and find that SDG&E has sufficiently described policy justifications for proposed projects and informed the Commission how the completed projects will benefit ratepayers.

Energy Division staff identified several projects for which we require SDG&E to provide additional information. Appendix C contains specific guidance and direction to SDG&E on those projects.

Overall, with the limited exceptions for which we require more information as outlined in Appendix C, we find that SDG&E's plan is in compliance with D.12-05-037, D.13-11-025, and D.15-04-020. SDG&E has demonstrated how each of its projects maps to the electricity value chain, and SDG&E's plan makes the requisite showings pursuant to OP 12 of D.12-05-037. SDG&E's plan also identifies energy savings, cost savings, job creation and economic benefits related to its initiatives, where applicable.

Lastly, regarding the EPIC Evaluation findings as they apply to SDG&E, we do not single out any issues specific to SDG&E. However, we specify that SDG&E must also address each of Evergreen's recommendations and provide its short-term plans for improvements as part of the joint RAP application.

6. Additional Matters within the Scope of this Proceeding

6.1. Should the Commission Provide Flexibility for Utilities to Participate as Subcontractors for CEC-funded EPIC Projects?

PG&E requests that the Commission confirm that it and the other IOUs are permitted pursuant to D.12-05-037 (OP 5) and D.15-04-020 (OP 23) to act as primary grantees or sub-grantees in order to participate in and receive CEC-cost reimbursement as part of CEC EPIC grants.[125] PG&E argues that the utilities have resources which can be

[125] PG&E Comments at 11.

valuable to these projects, but current CPUC language on leveraging CEC funding for IOU participation in CEC grant funding opportunities restricts the ability of the IOUs to provide the necessary resources. PG&E contends that the IOUs should be able to participate in CEC EPIC solicitations to improve the development of the technology and help ensure it is viable for the grid, enhancing the ability for the technology to reach commercial scale.[126]

SCE references the importance of the administrators continuing to work collaboratively and recommends that "in order for Utilities to fully participate in the CEC's Investment Plan and maximize the value that customers pay toward the EPIC, it is of vital importance to leverage CEC funding for CEC EPIC-funded initiatives to act as a sub-contractor on Program Opportunity Notices."[127]

SDG&E agrees that the IOUs should be allowed the flexibility to bid as contractors and subcontractors for CEC-funded EPIC projects, and should be allowed to seek full cost recovery. SDG&E interprets D.15-04-020 as allowing the IOUs to participate in CEC solicitations "only if the IOUs did not provide input into the solicitation development in a non-public forum."[128] SDG&E believes that the most effective and relevant projects would be those with direct IOU involvement.

The CEC notes that the Commission has already provided direction and guidance on this issue in D.15-04-020. In that decision, the Commission found that "all four EPIC administrators should be EPIC administrators first and foremost, and should not undertake EPIC program activities that negatively impact their roles as administrators," and for this reason noted that "IOU administrator participation in CEC EPIC solicitations should be limited because it undermines each administrator's ability to coordinate their

126 *Ibid.*

127 SCE Comments, third page.

128 SDG&E Comments at 9.

EPIC investments."[129] The Commission did not, however, preclude IOU administrator participation in CEC EPIC solicitations when the CEC determined in advance that the IOUs' strategic input was not needed on a particular solicitation and, therefore, had not requested the IOUs' input or sought their assistance on the solicitation.[130]

Based on the above, the CEC explains that there are instances when the IOUs' strategic input or assistance on select solicitations may not be necessary or requested by the CEC: "in these cases, the IOUs may participate in the CEC EPIC solicitations like any other prospective bidder or sub-bidder, and subject to the same terms and conditions specified in the CEC solicitation documents."[131]

We see no reason to disturb the status quo here: the CEC does not indicate that it is hampered by the Commission's current rules and this appears to be an instance where the CEC needs to establish specific practices vis-à-vis the utilities.

6.2. Should the Commission Extend General Authorization for EPIC Program Funding Beyond 2020 by Rulemaking?

On the whole, we are pleased with the progress and achievements of the EPIC program to date, particularly in light of the fact that most investments only began several years ago—extremely recently in R&D terms. We note again the Evaluation's finding regarding EPIC projects and policy alignment:

> Overall, the EPIC portfolio appears to be on track, thus far, in meeting its short-, mid- and long-terms objectives. Collectively, EPIC is both broad and deep, and administrators take steps to integrate projects into the broader innovation and policy landscape. To that extent, projects appear to be consistent with the Program's objectives and core values.[132]

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[129] CEC Comments at 41, citing D.15-04-020 at 50-51.

[130] *Ibid.*

[131] *Id.* at 42.

