BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Joint Application Of Southern California Edison Company (U 338 E), Pacific Gas And Electric Company (U 39-E), And San Diego Gas & Electric Company (U 902-E) For Approval Of The Research Administration Plan For The Electric Program Investment Charge.	Application 19-04-XXX

JOINT APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E), PACIFIC GAS AND ELECTRIC COMPANY (U 39-E), AND SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) FOR APPROVAL OF THE RESEARCH ADMINISTRATION PLAN FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE

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Dated: **April 23, 2019**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Joint Application Of Southern California Edison Company (U 338 E), Pacific Gas And Electric Company (U 39-E), And San Diego Gas & Electric Company (U 902-E) For Approval Of The Research Administration Plan For The Electric Program Investment Charge.	Application 19-04-XXX

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In Ordering Paragraph 5 of Decision 18-10-025, the California Public Utilities Commission (Commission) ordered Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) to jointly prepare and serve a Research Administration Plan (RAP) as described in Section 3.3.2 and Appendix B of this decision. The CPUC requires the RAP Application to be filed 180 days from the effective date of the decision.[1]

[1] D.18-10-025 at pp. 41 and 154.

In compliance with the Ordering Paragraph of D.18-10-025, SCE respectfully submits the joint Utilities' RAP Application. The RAP addresses the issues described in Section 3.3.2 and Appendix B, of D.18-10-025.

Respectfully submitted,

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PACIFIC GAS AND ELECTRIC COMPANY

/s/ Christopher J. Warner
By: Christopher J. Warner

SAN DIEGO GAS & ELECTRIC COMPANY

/s/ Stacy Van Goor
By: Stacy Van Goor

April 23, 2019

VERIFICATION

I am a Senior Vice President in the Transmission and Distribution Organization of Southern California Edison Company and am authorized to make this verification on its behalf. I have read the foregoing **JOINT APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338 E), PACIFIC GAS AND ELECTRIC COMPANY (U 39-E), AND SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) FOR APPROVAL OF THE RESEARCH ADMINISTRATION PLAN FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE.** I am informed and believe that the matters stated in the foregoing pleading are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this **23rd day of April, 2019**, at Pomona, California.

/s/ Philip R. Herrington

By: Philip R. Herrington

SOUTHERN CALIFORNIA EDISON COMPANY

VERIFICATION

I, the undersigned, say:

I am an officer of Pacific Gas and Electric Company, a corporation, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 23, 2019, at San Francisco, California.

/s/ *Robert Kenney*

Robert Kenney
Vice President, Regulatory Affairs

VERIFICATION

I am Director of Growth and Technology Integration for San Diego Gas & Electric Company and am authorized to make this verification on its behalf. I have read the foregoing **JOINT APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338 E), PACIFIC GAS AND ELECTRIC COMPANY (U 39-E), AND SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) FOR APPROVAL OF THE RESEARCH ADMINISTRATION PLAN FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE.** I am informed and believe that the matters stated in the foregoing pleading are true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this **23rd day of April, 2019**, at San Diego, California.

/s/ Miguel Romero

By: Miguel Romero

SAN DIEGO GAS & ELECTRIC COMPANY

JOINT APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E),

PACIFIC GAS AND ELECTRIC COMPANY (U 39-E),

AND SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E)

FOR APPROVAL OF THE RESEARCH ADMINISTRATION PLAN FOR THE

ELECTRIC PROGRAM INVESTMENT CHARGE

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I. INTRODUCTION

Southern California Edison Company ("SCE"), Pacific Gas and Electric Company ("PG&E"), and San Diego Gas & Electric Company ("SDG&E") (collectively, "Utilities") respectfully submit this joint application requesting approval of its Research Administration Plan ("RAP") for the Electric Program Investment Charge ("EPIC"). In the California Public Utilities Commission's ("Commission") EPIC III approval Decision ("D.") 18-10-052, the Commission requires that the Utilities jointly prepare and serve a RAP application as described in Section 3.3.2 of this decision.[1] The Utilities file this application in compliance with D.18-10-052.

II. BACKGROUND

When the Commission created the EPIC requirements in its EPIC Phase II decision,[2] the Commission determined an independent evaluation of the EPIC program should be conducted in 2016.[3] The Commission staff selected Evergreen Economics ("Evergreen") to conduct the evaluation; Evergreen distributed its Evaluation on September 8, 2017.[4] 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 several follow-up questions. Parties filed and served comments and reply comments on the Evaluation, in response to the additional questions posed by Commission staff.[5] The Commission's subsequent Scoping Memo determined the consultants' findings and

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1 D.18-10-052, Ordering Paragraph 5.

2 D.12-05-037.

3 D.12-05-037, Finding of Fact 12.

4 Electric Program Investment Charge Evaluation Final Report, September 8, 2017

5 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.

recommendations would be addressed in D.18-10-052, "including whether any findings should be applied retrospectively to any unawarded or unspent funds."[6]

The overall objective of the study was to "conduct a comprehensive evaluation of EPIC to identify opportunities to improve program management and effectiveness."[7] As directed by Commission staff, Evergreen focused the Evaluation on EPIC's core values:

- Providing benefits to ratepayer of the electric investor-owned utilities
- Advancing energy innovation
- 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:

- Program Management and Administration
- Investment Planning Process
- Project Selection Process
- Project Assessment Process
- Policy Alignment and Project Impacts

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-term 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. The Commission's review of Evergreen's evaluation in D.18-10-052 notes two key findings at the outset: 1) the Administrators are in compliance with the letter of EPIC program requirements, but could better fulfill the spirit of some requirements; and 2) the Utilities, while technically in compliance with program requirements, could improve upon information sharing and stakeholder engagement. As a result, the Commission ordered the Utilities to prepare and serve a joint application containing a RAP that identifies changes the Utilities will make to their EPIC administrative processes in response to specific Evergreen recommendations.[8] The Commission requires the joint Utilities to file the RAP Application 180 days from the effective date of this decision.[9]

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6 D.18-10-052, p. 42.

7 Evergreen Evaluation at 3-1.

8 D.18-10-052, Appendix B *"Summary of Commission Determinations Regarding Recommendations in Electric Program Investment Charge Evaluation Final Report"*

9 D.18-10-052, at pp. 41 and 154; cross reference: Footnote 1.

III. ENGAGEMENT & COLLABORATION

During the planning of the RAP application, the Utilities engaged extensively with the California Energy Commission ("CEC"), peer Research and Development ("R&D") groups, disadvantaged community ("DAC") groups and other interested stakeholders through a total of 13 stakeholder engagement sessions. Furthermore, the Utilities extensively collaborated to incorporate feedback and collectively agree on a unified approach during the RAP planning period.

To solicit CEC input, the Utilities meet with the CEC on a bi-weekly basis to discuss programmatic issues and regularly attend CEC Workshops (e.g., Chief Auditor's EPIC Best Practices Workshop[10]). The Utilities and the CEC agreed a series of meetings would be the most advantageous approach for coordinating the RAP. In addition to the bi-weekly meetings, the Utilities held a kick-off meeting with the CEC on March 5, 2019 and discussed best practices already in use by the CEC and those elements directed in D.18-10-052 to be developed jointly with the CEC's input. Feedback from this meeting was incorporated into the Utilities responses to the evaluation's various recommendations. The Utilities also met with the CEC on April 9, 2019, and established consensus among the four Administrators on how to address recommendations in the areas of Portfolio Optimization and On-Going Program Evaluation.

To solicit stakeholder input, the Utilities provided a broad overview of the RAP with interested stakeholders on February 19, 2019, during a breakout session at the EPIC Symposium.[11] The Utilities also held a second RAP workshop on April 2, 2019 with interested stakeholders at SCE's Grid Technology facility located in a DAC within Westminster, California. The workshop's purpose was to review the Utilities' RAP application, and to solicit input from workshop participants. Topics discussed at the workshop included: 1) Utilities' proposals to modify EPIC program administration in response to specific Evergreen recommendations outlined in (D.) 18-10-052; and 2) Utility-specific modifications to 2018-2020 Investment Plans. During the Utilities second RAP workshop, a question arose from an interested stakeholder (University of California at Los Angeles, Luskin Policy School ("UCLA")), regarding the potential applicability of using their logic model for quantifying DAC benefits for EPIC demonstration projects. The Utilities followed up with UCLA in a conference call on April 10, 2019 to learn more about the logic model.

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[10] The CEC Chief Auditor held an EPIC Best Practices Workshop on February 7, 2019 to discuss common EPIC audit findings and best practices to avoid audit findings.

[11] Meeting minutes from the 2019 EPIC Symposium breakout session found at Appendix A.

The Utilities and UCLA determined there is potential applicability for the EPIC Program and UCLA agreed to provide additional model details. The Utilities look forward to receiving greater details from UCLA on the logic model. Once received, the Utilities will be better able to determine applicability and the need for follow-up meetings.