[132] EPIC Evaluation at 11-18.

The Evaluation immediately follows this finding by observing that "the Program as a whole is not consistent with other peer RD&D programs;" as the Evaluation also notes, in many foundational ways this is due to unique facets of this program, such as the utility/public agency administrator model and our basic requirement for demonstrating IOU ratepayer benefits for every investment. With this in mind, we cannot conclude this decision without acknowledging the efforts and achievements of the four EPIC administrators, stakeholders, and Commission staff. While more can and will be done to improve program administration and investment planning, a solid foundation has been created upon which we can build further.

In that regard, PG&E requests that the Commission consider extending the general authorization for EPIC program funding beyond 2020 by rulemaking "in order to provide stable and sustainable research, development and demonstration programs to meet California's long-term clean energy and environmental goals."[133] In comments, PG&E adds that the process for extending and/or revising RD&D funding should begin as soon as possible, in order to provide a stable, longer-term funding structure for RD&D activities and minimize any gap after 2020, when the current EPIC program cycle ends.

The CEC agrees with PG&E that a process should begin soon on discussing post-2020 EPIC funding.

SDG&E opposes extending the general authorization for EPIC program funding beyond 2020:

> SDG&E believes there are major structural and administrative issues with the EPIC program that need to be carefully examined and addressed if it were to continue or be replaced by another program. The Commission should institute a separate phase of this proceeding to address post-2020 EPIC issues, where the IOUs and other stakeholders would have a meaningful opportunity to participate in developing the future program.[134]

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[133] PG&E Application at 2 and 5.

[134] Opening Comments of SDG&E in Support of its Application for Approval of its EPIC Triennial Plan for Years 2018-2020, at 9.

ORA states that it is unclear at this time whether EPIC can or should be extended beyond 2020 in its current form: it is important that the future of R&D be determined with an understanding of what is intended and gained through the EPIC process. ORA cites its concerns about matters identified in the Evergreen evaluation and recommends that the Commission not render a decision on EPIC or a post-2020 replacement until it has assessed the Evaluation and more EPIC projects have been completed. ORA recommends that the Commission add another phase to this proceeding "to explore the legality of continuing EPIC in the absence of direction or permission from the Legislature, as well as the merits of continuing EPIC in light of an assessment of the EPIC program's effectiveness."[135]

As parties are aware, the Commission opened Rulemaking 11-10-003 in order to consider funding and program issues related to the renewables and RD&D portions of funding provided by a then-existing "system benefits or public goods charge."[136] Shortly after opening the Rulemaking, the Commission issued D.11-11-035, instituting a new surcharge, the EPIC to fund renewables and RD&D programs.[137] That decision instituted the EPIC is on an interim basis until policy, programmatic, governance and allocation issues could be decided in a second phase of the rulemaking. In its subsequent Phase 2 decision, D.12-05-037, the Commission established the structure of the EPIC program as it essentially exists today, finalized the framework for Commission oversight of the EPIC program, determined that EPIC funding would continue from 2012 through 2020, and closed the Rulemaking.[138] Since that time, we have approved the

[135] ORA Comments at 23.

[136] Rulemaking 11-10-003, *Order Instituting Rulemaking on the Commission's Own Motion to Determine the Impact on Public Benefits Associated with the Expiration of Ratepayer Charges Pursuant to Public Utilities Code Section 399.8.*

[137] D.11-12-035, *Phase 1 Decision Establishing Interim Research, Development And Demonstration, and Renewables Programs Funding Levels.*

[138] D.12-05-037, OP 19.

administrators' triennial investment plans in dockets that consolidate the four separate applications submitted by the administrators, pursuant to D.12-05-037.

While the Commission made the EPIC program permanent in D.12-05-037, we have no ongoing proceeding where we could address parties' requests to consider and authorize EPIC funding beyond 2020. The Evaluation also raised program design considerations that we believe merit further review. We agree with SDG&E and ORA that the administrators and other stakeholders should have a meaningful opportunity to participate in these considerations. We cannot initiate a successor rulemaking proceeding in this decision, but we find that the Commission should take immediate steps to do so, ideally early in 2019 in order to provide sufficient time for the Commission to fully address any identified issues prior to the end of the current investment cycle. Throughout this decision, we have identified both programmatic and policy issues that should be considered in such a proceeding; the list below summarizes those items, though it is not intended to be exclusive:

- Recommendations in the EPIC evaluation endorsed by administrators, but only for consideration in a future investment cycle;
- Evergreen's recommendations regarding portfolio optimization and the overall question of further specifying investment priorities within EPIC to support key policy goals;
- SDG&E's request to broaden the areas that IOUs may fund via their investment plans;
- Issues regarding match funding, especially in order to learn more from the small business community regarding the challenges reported by Evergreen in the EPIC Evaluation;
- Consideration of further IP policy changes, as identified by the CEC; and
- The nature and timing of future program evaluations.

7. Safety Considerations

Safety is a primary driving principle of the EPIC program. Although we address it specifically here, we have also considered safety issues throughout our project-by-project review of the utilities' investment plans. Furthermore, in D.16-01-017 the Commission amended Rule 2.1(c) of it Rules of Practice and Procedure to require applicants to identify all relevant safety considerations implicated by an application, so that the assigned Commissioners and presiding officer could refer to those identified matters during the proceeding.

PG&E states in its application that in order to ensure that safety considerations have received full consideration by parties and the Commission, its EPIC investment plan is administered in accordance with all applicable and appropriate safety standards and requirements, including promotion of public safety.

SCE notes that safety is one of the EPIC program's guiding principles and asserts that its proposed projects will "support the loading order, maintain grid reliability and help improve safety."[139] SCE includes detailed discussions of the safety-related aspects of each of the 24 proposals in its investment plan, and flags projects that are specifically driven by the importance of electric system safety and reliability.

SDG&E states that based on information available to it at the time it filed its application, its EPIC investment plan will not result in any adverse safety impacts on the facilities or operations of SDG&E. Moreover, as it implements its plan SDG&E intends to partner with skilled labor and vendors that demonstrate the necessary and applicable safety training, knowledge and/or certification. SDG&E states that project bidders' proposals are examined to assess the proposer's approach for safety in performing the project work. Finally, SDG&E states that it will comply with all applicable current safety laws, rules and procedures, including SDG&E's internal policies.

Based on our review of each of the utilities' investment plans, we find that each plan appropriately addresses safety matters and includes projects likely to provide enhancements to grid safety and reliability. Therefore, each plan meets the safety-related requirements of D.12-05-037.

[139] SCE 2018-2020 investment plan at 5.

8. Comments on Proposed Decision

The proposed decision of ALJ Roscow 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 _________, by ___________. Reply comments were filed on _________, by ___________.

9. Assignment of Proceeding

Martha Guzman Aceves is the assigned Commissioner and Stephen C. Roscow is the assigned ALJ in this proceeding.

Findings of Fact

1. The EPIC investment program is organized around three program areas: Applied R&D, TD&D, and Market Facilitation.
2. Decision 12-05-037 funded EPIC investments under the authorization of the Commission from 2012 through 2020.
3. The EPIC program is administered by the CEC, PG&E, SCE and SDG&E.
4. Decision 12-05-037 requires the Commission to conduct a public proceeding every three years to review and approve the investment plans of each EPIC administrator to ensure coordinated public interest investment in clean energy technologies and approaches.
5. The Commission determined in D.12-05-037 that an independent evaluation of the EPIC program should be conducted in 2016. That evaluation was completed by Evergreen Economics in September, 2017. The scope of this proceeding included review of the results and recommendations contained in that report.
6. The EPIC Evaluation reached the key findings listed below:
   - The EPIC administrators are in compliance with the *letter* of EPIC program requirements, but could better fulfill the *spirit* of some requirements;

- Each project in the EPIC project portfolio is meeting its objectives, but it is unclear if the portfolio as a whole is optimized;
- There is a need to prioritize among EPIC's many objectives;
- There is a need to supplement the administrative structure by convening an independent body to coordinate, facilitate and lend technical expertise; and
- The utility administrators, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement.

7. It is imperative that the utility administrators immediately develop and implement reasonable process improvements that are responsive to Evergreen's findings and recommendations.

8. The primary ratepayers benefits from EPIC come from successful projects, which can result in new products, information, jobs, and other improvements. IP rights can provide secondary benefits such as royalties and licenses.

9. Pursuant to D.15-09-005 the utility administrators are authorized to submit Tier 3 advice letters for new EPIC projects between triennial EPIC applications and for material changes to existing approved projects. The CEC is authorized to submit the business letter equivalent of a Tier 3 advice letter the same purposes.

10. The EPIC evaluation found that the utility administrators currently have sufficient flexibility to make changes to projects that have been described in their investment plans as well as to put projects on hold indefinitely.

11. The Commission established a framework for a new Policy + Innovation Coordination Group (PICG) in D.18-01-008. The Commission stated it established the PICG in order to create a formal process to improve overall coordination of the EPIC program.

12. In D.18-01-008 the Commission stated that it would seek comment from parties regarding specific aspects of the structure, activities, and budget of the PICG, and stated it would finalize those aspects of the process in a subsequent decision in this proceeding.