To solicit peer R&D groups' input, the Utilities held a targeted pre-technical joint webinar on March 26, 2019. The purpose of the webinar was to gather best practices from the peer R&D groups and determine applicability for the Utilities' EPIC administration. Feedback from the webinar was incorporated into the Utilities' responses to the evaluation's various recommendations.[12] The peer R&D groups that attended include:

- DOE Small Business Technology Transfer Program;
- California Energy Commission;
- Electric Power Research Institute;
- Lawrence Livermore National Laboratory; and
- UC Energy Institute.

One of the prevalent themes in the webinar with these peer R&D groups was the use of Technical Advisory Committees ("TACs") comprised of both internal and external Subject Matter Experts ("SMEs"). Many peer R&D groups make use of TACs, even at the individual project level, and representatives provided feedback that these TACs generally add significant value. These TACs can help coordinate project selection and formation of joint activities among the EPIC Administrators. TAC composition should include expertise in the relevant areas from the Administrators' staff and select external advisors. The Utilities see value in this approach for collaborative demonstrations that require additional coordination, given the increased number of participating entities. The Utilities will facilitate collaboration between these TACs and the Policy + Innovation Coordination Group ("PICG"), which will be responsible creating an environment for coordination between the Commission's energy policy and planning needs, and the energy R&D supported by EPIC funding. The TACs and PICG can help to identify and validate specific areas where immediate investment in technology demonstrations may be needed. The Utilities will facilitate collaboration between these TACs and the Policy + Innovation Coordination Group ("PICG"), which will be responsible creating an environment for coordination between the

[12] *See* Appendix A for Webinar Meeting Minutes.

Commission's energy policy and planning needs, and the energy R&D supported by EPIC funding. The TACs and PICG can help to identify and validate specific areas where immediate investment in technology demonstrations may be needed.

To solicit DAC groups' feedback, the Utilities held seven individual outreach discussions from April 15-17. Participating DAC groups that provided feedback on the Utilities' draft RAP Application[13] include:

- Blue Lake Rancheria;
- Pacoima Beautiful;
- Rising Sun;
- Central California Asthma Collaborative;
- Leadership Counsel for Justice and Accountability;
- Greenlining Institute; and
- Natural Resources Defense Council.

During these discussions the Utilities went over the RAP background, as well as the Utilities' Proposals for the Evaluation's recommendations and gathered feedback. The Utilities learned a great deal from the feedback received from the DAC groups, especially in the areas of stakeholder engagement,[14] portfolio optimization (utility project matrix),[15] on-going program evaluation (centralized database),[16] and results dissemination.[17] The Utilities also asked the DAC groups what emerging technologies were of particular interest to them. DAC groups identified a combination of commercially available solutions and emerging technologies including DER integration, building energy efficiency, demand response, microgrids, electrification of ridesharing, and offshore wind generation. The Utilities will leverage this feedback as they continue to assess opportunities to support DACs through the Technology Demonstration and Deployment ("TD&D") program area.

The Utilities met at least weekly to incorporate feedback and collaborate on unified responses for each of the Evaluation's recommendations, recognizing that implementation may vary by Utility needs. For example, for direct awards the Utilities agree that providing a consistent

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13 *See* Appendix A for DAC Meeting Summaries.
14 Recommendations 2D & 2E, additional details see p. 12.
15 Recommendation 2B, additional details see p. 11.
16 Recommendation 7B, additional details see p. 27.
17 Recommendation 4F, additional details see p. 26.

level of information would help clarify the use of non-competitive awards. The Utilities plan to have similar processes to comply and provide this information in future Annual Reports. The Utilities also identified an opportunity to further build on the project comparison matrix jointly developed among the Administrators during the EPIC III investment planning, which served to ensure non-duplication. The Utilities and CEC have agreed to enhance this matrix by adding the mapping of projects to technology categories, and by refreshing the mapping of projects to policies and CPUC proceedings. The Administrators also propose that the planned enhanced version of the existing project comparison matrix could provide part of the foundation for the single, centralized administrator database.

To further engage stakeholders at future EPIC public forums, which consist of the annual Symposium co-hosted by the CEC and the Utilities and the fall public engagement (webinar/workshop), the Utilities plan to incorporate DAC feedback received during the RAP planning process. Important recurring themes in the DAC feedback received include the following recommendations:

- Use less technical language;
- Provide imagery to help explain concepts;
- Conduct targeted outreach with individual community-based organizations ("CBOs");
- Boil down the value for each organization the Utilities engage;
- Provide handouts to augment slide presentations; and
- Partner with CBOs for workshops to facilitate DAC outreach and communications.

The format of these public engagements may be different, given that the internal project selection/prioritization process details vary by Utility needs.

The Utilities also plan to continue using their respective processes and criteria matrices to facilitate project selection and will share project research plans and budgets with the Commission and public at least one months prior to launch. Furthermore, the Utilities plan to continue to create detailed business plans, which articulate the project's value proposition, scope, project success metrics, benefits metrics, the ultimate path to production if successful, and key impacted project stakeholders.

The Utilities also plan to seek increased match funding to provide further benefits to ratepayers. Once projects are selected, all the Utilities plan to update their respective contracting

processes to explicitly consider cost sharing to further encourage contributions from EPIC vendors. Project match funding would be tracked in subsequent Annual Reports.

The Utilities agree to begin quantifying and reporting on projected benefits as well as benefits realized during demonstration through their project Final Reports and EPIC Annual Reports. The Utilities have also aligned with the CEC on a set of nine categories to use for the consistent mapping and reporting of benefits, which will support the establishment of a joint EPIC database. The Utilities recognize specific potential project benefits vary depending on the demonstration being executed.

The Utilities also intend to more broadly disseminate results of demonstrations with interested stakeholders. In particular, the Utilities plan to incorporate feedback received from DACs during the RAP planning process to improve and enhance results dissemination. Key themes in the DAC feedback include the following recommendations:

- Create an accessible internet-based single database of all the Administrators EPIC projects;
- Hold EPIC public workshops in DAC communities; and
- Leverage social media.

The Utilities have worked with the CEC to create a process to better align applied R&D results with potential utility demonstrations. The Administrators have agreed to conduct alignment meetings monthly, with each meeting focusing on opportunities in a specific topic area. The Administrators have developed a prioritized set of topics to be assigned to the individual meeting instances.

The Utilities have also worked with the CEC to establish a consensus recommendation on the set of information to be included in the joint administrator project database. While the Utilities currently make the Final Reports of closed projects available through their respective EPIC websites, the Utilities look forward to helping provide stakeholders with one consolidated view of project information. The Administrators' proposed enhancements to the existing project comparison matrix will help provide the foundation for the database. In addition, the project-level data elements currently shared through the CEC's Innovation Showcase will be included in the database for each Administrator's projects. In collaboration with the CEC, the Utilities have also identified a set of additional recommended data elements for the database, in the areas of financial reporting and benefits tracking. In addition, the Utilities plan to incorporate feedback received from

DAC groups during the RAP planning process into the design of the future joint administrator database. Important themes from DAC feedback received include the following recommendations:

- The database needs to be easily accessible on whichever website the database is housed;
- The database title needs to clearly describe the link to EPIC, so that internet search results bring up the website/database as a top entry;
- Final project reports need to be easily accessible on the database; and
- Add to the database/website upcoming events/engagement opportunities.

IV. RESEARCH ADMINISTRATION PLAN OVERVIEW

In accordance with D.18-10-052, the Utilities structured the RAP application into two sections. The first section pertains to EPIC Evaluation recommendations. In this section each Utility provides its response to the Evaluation and details the steps it is taking or proposes to take to modify program administration to implement the Evaluation's recommendation, as appropriate. In developing respective responses, the Utilities aimed to efficiently address the intent of the recommendations, while ensuring that the resources required to administer their respective programs would not exceed EPIC's 10% administrative expenditure cap. In addition to identifying changes in response to each recommendation, the Utilities have also described relevant administrative practices currently in place, which include improvements already made since 2017 in response to the EPIC Evaluation. The Utilities have provided joint responses to Recommendations 2b, 5c & 7b, as these recommendations inherently necessitated a consensus approach among the Utilities and CEC. For the remaining recommendations, the Utilities have provided separate responses, since although their responses are closely aligned, there are elements specific to each Utility, due to differences in Utility processes and practices. The second section pertains to Utility-specific modifications to 2018-2020 Investment Plans. In this section each Utility identifies any proposals included in its May 1, 2017 application that the Utility believes should be modified or withdrawn/replaced. For modifications, each Utility explains how the modifications were developed in a manner consistent with the intent of the Evaluation recommendations adopted in D.18-10-052. For any replacement proposals, each Utility explains why there is a necessity to withdrawal and how the replacement proposal was developed in a manner consistent with the intent of the Evaluation recommendations adopted in D.18-10-052.

V. UTILITY RESPONSES TO EVERGREEN RECOMMENDATIONS

PROGRAM ADMINISTRATION: RECOMMENDATION 1A

"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."

SUMMARY OF UTILITY RESPONSES:

Competitive bidding is the Utilities' standard method for EPIC contracting. Moving forward, the Utilities will include justification for all directly-awarded contracts in their EPIC Annual Reports.