13. The operational structure, activities, budget and competitive selection process for the PICG coordinator described in the body of this decision provide the necessary initial guidance regarding the scope of work to be undertaken by the PICG.

14. As used in this decision, "disadvantaged communities" are defined as communities identified pursuant to Section 39711 of the Health and Safety Code. "Low-income communities" are defined as communities within census tracts with median household incomes at or below either (a) eighty percent of the statewide median income, or (b) the applicable low-income threshold listed in the state income limits updated by the Department of Housing and Community Development and filed with the Office of Administrative Law pursuant to subdivision (c) of Section 50093 of the Health and Safety Code.

15. Parties in this proceeding have identified gaps regarding the EPIC-related informational resources needed by disadvantaged communities and community-based organizations (CBOs).

16. Disadvantaged communities (DACs) and CBOs in California would benefit from training about EPIC and subsequent technical support, in order to effectively integrate DACs within the EPIC program.

17. The Commission approved the CEC's 2018-2020 EPIC investment plan in D.18-01-008.

18. In D.18-01-008 the Commission authorized a total EPIC budget of $555,000,000, for the 2018 – 2020 triennial period and allocated that amount between the four administrators as shown in Section 6.3 of that decision.

19. The EPIC Evaluation found that the utility administrators are technically compliant with the letter of program requirements, but could better fulfill the spirit of many of those requirements by improving several aspects of their program administration practices.

20. The EPIC Evaluation found that the utility administrators should improve in areas including metrics tracking and reporting to quantify project benefits, as well as improving

stakeholder engagement and transparency throughout the entire investment planning and implementation process.

21. The Commission made the EPIC program permanent in D.12-05-037, but did not authorize EPIC funding beyond 2020.

22. The EPIC Evaluation raised program design considerations that should be reviewed for possible implementation in future EPIC investment cycles.

Conclusions of Law

1. The utilities should prepare and serve a joint application containing a Research Administration Plan (RAP) that identifies the changes they will make to their administrative processes in response to Evergreen's recommendations.

2. The joint RAP application should address the specific items identified throughout this decision and in Appendix B to this decision.

3. A Request for Proposal (RFP) process should be adopted in order to select the PICG Project Coordinator. The RFP process should be led by Commission Energy Division staff. The final bid should be awarded by Commission decision. The winning bidder should be awarded a contract to serve as the PICG Project Coordinator until the end of the utility administrators' three-year funding cycle.

4. PG&E should serve as the fiscal manager of the contract with the PICG Project Coordinator.

5. In its role as the fiscal manager for the contract with the PICG Project Coordinator, PG&E should not have control over the design or scope of the Coordinator's activities.

6. In D.18-01-008 the Commission determined that it was reasonable to redirect one-half of the Commission's oversight budget away from that purpose, in order to implement the PICG framework without further impacting the administrators' budgets.

7. The budget for the PICG Project Coordinator should be no more than $1,2000,000 and should cover the period until the end of the utility administrators' three-year funding cycle.

8. PRC section 25711.5 provides that the CEC, in consultation with the State Treasurer, has the right to establish intellectual property terms for projects funded under EPIC.

9. The Commission recognized the CEC's intellectual property authority under PRC section 25711.5 in D.13-11-025 and stated that where the IP rights and royalties accrue to the State, and/or if the CEC determines licenses may be granted to LSEs serving EPIC-funding ratepayers, then, the CEC must, on behalf of the State, grant and administer such licenses and royalties as part of its role as an EPIC administrator.

10. The CEC may grant LSEs a free license to use models and analytical tools that can inform distribution planning and decision-making that benefits electric ratepayers. No licenses should be granted to LSEs for any other type of developed technology.

11. The Tier 3 advice letter process adopted in D.15-09-005 for new EPIC projects between triennial EPIC applications and for material changes to existing approved projects should not be changed.

12. Pursuant to PRC section 25711.6 the CEC is required to allocate at least 25 percent of its EPIC TD&D budget toward projects located in and benefitting disadvantaged communities, and to allocate an additional 10 percent of TD&D funds toward projects located in and benefitting low-income communities.

13. It is not necessary at this time to establish a specific DAC-related funding set-aside within the current triennial investment period, beyond those required of the CEC pursuant to PRC section 25711.6, but the utility administrators should be encouraged to maximize opportunities to locate their projects in DACs, and to propose future projects that benefit DACs.

14. The administrators should conduct at least two workshops (in Northern California and Southern California) for the purpose of providing training about EPIC, and related technical support, to DACs and interested CBOs. In planning the workshops, the administrators should consult with the Disadvantaged Communities Advisory Group that

was recently established by the Commission and the California Energy Commission, for input on the outreach and engagement activities to be reviewed in the workshops.