SCE RESPONSE:

As part of its standard procurement practices, SCE favors having vendors compete for the provision of goods and services. This generally provides SCE and its customers with energy and cost savings, job creation, economic benefits, environmental benefits, safety, power quality, and reliability benefits. However, under certain circumstances, SCE will directly award contracts for goods and services (e.g., the continuation of funding for successful projects). Nonetheless, in all cases, exceptions to competitive bidding must be justified and clearly for a specific purpose. For direct awards exceeding $100,000, project teams must describe the goods and/or services proposed to be procured and justification for not pursuing a competitive solicitation. SCE notes the Utilities do provide information on competitive solicitations and non-competitive awards in the Annual Report, as part of the projects status spreadsheet. To facilitate further CPUC oversight and stakeholder awareness, SCE will provide a summary-level discussion of its annual direct awards, the types of work directly awarded, the reasons for the awards, and total amount in the Executive Summary section of its Annual Report. The Utilities also plan to update the project section template within the Annual Report to include a project's direct awards. SCE's Direct Award Request Form is included in Appendix B for reference.

PG&E RESPONSE:

While PG&E's EPIC program is conducted primary with internal resources, contracts are executed for specific components as needed. Competitive bidding is PG&E's preferred method for awarding EPIC contracts. PG&E already employs an internal process for the proposal and approval of non-competitive awards. As part of this process, EPIC teams must complete a Direct Award Request Form for any proposed direct awards associated with their projects. Teams must both describe the goods or services and clearly describe their justification for awarding directly as opposed to competitively bidding the work. This form is included as part of the contract review & approval routing process in PG&E's sourcing system, which includes PG&E's sourcing team, the EPIC team, the project sponsor and other impacted stakeholders. PG&E will begin including this justification for all directly-awarded contracts in its EPIC Annual Reports. PG&E's Direct Award Request Form is included in Appendix B for reference. While overarching company guidance is now to fill out this form for any proposed direct award of $250,000 or greater, the EPIC program has continued to apply this process more stringently.

SDG&E RESPONSE:

SDG&E employs its internal-procurement processes to select contractors to join project teams for its EPIC projects. Project teams develop the project plan in terms of task descriptions, schedule, budget, and resource requirements. Contractors are procured when additional resources are needed. The normal process for contractor selection is by competitive procurement. The project team prepares a request for proposal or alternative procurement tool. Proposals are read, scored, and a bidder is selected for negotiation of the contract. Depending on the budget and schedule, at times contacts are sole-sourced (awarded without competitive procurement), when the needed resource is unique or when the cost of competition is not justifiable due to the small size of the contract envisioned. SDG&E follows its own procurement rules for internally justifying and getting approval of sole-sourced contracts.

PROGRAM ADMINISTRATION: RECOMMENDATION 1C

"1c) The CPUC should require the Utilities to specify the funding amount for the noncompetitive award to make it easier to assess the fraction of funding that is being

directly awarded. Such information would be useful to determine how much project funding is being directly awarded versus competitively bid."

SUMMARY OF UTILITY RESPONSES:

In addition to providing justification for all directly-awarded contracts in their EPIC Annual Reports, the Utilities will also provide both summary and project-level information on the amount and proportion of funds that have been directly awarded.

SCE RESPONSE:

As noted in response to Recommendation 1A, SCE already provides information on competitive solicitations and non-competitive awards in the Annual Report, as part of the projects spreadsheet. Additionally, the Utilities plan to provide a summary-level amount, which would satisfy Recommendation 1C. SCE intends to provide the direct award amount, as part of the projects section of the Annual Report. Appendix C also provides this information for all direct awards that SCE has made for EPIC III, as required by Decision 18-10-052.

PG&E RESPONSE:

In addition to providing detailed justification for every case of non-competitive bidding, as noted in PG&E's response to Recommendation 1a, PG&E will also provide funding breakdowns for all competitively and non-competitively directed funding in its Annual Reports moving forward, to make clear the fraction of funding that is being directly awarded. At the time of this filing, PG&E has not directly awarded any contracts for EPIC III.

SDG&E RESPONSE:

SDG&E provides information on non-competitive awards in its annual report. At the time of this filing, SDG&E has not pursued any non-competitive project contractor procurements for EPIC III. A breakdown of competitive and non-competitive contractor funding will be included in future annual reports.

PORTFOLIO OPTIMIZATION: RECOMMENDATION 2B

"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."

JOINT UTILITY RESPONSE:

The Utilities support the Evaluation's recommendation to collectively improve the optimization of the EPIC portfolios to show clear prioritization of technologies and energy policies. The project comparison matrix jointly developed among the Administrators during the EPIC III investment planning process served to ensure non-duplication among the set of investments and mapped each investment to the applicable policy areas and CPUC proceedings. The Utilities acknowledge the opportunity to further build upon and update the project comparison matrix. The Utilities have collaborated with the CEC to identify enhancements to the matrix, and the Administrators collectively propose to update this matrix's mapping of investments to energy policy areas and CPUC proceedings, as well as add the mapping of investments to technology types. The Utilities and the CEC coordinated so the technology type categories added to the matrix align with the following search categories in the CEC's Energy Innovation Showcase.[18]

- Combined Heat and Power
- Demand Response
- Energy Efficiency
- Environmental and Climate Change Research
- Market Acceleration
- Public Health and Safety
- Renewable Energy
- Smart Grid
- Storage
- Transportation

[18] CEC's Energy Innovation Showcase: http://innovation.energy.ca.gov/SearchResults.aspx?cat=Program&subj=EPIC.

This enhanced version of the existing project comparison matrix would provide part of the foundation for the single, centralized administrator database defined in Recommendation 7b. It also relates to Recommendation 5c, in that a robust matrix of all the Administrators' projects and initiatives with filtering and sorting capabilities would support the identification of specific opportunities for greater alignment and targeted collaboration among the Administrators.

While the existing project comparison matrix was developed during EPIC III investment planning, it should be noted that the Administrators have continued to maintain regular collaboration since the investment planning cycle. The Utilities conduct standing bi-weekly coordination meetings amongst themselves and conduct separate bi-weekly coordination meetings with the CEC. The Utilities also regularly participates in various CEC workshops to support planning of CEC projects and ensure alignment with ongoing and planned Utility EPIC projects.

STAKEHOLDER ENGAGEMENT: RECOMMENDATIONS 2D & 2E

> *"2d) the administrators should engage more stakeholders earlier in the investment planning process; and 2e) The Utilities should provide more comprehensive information, to allow time for more meaningful engagement"*

SUMMARY OF UTILITY RESPONSES:

As Recommendation 2d pertains to investment planning, and EPIC's third and final investment planning cycle has concluded, the Utilities agree with the Commission that this recommendation would most appropriately implemented at the outset of a future investment cycle. With respect to Recommendation 2e, The Utilities will engage with EPIC stakeholders for their input before any subsequent sets of EPIC III projects are initiated. The Utilities will also leverage the valuable feedback received from DAC representatives during the RAP planning process to improve the attendance and participation in future EPIC stakeholder engagements.

SCE RESPONSE:

SCE supports the Evaluation's Recommendation 2d to engage stakeholders earlier in the investment planning process and provide more comprehensive information to foster greater and meaningful engagement. However, SCE also agrees with the Commission that "these recommendations [*2d, 2e, 3a and 3b*] 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."[19] SCE notes that since this is the third and final triennial EPIC investment cycle, Recommendation 2d would be most appropriately addressed in a future rulemaking.

The Utilities currently provide information on projects and plans between the Investment Application and Annual Report through EPIC Workshops and the annual Symposium. Additionally, SCE provides presentations on project results at conferences, writes white papers and contributes to industry standards development. In the near term to further support stakeholder engagement and improve the transparency of SCE's EPIC III Portfolio implementation SCE proposes an additional engagement channel.

SCE proposes to hold a webinar, prior to a batch of projects being launched. SCE anticipates starting a batch (consisting of 1-3) projects around the same time. SCE would take a similar approach as the CEC and host a public engagement that provides interested stakeholders with a presentation on detailed project plans for each of the projects being launched. These public forums would provide stakeholders with comprehensive EPIC project information earlier in the planning process and allow interactive community feedback. SCE recognizes the importance of raising local community awareness of EPIC demonstrations. In order to further drive engagement with key stakeholders, SCE plans to not only conduct outreach earlier, but also target relevant Commission proceeding service lists. Furthermore, SCE plans to also specifically conduct greater community outreach targeted toward local DACs and potentially partner directly with CBOs to co-host future EPIC public engagements.

PG&E RESPONSE:

Decision 18-10-052 endorses each of Evergreen's Recommendations 2d, 2e, 3a and 3b but acknowledges that "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 RAP that identifies the changes they will make to

[19] D.18-10-052, p. 39.

their administrative processes in response to each of Evergreen's recommendations, and how those changes will address the shortfalls identified by Evergreen."

Recommendation 2d in particular would be most appropriately addressed during future rulemaking, as it specifically recommends that the Administrators should engage more stakeholders earlier in the investment planning process, and there will be no subsequent investment planning cycles before the conclusion of the EPIC program. However, PG&E acknowledges the opportunity to make improvements related to transparency and stakeholder engagement in the near term that will benefit the execution of the EPIC III investment cycle, and as such has identified improvements below related to Recommendations 2e, 3a and 3b.