15. The DAC workshops should be include the following topics:
    a. Developing approaches to effectively integrating DACs within the EPIC program;
    b. Determining how to fill the gaps regarding EPIC-related informational resources needed by DACs and CBOs;
    c. Considering the Greenlining/CEJA recommendations regarding targeting DACs, and their suggestions for changes to benefits assessment;
    d. The Greenlining/CEJA recommendations for better public participation, especially via CBOs, should also be considered in the scoping and implementation of these workshops.

16. As modified in this decision and in Appendix C to this decision, the 2018-2020 investment plans submitted by PG&E, SCE and SDG&E should be approved because they each comply with the investment plan criteria established in D.12-05-037.

17. Because the 2018-2020 investment plans submitted by PG&E, SCE and SDG&E each complies with the investment plan criteria established in D.12-05-037, the funding to support those investments is just and reasonable.

18. The 2018-2020 investment plans submitted by PG&E, SCE and SDG&E each meet the safety-related requirements of D.12-05-037.

19. PG&E and SCE should provide the Commission's Office of Ratepayer Advocates and Commission staff additional project-specific details about their proposed Cyber Security for Industrial Control Systems project, to demonstrate that the project does not duplicate the California Energy Systems for the 21st Century project and is consistent with the technology demonstration criteria for utility EPIC projects.

20. The utility administrators should be authorized to fund their EPIC 3 projects for a full 36 months from the effective date of this decision, rather than only through the end of 2020.

23. The utility administrators should prepare and serve a joint application containing a Research Administration Plan that details the actions they will take to improve their administrative processes in response to the findings and recommendations in the EPIC Evaluation.

21. EPIC administrators may only fund projects or initiatives that have been approved by the Commission. PG&E, SCE and SDG&E should not encumber or otherwise commit to spend one-third of their 2018-2020 EPIC funding allocation until they are authorized to do so by a subsequent decision that addresses the joint Research Administration Plan application that they are directed to file by this decision.

22. In D.15-04-020 the Commission did not preclude utility administrator participation in CEC EPIC solicitations when the CEC determined in advance that the IOUs' strategic input was not needed on a particular solicitation. This policy should remain in place and the utilities' requests for changes should not be granted.

23. The Commission should take immediate steps to open a successor rulemaking proceeding in 2019 to consider and authorize EPIC funding beyond 2020 and to review possible program design changes.

O R D E R

IT IS ORDERED that:

1. The Electric Program Investment Charge investment plan filed in Application 17-04-028 by Pacific Gas and Electric Company is approved, as modified in this decision and in Appendix C.

2. The Electric Program Investment Charge investment plan filed in Application 17-05-005 by Southern California Edison Company is approved, as modified in this decision and in Appendix C.

3. The Electric Program Investment Charge investment plan filed in Application 17-05-009 by San Diego Gas and Electric Company is approved, as modified in this decision and in Appendix C.

4. Pacific Gas and Electric Company and Southern California Edison Company shall provide the Commission's Office of Ratepayer Advocates and Commission staff additional project-specific details about their proposed Cyber Security for Industrial Control Systems project, to demonstrate that the project does not duplicate the California Energy Systems for the 21st Century project and is consistent with the technology demonstration criteria for utility EPIC projects.

5. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company shall jointly prepare and serve a Research Administration Plan as described in Section 3.3.2 of this decision.

6. Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company shall not encumber or otherwise commit to spend one-third of their 2018-2020 EPIC funding allocation until they are authorized to do so by a subsequent decision that addresses the joint Research Administration Plan application that they are directed to file by this decision.

7. The utility administrators are authorized to fund their EPIC 3 projects for a full 36 months from the effective date of this decision, rather than only through the end of 2020.

8. A Request for Proposal (RFP) process is adopted in order to select the Policy + Innovation Coordination Group (PICG) Project Coordinator. The RFP process shall be led by Commission Energy Division staff. The final bid shall be awarded by Commission decision. The winning bidder shall be awarded a contract to serve as the PICG Project Coordinator until the end of the utility administrators' three-year funding cycle.

9. Pacific Gas and Electric Company shall serve as the fiscal manager of the contract with the Policy + Innovation Coordination Group (PICG) Project Coordinator, without exercising control over the design or scope of the Coordinator's activities.

10. The CEC is authorized to grant load-serving entities (LSEs) a free license to use models and analytical tools that can inform distribution planning and decision-making

that benefits electric ratepayers. No licenses shall be granted to LSEs for any other type of developed technology.

11. The administrators shall conduct at least two workshops (in Northern California and Southern California) for the purpose of providing training about EPIC, and related technical support, to Disadvantaged Communities and interested community-based organizations. In planning the workshops, the administrators shall consult with the Disadvantaged Communities Advisory Group that was recently established by the Commission and the California Energy Commission, for input on the outreach and engagement activities to be reviewed in the workshops.

12. Application (A.) 17-04-028, A.17-05-003, A.17-05-005, and A.17-05-009 are closed.

This order is effective today.

Dated ______________________, at San Francisco, California

APPENDIX A

Appendix A: Requirements for Investment Plan Compliance with D.12-05-037, as clarified by D.13-11-025, and D.15-04-020[1]

1. Does each investment plan include an accurate and adequate mapping of the planned investments to the electricity system value chain (including grid operations/market design, generation, transmission, distribution, and demand-side management)?
2. Does each investment plan sufficiently identify the following?
   a. The amount of funds to be devoted to particular program areas (applied research and development, technology demonstration and deployment, and market facilitation);
   b. The policy justification for the proposed funding allocation;
   c. The type of funding mechanisms (grants, loans, pay-for-output, etc.) to be used for each investment area;
   d. The eligibility criteria for award of funds or set-asides in particular areas;
   e. Any suggested limitations for funding (*e.g.,* per-project, per-awardee, matching funding requirements, etc.);
   f. Other eligibility requirements (*e.g.,* technologies, approaches, program area, etc.); and
   g. A summary of stakeholder comments received during the development of the investment plan and the administrator's response to the comments?
3. Do the proposals in each investment plan offer a reasonable probability of providing electricity ratepayer benefits by promoting greater reliability, lowering costs, and increasing safety? If not, how should each investment plan be modified to best provide electricity ratepayer benefits?
4. Does each IOU investment plan include an adequate informational summary of the research, development, and demonstration activities the IOUs are undertaking as part of their approved energy efficiency and demand response portfolios?
5. Does each investment plan include reasonable and adequate metrics against which the investment plan's success may be judged, including:

[1] D.12-05-037, Ordering Paragraph 12.

a. Quantification of estimated benefits to ratepayers and to the state, such as potential energy and cost savings, job creation, economic benefits, environmental benefits, and other benefits;

b. Identification of barriers or issues resolved that prevented widespread deployment of technology or strategy;

c. Effectiveness of information dissemination;

d. Adoption of technology, strategy, and research data by others; and

e. Funding support from other entities for EPIC-funded research on technologies or strategies.

6. Does each investment plan recommend a reasonable approach to intellectual property rights for the specific types of projects and funding proposed?

7. Does each investment plan adequately address the principles articulated in Public Utilities Code (Pub. Util. Code) §§ 740.1 and 8360?[2]

8. What are the key safety and resiliency questions that should be answered in the review of the investment plans?

(END OF APPENDIX A)

[2] *See* Attachment A of the Scoping Memo for relevant text from Pub. Util. Code §§ 740.1 and 8360.

APPENDIX B

Appendix B

Summary of Commission Determinations Regarding Recommendations in Electric Program Investment Charge Evaluation Final Report

Research Areas and Recommendations: **Evergreen recommends that…**	**Adopted in PD?**	**Include in RAP?**	**Address in PICG?**	**Include in Rule-making?**
II.I Program Administration				
1a) The administrators provide more detailed justification for non-competitive bidding in their Annual Reports.	**YES**	**YES**	**NO**	**YES**
1b) The CPUC consider requiring a review of the non-competitive bidding cases before they are contracted,	**NO**	**NO**	**NO**	**YES**
1c) The CPUC require the IOUs to specify the funding amount for the non- competitive award to make it easier to assess the fraction of funding that is being directly awarded.	**YES**	**YES**	**NO**	**YES**
11.2 Investment Planning Process				
11.2.1 Administrator Investment Planning Processes				
11.2.2 Portfolio Optimization				
2a) The CPUC establish priorities among its current policy goals and funding criteria to better guide the administrators in their investment planning.	**NO**	**NO**	**Indirect**	**YES**
2b) The administrators collaborate in categorizing and summarizing projects (such as by technology type and/or policy area) and review projects by topic areas to ensure that the portfolio of projects effectively supports key policy goals.	**YES**	**YES**	**YES**	**YES**
2c) The administrators' Investment Plans are closely reviewed to ensure they not only meet program requirements, but that they are also effective in advancing the energy policy priorities that the CPUC identifies.	**NO**	**NO**	**NO**	**YES**
II.2.3 Stakeholder Engagement				