Regarding Recommendation 2e, the Evergreen Evaluation offers the perspective that once EPIC investment plans are approved, little information is shared with the public until the projects are described in the Utilities Annual Reports. While PG&E does share updates on in-flight projects and plans for upcoming projects between investment planning and annual reporting, such as through EPIC workshops and symposiums, participation and presentation at conferences, and press releases, PG&E is committed to building up additional channels for engagement. PG&E has defined its first wave of planned EPIC III projects, and upon receiving Decision 18-10-052 has begun to launch this first wave of projects. Pending CPUC approval of the RAP, and approval for Utilities to spend the remaining one-third of their EPIC III funds, PG&E will plan to launch a second wave of EPIC III projects. Prior to this launch, PG&E will facilitate a public workshop with EPIC stakeholders to gather input on the proposed projects that will inform the details of their scoping prior to launch.

PG&E also recognizes the opportunity to continue to increase attendance and participation in the EPIC workshops and other stakeholder engagements it hosts. Moving forward, PG&E will leverage the valuable feedback received from DAC representatives during the RAP planning process. Examples of planned changes include coordinating with stakeholders further in advance, conducting more targeted outreach with individual stakeholder groups, better tailoring the message by stakeholder group and potentially partnering directly with CBOs to co-host engagements.

These additions build on changes PG&E has already made in response to the Evaluation, such as the increased focus on external communication included for reference in Appendix E is a list of external EPIC communications released by PG&E in 2018.

SDG&E RESPONSE:

The engagement processes used in the past have included the required public workshops and interface with industry organizations such as EPRI to align with work being done elsewhere and avoid duplication. Additional work will be done to coordinate with peer R&D organizations to increase engagement. This has already begun during the preparation of this RAP. As noted in Decision 18-10-052, these recommendations will have a greater impact on future investments (beyond the EPIC III cycle). However, SDG&E will work with the other Utilities to achieve improvements in stakeholder engagement in the remainder of EPIC III to the extent possible.

Regarding Recommendation 2e, SDG&E has provided comprehensive final reports on all past EPIC projects. Capturing the knowledge created by the projects in comprehensive final reports is essential to avoid loss of knowledge and to facilitate tech transfer of the results to the users/stakeholders. These reports are the primary tool for technology transfer of the knowledge created in the projects to the broad stakeholder community within the industry. SDG&E has also made presentations at major technical conferences, both during and at the end of projects. SDG&E will work with the other Administrators to provide more information on project work while the projects are in flight. This effort must take care to provide useful information to stakeholders during the demonstration activities, while not releasing preliminary results which have not yet been validated. The results analysis happens in the latter stages of the projects, when there are demonstration results to evaluate.

PROJECT SELECTION PROCESS: RECOMMENDATIONS 3A & 3B

> *"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."*
>
> "*3b) the utilities should share project research plans and budgets with the Commission and the public, at least one month prior to launch."*

SUMMARY OF UTILITY RESPONSES:

In response to Recommendation 3a, the Utilities have provided descriptions of their respective project selection processes and criteria. In response to Recommendation 3b, the Utilities will share project research plans and budgets with the Commission and public at least one month prior to launch. The Utilities will collaborate to develop a standard template for the sharing of plans and budgets.

SCE RESPONSE:

Regarding Recommendation 3a, SCE follows a rigorous and disciplined portfolio management governance process throughout the EPIC cycle. When constructing an EPIC Investment Plan, SCE begins by reviewing near-, medium-, and long-term grid challenges to help define its strategic priorities. Based on these priorities, SCE's subject matter experts develop proposals for potential projects for the EPIC Investment Plan. These proposals are screened to ensure alignment with EPIC's guiding principles and investment planning framework, and to assess their potential to create benefits. SCE also collaborates with the other EPIC Administrators to avoid any duplication with their respective proposals. SCE then constructs a balanced investment plan that supports EPIC's guiding principles and SCE's business needs. Once the investment plan is approved by the Commission, SCE then validates and refines the project portfolio based on Commission feedback, shifts in the market or regulatory landscape, and strategic priorities that may have changed since the EPIC Investment Plan was filed with the Commission. Figure 1 depicts SCE's high-level technology management lifecycle, highlighting how this general approach relates to EPIC.

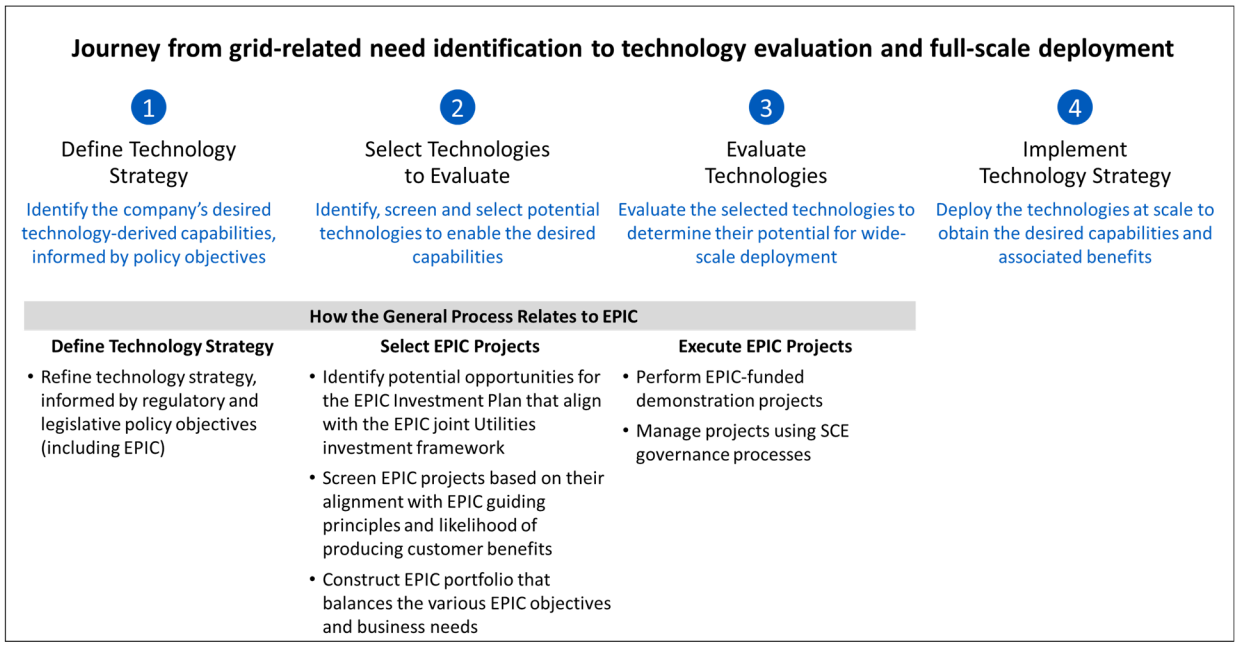

Figure 1 Technology Management Lifecycle

Define Technology Strategy:

Prior to constructing a portfolio of potential EPIC projects, SCE first aligns internally around its strategic priorities. These priorities are driven by the company's business needs and the market, regulatory and legislative landscapes. Since the electric utility operating, competitive and regulatory landscapes shift with increasing frequency, it is vital to validate these priorities on a regular basis. For example, since SCE submitted its EPIC III application on May 1, 2016, the need to strengthen the resiliency of the electric grid has become a more urgent priority. This has resulted in SCE adding a new project related to Wildfire Prevention Technologies (see Appendix E for project details).

These priorities are consistent with the EPIC joint Utilities investment framework, which includes four investment categories: Renewables & Distributed Energy Resources ("DER") Integration, Grid Modernization & Optimization, Customer-focused Products and Services Enablement, and Cross Cutting/Foundational Strategies & Technologies. SCE's strategic priorities and the joint Utilities investment framework categories are also properly aligned with the guiding principles specified by the Commission in D.12-05-037.

Select EPIC Projects:

The second step is to prepare an EPIC portfolio that aligns with SCE's strategic priorities and the EPIC joint Utilities investment framework. This begins with generating a wide range of potential project concepts. SCE engages a number of subject matter experts and stakeholders throughout the enterprise to solicit ideas for potential project ideas. This consists of hosting several facilitated workshops and ad hoc stakeholder meetings. Once all the potential projects have been identified and summarized, SCE's EPIC program management team evaluates them based on the following criteria:[20]

- Alignment with SCE's strategic priorities and EPIC joint Utilities investment framework
- Likelihood of providing customer benefits (feasibility, timing, scope of benefit opportunity)
- Compliance with EPIC funding rules

The team then hosts additional portfolio reviews and "deep dives" with relevant SCE stakeholders and executives to determine project prioritization and confirm strategic alignment. SCE also performs external socialization activities that compliment this internal portfolio planning effort. Once these activities are complete, SCE prepares its Investment Plan to be filed with the Commission.