Research Areas and Recommendations: **Evergreen recommends that…**	**Adopted in PD?**	**Include in RAP?**	**Address in PICG?**	**Include in Rule-making?**
2d) The administrators engage more stakeholders earlier in the investment planning process, and	**YES**	**YES**	**NO**	**YES**
2e) The IOUs provide more comprehensive information, to allow time for more meaningful engagement.	**YES**	**YES**	**NO**	**YES**
11.3 Project Selection Process				
11.3.1 Administrator Project Selection Processes				
3a) The IOUs develop more transparent project selection criteria,	**YES**	**YES**	**NO**	**YES**
3b) The IOUs share project research plans and budgets with the CPUC and the public, at least one month prior to launch.	**YES**	**NO**	**NO**	**YES**
II.3.2 Administrator Coordination				
3c) The CPUC review the IOUs' project research plans (which we have recommended that they make public as they are developed) to ensure that there is no unnecessary duplication in their EPIC 3 projects.	**YES**	**NO**	**NO**	**NO**
II.3.3 Match Funding				
3d) The CEC consider modifying the match funding requirement for TD&D projects and make it optional.	**NO**	**YES (IOUs)**	**NO**	**YES**
II.3.4 Intellectual Property Terms				
3e) The CPUC review IP rules or guidance developed for the Department of Energy's Small Business Innovation Research (SBIR) Program to explore possible opportunities for easing IP requirements. Regardless of the outcome of any such efforts, the CPUC should ensure that IP requirements are communicated effectively.	**NO**	**NO**	**NO**	**YES**
II.3.5 Flexibility				

Research Areas and Recommendations: Evergreen recommends that…	**Adopted in PD?**	**Include in RAP?**	**Address in PICG?**	**Include in Rule-making?**
3f) The administrators should use the Advice Letter process only for requesting substantive changes to projects or adding new projects that are not covered by one of the existing general descriptions in their Investment Plans.	**YES**	**NO**	**NO**	**YES**
3g) The CEC explore how and whether it could add more flexibility to its grant request forms and/or research planning process to be able to respond to market and technology changes that occur between the time the project is proposed and the project is launched.	**YES**	**NO**	**NO**	**YES**
11.4 Project Assessment Process **11.4.1 Project Status Reports**				
4a) The administrators share information while projects are in progress with the CPUC and the public on a more frequent basis, such as quarterly. The administrators should collaborate in categorizing and summarizing projects, as previously recommended (2b), (such as by technology type and/or policy area) so that interested parties can more easily obtain pertinent information on a given topic area.	**YES**	**NO**	**YES**	**YES**
4b) The administrators collaborate and jointly convene a quarterly workshop to share results about project status and lessons to-date on a topical basis, with engagement from stakeholders on topics that are of interest.	**YES**	**NO**	**YES**	**YES**
11.4.2 Benefits Quantification				
4c) The IOUs develop more detailed processes to quantify benefits associated with their projects, including what types of data would be necessary and how they will collect these data, as well as a reporting structure and process that would document and report those benefits to all relevant stakeholders.	**YES**	**YES**	**NO**	**YES**

Research Areas and Recommendations: Evergreen recommends that…	**Adopted in PD?**	**Include in RAP?**	**Address in PICG?**	**Include in Rule-making?**
4d) The administrators develop a process to jointly report on EPIC's short-, mid- and long-term project benefits across the portfolio on a routine basis (e.g., annually) to the CPUC, relevant stakeholders and the general public.	**YES**	**NO**	**YES**	**YES**
11.4.3 Results Dissemination				
4e) The CEC's project benefits quantification processes be reviewed again once more projects are completed.	**YES**	**NO**	**NO**	**YES**
4f) SCE share its project results more widely with interested stakeholders, including delivering presentations at conferences and workshops.	**YES**	**YES**	**YES**	**YES**
4g) SDG&E's project closeout reports be reviewed once projects are completed to ensure results are being widely disseminated.	**YES**	**NO**	**YES**	**YES**
4h) The administrators jointly develop a single EPIC website and listserv to post and distribute project information	**YES**	**NO**	**YES**	**YES**
11.4.4 Project Networks (No Recommendations)				
II.5 Project Impacts and Policy Alignment				
5a) The CPUC consider using our characterization of the EPIC portfolio in terms of the types of technologies and studies and their commercialization status as baselines against which to compare future iterations of EPIC.	**YES**	**NO**	**NO**	**YES**
5b) The CPUC regularly evaluate EPIC to confirm that the CEC is ensuring the Market Facilitation projects are effectively connected to and serving the needs of the Applied R&D and TD&D projects.	**YES**	**NO**	**NO**	**YES**
5c) EPIC administrators establish a process to ensure that once Applied R&D projects are completed by the CEC, the results are considered and potential TD&D projects are identified.	**YES**	**YES**	**NO**	**YES**
II.6 Overarching Coordination and Collaboration				