Over the past several months, in anticipation of an EPIC III decision and the need to finalize its EPIC III project portfolio, SCE has engaged close to 100 internal stakeholders to validate and prioritize the project concepts included in its EPIC III application. This included five facilitated workshops, several ad hoc stakeholder meetings, and reviews with SCE's Grid Technology Governance Board, the Strategy, Planning and Operational Performance group, and Executive Council. Concurrent with the project portfolio review process, the EPIC program management team initiated SCE review through its standard governance processes that oversees projects as they move through each phase of the technology lifecycle—from conception of a technology use-case through demonstration, pilot, and full deployment.

[20] SCE's EPIC project evaluation matrix is included in Appendix G.

Execute EPIC Projects:

Once the EPIC portfolio is finalized, SCE will prepare a launch plan based on priorities and engage in the SCE governance processes to ensure broad stakeholder engagement and project oversight. Throughout project execution, SCE will continue to provide updates to stakeholders at the appropriate external forums.

Regarding Recommendation 3b, SCE agrees and commits to providing all project research plans and budgets to the Commission and the public via its EPIC website, at least one month prior to project launch. Secondly, regarding the Commission's additional requirement for Recommendation 3b, stating "[w]ith 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..."[21] SCE does not believe EPIC funding should be used to perform additional administrative tasks necessary to document and develop communications collateral for any non-EPIC programs or projects. The Utilities coordinated with the CEC and provided contacts for energy efficiency, demand response, energy storage, electric vehicles, and the Emerging Technologies program. SCE continues to look at CEC opportunities to provide links to SCE's website.

PG&E RESPONSE:

Changes to the process of identifying and selecting the projects that comprise the Utilities Investment Plans would be most appropriately addressed during future rulemaking, as there will be no subsequent investment planning cycles before the conclusion of the EPIC program.

As for the process of selecting the subset of approved projects from the EPIC III investment plan that are eventually pursued, PG&E leverages a robust project scoring matrix which was used to facilitate the selection of PG&E's first wave of EPIC III projects. The current version of this matrix is included as Appendix F. In planning the first wave of EPIC III projects, teams presented their proposed projects to leadership steering committees, and each steering committee member scored each project against the established criteria. A total of 12 scoring criteria were employed and organized into four scoring categories. The average of the criteria scores at the category level

[21] D.18-10-052, p. 42.

were evenly weighted to determine the overall score, which was then taken into consideration as part of determining which projects to pursue.

Even after waves of EPIC projects are approved by leadership, teams must still develop comprehensive business plans that detail the project's value proposition, scope, cost breakdown, project success metrics, benefits metrics, the ultimate path to production if successful, and key impacted project stakeholders. PG&E's business plan template is included as Appendix H. Only after business plans are formally approved are project teams given approval to begin execution. In line with Recommendations 4c and 7b, emphasis will continue to be placed on the establishment of the right project success metrics and benefits metrics through the business plans going forward.

As mentioned above, PG&E has defined its first wave of planned EPIC III projects in early 2018, and upon receiving Decision 18-10-052 has begun to launch this wave of projects. Among this first wave, PG&E has socialized its preliminary set of planned EPIC III projects that align with grid resiliency and wildfire risk reduction in public CEC workshops on July 25, 2018 and October 16, 2018. In the November 9, 2018 EPIC workshop hosted by PG&E in Fresno, CA, PG&E also presented its planned EPIC projects 3.15, 3.21 and 3.29 for stakeholder input. The pre-launch workshops PG&E plans to conduct in response to Recommendation 2e will include the sharing of plans and budgets. Beyond these additional pre-launch workshops, the CEC has offered that the Utilities socialize any subsequent planned EPIC III projects that relate to grid resiliency and wildfire risk reduction as part of future CEC EPIC workshops on this topic. PG&E has voiced their support of this approach to the CEC and looks forward to the opportunity to continue valuable collaboration in this venue.

PG&E will also work with the other Utilities to develop a standard template for sharing planned projects in advance of their launch.

SDG&E RESPONSE:

SDG&E tapped information resources internally and externally to identify candidate projects for its EPIC triennial cycle applications. For further consideration, candidate project descriptions were required, covering the following points:

- Objective
- Technology or strategy to be demonstrated

- Concern, problem, or gap to be addressed
- Applicable electricity value chain elements
- Potential benefits

These candidates were vetted in public workshops and screened with senior management for inclusion in the EPIC triennial applications. Projects were chosen that have high potential value in the context of technology trends and future electric utility infrastructure development needs. The candidate list was pared down to stay within the EPIC budget. Changes to this process will be relevant to the post-EPIC III era, in that the application for EPIC III was already completed in early 2017.

For EPIC III projects, meetings were held with stakeholders for each approved project after approval of the application. The goal was to determine the extent of current relevance of each activity 18 months after the application was filed, the priorities for which projects to move into the project plan writing phase, and the ability of the stakeholders to commit resources to work on the project. On that basis, the initial group of projects was selected for release into plan writing. The plan writing phase provides a work description, schedule, and a detailed estimate of the resource needs for each project, to aid in determining the level of needed financial commitments to projects.

MATCH FUNDING: RECOMMENDATION 3D

> *"3d) the CEC should consider modifying the match funding requirement for TD&D projects and make it optional."*

SUMMARY OF UTILITY RESPONSES:

While Recommendation 3d pertained to CEC match funding practices, in D.18-10-52 the Commission determined that it was not necessary to modify the CEC's match funding practices but did find it reasonable to require the Utilities to track match funding during the EPIC III investment cycle. The Utilities will enhance their sourcing processes to increase match funding, to

provide further benefits to ratepayers. The Utilities will also report on project match funding through their EPIC Annual Reports.

SCE RESPONSE:

SCE supports maximizing benefits from EPIC demonstrations and match funding is an important component to further leverage value for ratepayers. SCE has collaborated with the other Utilities and each Utility plans to enhance their vendor selection process to increase cost share opportunities. Furthermore, the Utilities propose to track and report on cost-share via the Annual Report.

PG&E RESPONSE:

PG&E will update its RFP process and associated scoring matrix to more explicitly consider cost sharing and further encourage these contributions from EPIC vendors. PG&E will also update its downstream EPIC contract template to include a field that breaks out the cost match amount. Match funding will be tracked in PG&E's subsequent EPIC Annual Reports.

SDG&E RESPONSE:

SDG&E will formalize the request for match funding by bidders in their proposal responses to RFPs. The match funding will be an optional amount. Match funding will be a criterion in the contractor selection. The bidders will be asked to provide a total bid amount and show how much of the total bid amount will be cost shared by the bidder. A basis for validating the cost share will be requested. Match funding is not the sole criterion for contractor selection and is used as one factor in a mix with other selection criteria.

BENEFITS QUANTIFICATION: RECOMMENDATION 4C

"4c) The Utilities 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 Utilities' project scopes of work; and*
- *The Utilities 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)."*

SUMMARY OF UTILITY RESPONSES:

The Utilities agree to begin quantifying and reporting on potential benefits, as well as benefits realized during demonstration, through their project Final Reports and EPIC Annual Reports. The Utilities have also aligned with the CEC on a set of nine categories to use for the consistent mapping and reporting of benefits, which will support the establishment of a joint EPIC database.

SCE RESPONSE:

Assessing the potential benefits of a given EPIC project involves identifying, describing, quantifying, and valuing each benefit expected to result from the project. During the project planning phase (of any EPIC project), the Project Manager and technical team should attempt to identify and describe the expected benefits and develop a plan for denominating and measuring the benefits during project execution. In some cases, a benefit can also be measured in terms of its financial value. Figure 2 summarizes SCE's approach to assessing benefits for each EPIC project.

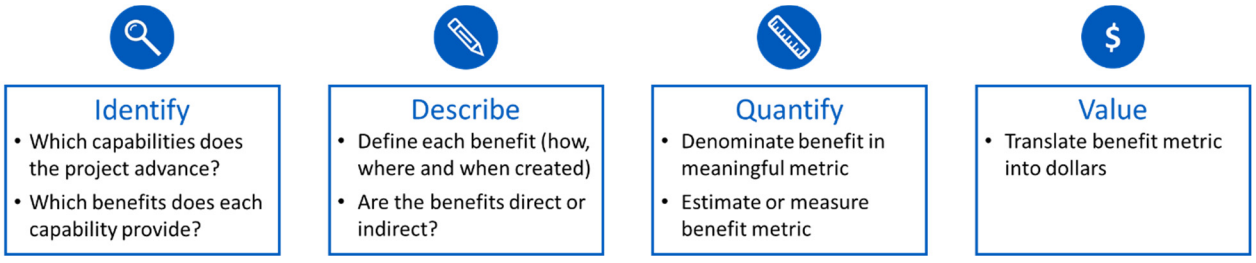

Figure 2 Benefit Assessment Approach

Identify Benefits:

The first step in evaluating potential benefits is to identify which capability and associated benefits are advanced by a given EPIC project. The primary purpose of the EPIC program is to advance technologies that have a high probability of resulting in customer benefits. However, the mechanism by which technologies deliver benefits is through the capabilities the technologies enable. Therefore, the first step to understanding the benefits that may result from an EPIC project is to identify the specific capabilities the EPIC project supports. Such support may include directly enabling the capability, or supporting it indirectly by providing lessons or knowledge that could inform subsequent technology development or demonstration.