Research Areas and Recommendations: **Evergreen recommends that…**	**Adopted in PD?**	**Include in RAP?**	**Address in PICG?**	**Include in Rule-making?**
6a) The CPUC and/or the administrators fund and convene an independent body to coordinate, facilitate and lend technical expertise.	**YES**	**NO**	**YES**	**NO**
11.7 On-Going Program Evaluation				
7a) Using the theory-driven framework developed for this evaluation, monitor and report key performance metrics on an on-going basis and conduct a comprehensive evaluation every three to four years. All of these evaluation activities should be conducted by an independent evaluator in close collaboration with the four administrators to avoid any duplication of efforts and to ensure that the results will be useful to all stakeholders (e.g., the CPUC, state legislators, and the four administrators and other stakeholders).	**NO**	**NO**	**NO**	**YES**
7b) The administrators create a single, centralized database containing all relevant information on active and completed EPIC projects along with monitoring and quarterly reporting of key performance metrics, in order to support the on-going evaluation of the Program.	**YES**	**YES**	**YES**	**YES**
7c) Modify (and continually update as needed) the characterization of the Program to more accurately reflect its complexity.	**YES**	**NO**	**NO**	**YES**
7d) Modify (and continually update as needed) the EPIC program theory and logic models to better reflect the more complex character of the Program.	**YES**	**NO**	**NO**	**YES**
7e) Revisit the key performance metrics that should be tracked and the frequency with which they should be tracked and reported.	**YES**	**NO**	**NO**	**YES**

(END OF APPENDIX B)

APPENDIX C

Appendix C: Modifications/Requirements to Specific Projects and Initiatives

Administrator and Project ID	Project/Initiative Title	Commission Modifications, Requirements, and Direction
PG&E 3.09	Dynamic Near-Term DER Load Forecasting	The scope of this project should consider how smart inverters can mitigate grid issues, and measure the potential value of this mitigation. (and could be reflected in locational net benefits analysis and/or IDER compensation)
PG&E 3.10	Grid of the Future Scenario Engine	This project should examine a "high EV adoption/electrification" scenario in order to determine an optimal portfolio of DERs. This work should be coordinated with the DRP proceeding, and harmonized with the DRP proceeding's forthcoming scoping ruling on performing policy scenario analysis.
PG&E 3.11	Location-Specific Options for Reliability and/or Resilience Upgrades	This project should research how to quantify the grid-facing value of DERs' contribution to reliability and resiliency, such that these values can be reflected in locational net benefits analysis, and to solicit DERs to provide reliability/resiliency services as part of the Distribution Investment Deferral Framework (in lieu of traditional investments that would provide these services)
PG&E 3.12	Advanced Volt/Var Optimization (VVO) Functionalities	PG&E should coordinate with SCE to ensure that 3.12 and SCE 23 are complementary and not duplicative.
PG&E 3.28	Real-Time Load-Based Charging	This project should consider how to utilize ICA data to help formulate its smart-charging algorithm; and how this project's results will inform distribution operations, EV/DER dispatch, and/or EV charging rates.
PG&E 3.31	Real Time DER Rates	This project should consider how the results from this project can inform how value is expressed in LNBA -- e.g., can we move to a new modeling platform (beyond a spreadsheet) where locational value is determined way more frequently than annually (near real-time perhaps, and outside of the distribution planning process?) -- as well as exploring how real-time value calculations can translate into DER rates/tariffs under development in IDER

Administrator and Project ID	Project/Initiative Title	Commission Modifications, Requirements, and Direction
PG&E 3.42	(Revised from Project 2.32): Electric Load Management for Ridesharing Electrification	This project should also consider how forecasts of DC fast charging EVSE installations can quickly/efficiently get baked into distribution load forecasts, inform the distribution planning process, and drive distribution deferral opportunities through the Distribution Investment Deferral Framework
SCE 14	Beyond the Meter Phase 2	According to a data response by SCE, Phase 1 of this project is currently being re-scoped. Due to the additional time needed to complete Phase 1, SCE has stated that it may cancel Beyond the Meter Phase II (on its own). SCE should not continue this project without successfully completing Phase 1.
SCE 17	Distributed Plug-in Electric Vehicle Charging Resources	SCE should directly coordinate the technical scoping of this project with the other administrators to avoid overlap with their related EV projects.
SCE 23	Power System Voltage and Var Control Under High Renewables Penetration	ED Staff requests more information on this project before initiation, to provide a better understanding of the specific technologies/use cases to be tested. SCE shall coordinate with ED staff leads for grid integration and modernization to share project scoping information before the project is initiated, as well as after the project is launched.

(END OF APPENDIX C)