The next step is to identify the specific benefits each capability provides. The following table summarizes the primary and complementary benefits enumerated in D.12-05-037"[22]

Customer Benefits	Complementary Benefits
1. Greater reliability 2. Lower costs 3. Increased safety	1. Societal benefits 2. Greenhouse gas emissions mitigation and adaptation in the electricity sector at the lowest possible cost 3. The loading order 4. Low-emissions vehicles/transportation 5. Economic development 6. Efficient use of ratepayer monies

The process of identifying which capabilities the project is expected to advance and which benefits the capabilities are expected to deliver (whether directly or indirectly) should be performed by the project team during the ideation phase of each EPIC project.

Describe Benefits:

The second step in evaluating a project's potential benefits is to describe each benefit in greater detail. As the details of an individual project become more clearly defined during project planning, the team should define the expected project capabilities and benefits with more

[22] D.12-05-037, Ordering Paragraph 2, p. 99.

specificity. This should include describing how the technology delivers the capabilities, the scope of the capabilities and benefits (e.g., system-, geographic region-, circuit, or customer-specific), any dependencies or restrictions on realizing the capabilities and benefits, and over what timeframe they will be realized.

In some cases a capability may provide a benefit directly, while in other cases the capability may contribute indirectly to realizing the benefit. For example, an advanced switching device could enable a new capability related to service restoration that provides a direct reliability benefit. However, suppose this switching device requires a different form of communication. This supporting communications capability would be foundational to enabling the switching device, and would therefore provide an indirect role in realizing the reliability benefit.

Quantify Benefits:

The third step is to express the potential benefits of a project quantitatively. This requires the team to denominate the benefit in a meaningful quantitative metric. For example, if the project is expected to improve reliability, potential metrics could include the following:

- Customer minutes of interruption ("CMI") avoided annually
- System average interruption duration index ("SAIDI") reduction
- Momentary interruptions avoided annually
- Momentary average interruption frequency index ("MAIFI") reduction

Potential quantitative measures of other benefits could include kWh savings, peak load reduction (measured in kW), reductions in the number of wire-down events, capital avoided or deferred, operation and maintenance expense savings, etc. The specific metric used will vary from project to project.

Once the team has identified the relevant benefit metric, the next step is either to measure the metric directly, once the technology has begun operating (field or lab), or estimate the metric value. The metric value may be estimated based on a sample of observations, modeling or other analytic approach. During project planning, in addition to identifying the relevant (and detailed) capabilities and benefits, the project manager should document the associated benefit metrics and potential means of measuring or estimating the magnitude of the metrics over the course of the project. Estimated benefit metrics may include the benefits that result directly from the EPIC

project, typically of limited scope and duration, as well as the benefits that could result from full-scale deployment.

Value Benefits:

In some instances, it may be possible to translate benefit metrics into estimates of financial value. One of the customer benefits identified by the Commission, lower costs, is already expressed in terms of financial value, but others may also lend themselves to being expressed financially. For example, in its 2018 general rate case, SCE presented a business case for its reliability-focused grid modernization technologies based on the financial value to customers of the improved reliability expected to result from these technologies. Calculating the financial value of reliability improvements relied on an estimate of the value to an SCE customer of avoiding a single minute of interruption ($2.23 in 2016). The utilities should—individually and through collaboration with each other—identify ways of estimating the financial value of other types of benefits.

- *DAC Benefits:*

Parties to this proceeding have expressed a desire to ensure that DACs are well-represented in terms of EPIC projects being located in DACs as well as benefiting DACs. Recognizing how much effort the CEC has put into considering DAC benefits, we plan to standardize an approach across the three Utilities to evaluate DAC benefits based on the CEC's approach.

- *Reporting:*

To improve the visibility of EPIC project results and impacts among stakeholders, SCE proposes documenting the results of EPIC project benefits within project closeout reports. If a project is transitioned to a general rate case—to request funding for a wider-scale deployment—SCE would cease reporting on benefits in its EPIC annual reports.

To the extent SCE measures or estimates project benefits in advance of a project closeout, there may be opportunities to share this information at one of the regularly scheduled EPIC workshops.

PG&E RESPONSE:

As mentioned in PG&E's response to Recommendation 3a, prior to project initiation, the project's success metrics and benefits metrics are already captured in its business plan. For each benefits line item, the project team identifies the benefits category, provides a short qualitative

description of the benefits mechanism, quantitatively estimates the benefit, and describes the benefits calculation. In response to this recommendation, moving forward, an additional field will be added to the business plan to describe how the project team will obtain the data needed to complete the benefits calculation.

In response to this Recommendation PG&E will also begin to provide forward-looking estimates of potential benefits if the technology deployed in production at scale, as well as quantification of any already realized benefits in its publicly available final reports. PG&E will continue to provide updates on realized benefits for key projects after they have closed through its subsequent EPIC Annual Reports. PG&E will stop providing updates on a project's realized benefits through the EPIC Annual Reports if and when the project is included in the general rate case ("GRC") to scale the project more broadly, as benefits tracking from that point forward will be included as part of the GRC work papers.

PG&E will leverage the results of the CEC's current effort to revamp their methodology for quantifying benefits to DACs. PG&E will also coordinate with the other Utilities and the CEC to explore methodologies for quantifying benefits specifically for communities with high wildfire vulnerability.

SDG&E RESPONSE:

SDG&E will identify who the targeted beneficiaries of the project results are, during the writing of the project plans. The nature of the expected benefits will be spelled out. An initial estimate of expected benefit areas and qualitative and quantitative measures of these benefits will be made in the initial stages of the project. Metrics will be set to incorporate into the demonstration process and the subsequent analysis to quantify the value of the expected benefits based on use case results or other demonstration results. An update to the initial estimate of benefits will then be made, using the demonstration results. The findings of this benefits analysis will be included in the comprehensive final project reports to aid stakeholders in their decision making regarding whether to proceed with prospective commercial adoption. If commercial adoption is recommended, the next steps and likely cost elements will be provided.

RESULTS DISSEMINATION: RECOMMENDATION 4F

"4f) SCE should share its project results more widely with interested stakeholders, including delivering presentations at conferences and workshops."

SCE RESPONSE:

SCE notes the Grid Technology Organization, which administers the EPIC portfolio, was going through a re-organization process when the Evaluation was being conducted. Due to the re-organization, SCE did not publish and disseminate results as broadly compared to prior years. Nevertheless, SCE supports sharing the results of EPIC projects more widely with interested stakeholders.

To improve results dissemination, SCE is actively identifying conferences and workshops to present on EPIC demonstration projects. Thus far this year, SCE has been able to identify a variety of conferences and workshops to present on EPIC results, including the following:

- DistribuTECH
- Western Energy Institute Operations Conference
- Energy Storage Technologies & Applications
- Institute of Electrical and Electronics Engineers Photovoltaic Specialists Conference
- Centre for Energy Advancement through Technological Innovation Smart Grid Conference

Furthermore, as noted in response to program administration, Recommendation 1c, SCE is in the process of putting together an EPIC outreach communication strategy[23] which is targeted for completion by the end of 2019. Based on SCE's past projects and selected EPIC III projects, this proposed outreach and communication strategy would identify relevant conferences and workshops, as well as opportunities to publish white papers and industry awards. Lastly, SCE is redesigning its external EPIC website to include conference presentations and white papers. The redesigned website will also have a link to the SCE ideas website[24] where stakeholders can provide feedback on EPIC and other SCE programs. Appendix D provides a list of external communications (e.g., presentations, panel discussions and keynote addresses) planned for 2019.

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[23] See SCE response to Program Administration, Recommendation 1c, at pp. 7-8.
[24] https://www.sce.com/business/consulting-services/share-your-ideas.

PROJECT IMPACTS AND POLICY ALIGNMENT: RECOMMENDATION 5C

"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."

JOINT UTILITY RESPONSE:

The Utilities agree with the Commission that the Administrators can take immediate steps to identify a process to ensure that once CEC applied R&D projects are completed, the Utilities consider the results and help identify potential demonstrations if applicable. Further incorporating the CEC applied R&D results in demonstrations helps unify the program, increase synergies between the CEC and Utilities' EPIC portfolios and as a result maximizes EPIC's value for ratepayers.

The Utilities have worked with the CEC to establish a series of meetings to address opportunities to transition promising CEC applied R&D projects to demonstration projects involving the Utilities. The Administrators have agreed to conduct alignment meetings monthly, with each meeting focusing on opportunities in a specific topic area. The Administrators will meet over webinar twice a quarter, and in person once a quarter, with each Administrator hosting an in-person meeting once per year. The Administrators have also collaborated to develop a prioritized set of topics to be assigned to individual meetings.

Once the PICG is established, they should assume the role of facilitating these standing meetings as part of their role facilitating the identification of opportunities for additional technology demonstration investment. Any lessons learned between the initiation of these meetings and the establishment of the PICG can inform changes in the PICG's administration of this effort going forward.

While the Utilities see significant value in better aligning with the CEC in this area, there are several structural challenges in EPIC which may limit the number of CEC applied R&D projects that are transitioned to Utility demonstrations during the EPIC III triennial period. For example, the Utilities' EPIC III investment plans are comprised of specific projects, as opposed to higher-level topic areas, that were approved in D.18-10.52. Any opportunities identified through collaboration with the CEC that did not closely align with already-approved Utility projects would

need to be proposed and approved through the Tier 3 Advice Letter process. As such, any opportunities not identified early in the EPIC III triennial period might not be approved with enough time for execution.

ON-GOING PROGRAM EVALUATION: **RECOMMENDATION 7B**

> *"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."*

JOINT UTILITY RESPONSE:

The Utilities have worked with the CEC to establish a consensus recommendation on the set of information to be included in the joint administrator project database. The Administrators' joint proposals for enhancements to the current EPIC project comparison matrix, in response to Recommendation 2b, as well as the Utilities' proposals for enhancements to benefits quantification and reporting, in response to Recommendation 4c, will help to build the foundation for the database. In addition, the Administrators recommend that the project-level data elements currently included in the CEC's Energy Innovation Showcase be included in the database for each Administrator's projects. In collaboration with the CEC, the Utilities have identified information not currently captured in the Energy Innovation Showcase that should also be included in the database:

- Separate data elements for total project spend and the amount awarded to vendor(s)
- Separate data elements for projected benefits and benefits already realized through the demonstration

With respect to the categorization of benefits reported through the database, the Administrators agreed to use the following categories, which the CEC already uses in its Energy Innovation Showcase):

- Lower Costs
- Greater Reliability
- Increased Safety

- Economic Development
- Environmental Benefits
- Public Health
- Consumer Appeal
- Energy Security
- Greater Resiliency (proposed additional category)

It should be noted that for some of the Utilities' completed EPIC I & II projects, it may not be possible to retroactively populate the database with the complete set of data elements. For example, if in the demonstration of an EPIC I project, benefits realized during the demonstration were not tracked at the time, retroactive quantification might not be possible. Where gaps exist, the Utilities will include links to the projects' Final Reports.

In terms of update frequency, the Utilities recommend the database be updated on a quarterly basis, to reflect the most recent information from the Administrators' Annual Reports and projects' Final Reports.

As noted in Decision 18-10-052, the establishment, monitoring and maintenance of the EPIC database will be conducted by the PICG Coordinator.

VI. UTILITY-SPECIFIC MODIFICATIONS TO 2018-2020 INVESTMENT PLANS

SCE PROPOSED MODIFICATIONS

Project Requesting Replacement: "*RELIABILITY DASHBOARD TOOLS*"

Justification: Upon further evaluation of this potential project with internal SCE stakeholders, it was determined that the objectives of this project could be accomplished using existing, commercially-available tools and technologies that have been deployed since the original EPIC III investment plan application was filed. Based on this fact, SCE recommends the withdrawal of the Reliability Dashboard Tools project, and replacement with the "Wildfire Prevention & Resiliency Technology Demonstration" proposal provided below.

Proposed Replacement Project: "*WILDFIRE PREVENTION & RESILIENCY TECHNOLOGY DEMONSTRATION"*

Project Description: please see Appendix E

Justification for New Project: California's wildfire risk has increased in recent years due to climate change, drought, and other factors such as increased development in the wildland-urban interface and significant build-up of fuel, including on federal and state forest lands. The full magnitude of the increased threat and the significance of its consequences did not become apparent until 2017, when California experienced five of the most destructive fires in its history. The 2017 and 2018 fires emphasize that California's wildfire risk has increased to the point where the safety of our communities necessitates additional measures designed to address a higher level of wildfire risk not contemplated by existing state standards or traditional utility fire mitigation practices. Wildfire mitigation measures have been part of SCE's operational practices for years, as high fire risk areas ("HFRA") account for about 35 percent of SCE's service area. However, SCE shares the state's conclusion that the unprecedented changes in this risk area require making further investments in utility infrastructure and enhancing operational practices. This project is intended to expand upon SCE's existing wildfire mitigation efforts as outlined in our 2018 GS&RP application and 2019 Wildfire Mitigation Plan, by facilitating the demonstration and appraisal of promising new pre-commercial technologies that could potentially be deployed at scale in the future.

Project Alignment with Evaluation Recommendations Intent: Upon Commission Approval, the Replacement Project Proposals will follow the guidance from the Evaluation's recommendations. Specifically, these Replacement Project Proposals will follow the Evaluation's recommendation for Stakeholder Engagement.[25] For additional details regarding SCE's proposal for stakeholder engagement, please see pages 13-15.

Internal Stakeholder Process: SCE held weekly planning meetings, inclusive of stakeholders from Transmission & Distribution's Emerging Technologies & Valuation ("ETV"), Grid Technology Project Management Office ("PMO"), Integrated General Rate Case & Governance Coordination ("IG&GC"), Regulatory Affairs, and Strategy, Planning, & Operational Performance ("SPOP") to

[25] Recommendations 2D and 2E.

coordinate regularly on EPIC III portfolio planning activities. During the planning meetings the team determined that the existing approved EPIC III potential project entitled "Reliability Dashboard Tools" was no longer needed from a technology demonstration perspective, and should be replaced with the "Wildfire Prevention & Resiliency Technology Demonstration" proposal to better align with SCE's public safety and wildfire resiliency strategies. These decisions were further vetted and approved by SCE managers and executives through our internal governance process.

External Stakeholder Process: SCE provided presentations on replacement proposal projects during the targeted pre-technical joint webinar on March 26, 2019, as well as during a second RAP workshop on April 2, 2019 with interested stakeholders at SCE's Grid Technology facility. During the webinar SCE provided a high-level overview of the proposed replacement projects, explaining the critical need that has arisen since the time of filing to conduct a Wildfire Prevention and Resiliency Technology demonstration. SCE's presentation during the second RAP workshop provided further Wildfire Prevention and Resiliency Technology Demonstration project details, including potential use cases.

Project Requesting Replacement: *"BEYOND THE METER PHASE 2"*

Justification: Upon further evaluation of this potential project with internal SCE stakeholders, it was determined that this project should not continue with the proposed Phase 2 scope, due to lack of sufficient learnings and business value derived from Phase 1 activities. Based on this fact, SCE recommends the withdrawal of the Beyond the Meter Phase 2 project, and replacement with the "Beyond Lithium-Ion Energy Storage Demonstration" proposal provided below.

Proposed Replacement Project: "*BEYOND LITHIUM-ION ENERGY STORAGE DEMONSTRATION"*

Project Description: please see Appendix E

Justification for New Project: The adoption and integration of lithium-ion based energy storage systems has increased significantly in recent years, to the extent that it is widely considered a mature technology. Furthermore, it is worth noting that advancements over the past decade in

lithium-ion based energy storage systems have been facilitated by investment from federal and state government funding programs. SCE has been a leader in this regard, based on the company's successful energy storage demonstrations completed under the federal government's American Reinvestment and Recovery Act (ARRA) via the Tehachapi Storage Project (TSP) and Irvine Smart Grid Demonstration (ISGD). In order to achieve California's ambitious long-term energy policy goals, and SCE's own Clean Power and Electrification Pathway, the marketplace will require a diversity of cost-competitive energy storage products. This project will help to advance the industry's knowledge-base of lithium-ion alternatives to ensure new storage products can "cross the chasm" and compete with traditional storage technologies in the near-future.

Project Alignment with Evaluation Recommendations Intent: Upon Commission Approval, the Replacement Project Proposals will follow the guidance from the Evaluation's recommendations. Specifically, these Replacement Project Proposals will follow the Evaluation's recommendation for Stakeholder Engagement.[26] For additional details regarding SCE's proposal for stakeholder engagement, please see pages 13-15.

Internal Stakeholder Process: SCE held weekly planning meetings, inclusive of stakeholders from Transmission & Distribution's ETV, Grid Technology PMO, IG&GC, Regulatory Affairs, and SPOP to coordinate regularly on EPIC III portfolio planning activities. During the planning meetings, the team determined that the approved EPIC III potential project entitled "Beyond the Meter Phase 2" was no longer needed from a technology demonstration perspective, and should be replaced with the "Beyond Lithium-Ion Energy Storage Demonstration" proposal to better align with SCE's Clean Energy & Electrification Pathway strategy. These decisions were further vetted and approved by SCE managers and executives through our internal governance process.

External Stakeholder Process: SCE provided presentations on replacement proposal projects during the targeted pre-technical joint webinar on March 26, 2019, as well as during a second RAP workshop on April 2, 2019 with interested stakeholders at SCE's Grid Technology facility. During the webinar SCE provided a high-level overview of the proposed replacement projects, explaining the critical need that has arisen since the time of fling the EPIC III Investment Plan to demonstrate

[26] Recommendations 2D and 2E.

next generation energy storage. SCE's presentation during the second RAP workshop provided further next generation energy storage project details, including potential use cases.

VII. CONCLUSION

The initiatives presented in this RAP application will ensure the EPIC program continues to provide energy leadership and innovation necessary to carry out California's energy policies and inform decisions and actions at local, state, federal and international levels. The Utilities' look forward to implementing the RAP and seeing these recommendations come to fruition for the benefit of ratepayers who fund this program.

Appendix A

Engagement Meeting Minutes

APPENDIX A: ENGAGEMENT MEETING MINUTES

Event: *"2019 EPIC SYMPOSIUM"*

Date: February 19, 2019

Panel: IOU Coordination of Research Administration Plan & Coordination with EPIC Administrators

Moderator: Dan Gilani, Program Manager, PG&E

Presenters: Dan Gilani, Program Manager, PG&E; Aaron Renfro, Senior Advisor, SCE; Frank Goodman, Program Manager, SDG&E

Overview: The Utility Administrators presented on its upcoming Research Administration Plan ("RAP") application. The purpose of this presentation was to solicit industry feedback on specific recommendations from Evergreen's EPIC evaluation. The feedback from this workshop will help inform the program Administrators' positions for the RAP application. The program Administrators indicated that they will have a draft RAP application for stakeholder review during the second workshop at SCE on April 1, 2019. The purpose of this workshop will be to discuss the draft application and solicit additional industry feedback prior to filing the application to the Commission.

Deep Dive – Portfolio Optimization

The EPIC IOU Administrators took a deep dive on the following recommendation:

> *"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."*

The program Administrators discussed the following topics:

- Current non-duplication matrix is a good start, but insufficient
- Possible ideas on how to add to the existing non-duplication matrix:
    - Categorize/summarize projects by technology type and policy area
    - Include Federal and CA Legislation

Q&A:

- **CPUC is already undergoing the exercise of matching policy with energy efficiency. CPUC suggested to work together with the Administrators.**

- The Program Administrators agree. The Program Administrators will reach out to the CPUC to set up a meeting to discuss further.

- **Will the grouping of projects and policy be across all Utilities?**
  - Yes, this will be for all the Utilities.

- **What is the [EPIC 3 Administrator Project Comparison] Matrix?**
  - It is a matrix of all EPIC III projects submitted by the Administrators, including the CEC. The purpose of the matrix is to show non-duplication of efforts across the Administrators' Investment Plans, and to show that each project aligns with at least one key policy area.

- ***(CPUC question to audience):*** **Have you seen the matrix and are there any issues you want to see fixed?**
  - (Audience member response): Are we fixing the matrix just to fix the matrix or are we adding to it for other purposes?
  - (Administrators' follow-up): The proposal is to build off the matrix that had been developed in the planning of EPIC 3, to categorize by technology type and policy area, and then to summarize the efforts in each area. The goal is to move beyond proving that efforts don't duplicate, and to summarize how they build on previous work and fit together with other related efforts.
  - (Peer R&D member comment): I think this improvement would be useful to evaluate opportunities for partnering in certain areas

- **If you want to use the same technology as a previous project, but you want to do a different use case, is that acceptable?**
  - Yes, if you can show a clear separation in use cases.

Q&A: Deep Dive – Stakeholder Engagement

The EPIC IOU program Administrators took a deep dive on the following recommendation:

> *"The Administrators should engage more stakeholders earlier in the investment planning process; and The Utilities should provide more comprehensive information, to allow time for more meaningful engagement."*

The program Administrators discussed the following topics:

- Conduct a stakeholder outreach session before each subsequent "wave" of EPIC projects is launched
- Conduct more frequent stakeholder outreach sessions
- Conduct more meetings with DACs
- Conduct more community outreach for EPIC projects that have field demonstration components
- Generate more engagement through the Utilities' EPIC websites

Q&A:

- **(PG&E question audience): Do you have any feedback on the user-friendliness of our website?**
    - it's not immediately clear how to get to the project reports PG&E EPIC website

- **Are the EPIC stakeholder meetings meant to gain input on the scoping of the projects, or to simply provide updates?**
    - It depends on where the Administrators are in their investment cycles. For example, during the last workshop in November 2018, the Utilities had just received approval to begin EPIC 3, so EPIC 3 project proposals were presented to stakeholders for their input. In the previous few meetings, EPIC 3 had yet to launch, and EPIC 1 and 2 were well underway, and thus the focus of those workshops was more on providing progress updates on efforts that were underway. Also, in the investment planning workshops, there is more opportunity to help shape the overall scope for filing, and then post approval of the filing, there is opportunity to provide inputs into specific project considerations prior to launch of projects.

- **Is there any way to speed up the EPIC process?**

    - For the solicitation and vendor selection process, the challenge is that we want it to be rigorous in how we conduct Requests for Proposals (RFPs) but not overly burdensome. The Utilities jointly created, in coordination with the CPUC, a set of criteria to guide their EPIC sourcing practices.

Q&A: Deep Dive – Benefits Quantification

The EPIC IOU program Administrators took a deep dive on the following recommendation:

"The Utilities should develop more detailed processes to quantify benefits associated with their projects"

The program Administrators discussed the following topics:

- Convey benefits, including DAC benefits, in project closeout report
- Provide updates on realized benefits in subsequent annual reports
- Stop providing updates on benefits in annual reports if/when the project is transitioned to the GRC (since benefits are covered in GRC work papers)

Q&A:

- **Would this be in line with the CEC DAC benefits?**
    - Yes, we would like to use the same criteria as the CEC for DAC benefits. The benefits should be more than monetary.

- **Do you have a plan to standardize the methodology for benefits?**
    - Most projects have different benefits. It would be hard to do it across the board. We could align how we quantify benefits across similar projects. When it comes

to DAC benefits, we would like to standardize it across the board based on the CEC's criteria**,** since we recognize how much work has gone into this effort already.

Meeting Title: IOU & CEC Meeting on EPIC 3 Research Administration Plan
Date: March 5, 2019
Location: California Energy Commission (Sacramento, CA)
Attendees:

- CEC: Fernando Pina, Laurie ten Hope, David Erne, Angie Gould, Erik Stokes, Virginia Lew
- PG&E: Dan Gilani, Haritha Adusumilli
- SCE: John Minnicucci, Aaron Renfro, Nick Connell, Kevin Clampitt
- SDG&E: Frank Goodman, Christa Lim, Fernando Valero (remote)

Meeting Summary:
The purpose of this meeting was for the Utilities to provide an overview of the recommendations they will be addressing in the joint IOU Research Administration Plan (RAP) Filing, to obtain preliminary CEC feedback, and identify follow-on collaboration opportunities.
Below are the discussion and action items for each of the recommendation areas that will be addressed in the RAP:

- Program Administration (1a & 1c)
    - These recommendations are on providing additional justification and visibility around the use of non-competitive bidding in the Utilities' EPIC Annual Reports.
    - The CPUC's direction on these recommendations is clear, and the Utilities have a clear sense for how to implement improvements. The CEC did not have any additional feedback on how these recommendations might be addressed, but did ask some clarifying questions around the Utilities' competitive bidding processes.
- Portfolio Optimization (2b)
    - This recommendation is on administrator collaboration to better characterize their collective investments, to better allow the Commission and Administrators to assess and coordinate EPIC work.
    - The Utilities propose to enhance the existing EPIC 3 project comparison matrix to add additional categorization (such as technology type, policy area, and previous projects that informed the current work) and to also draft summaries of the work in each category.
    - Laurie ten Hope offered that the CEC EPIC work is already summarized by category in their annual reports. This might be the starting point for creating summaries that reflect all of the Administrators' work in each category.
    - Laurie ten Hope suggested it would be valuable to enhance the existing EPIC 3 project comparison matrix to differentiate between things that inform policy goals and specific CPUC proceedings. The Utilities agreed that this would be valuable.
    - The Administrators will conduct a follow-up meeting to establish consensus on how to enhance the existing matrix.

    - Won't be able to implement this or other substantive actions before the RAP filing deadline. CPUC must approve the plan before implementation.
- Stakeholder Engagement (2d & 2e)
    - These recommendations are in many ways most appropriately implemented at the outset of a future investment cycle, but the Utilities will make improvements now around how to engage stakeholders during EPIC 3. The Utilities are considering a range of improvements. These might include hosting workshops before each subsequent "wave" of EPIC3 projects is launched (most applicable to PG&E) or cost-effective ways of providing updates through the EPIC websites (proposed by SDG&E who has the most constrained administrative budget).
- Administrator Project Selection Process (3a & 3b)
    - These recommendations are for the Utilities to develop more transparent project selection criteria around the specific projects that are eventually pursued, and to share project research plans and budgets with the CPUC and public at least one month before launch.
    - The CEC gave an overview of how they determine the staging of their projects once an investment plan is approved. There are many factors that go into these decisions such as the urgency/priority of the policy or technology area, timing of research results from previous phases, priority research needs due to current events such as wildfires, and internal workload of CEC staff that would oversee the projects. The CEC does not apply any sort of weighted criteria matrix to determine the priority for execution.
    - As for the advance sharing of subsequent EPIC 3 projects before launch, the Utilities had proposed conducting webinars to socialize their plans. David Erne suggested that for any of those that are wildfire related, socializing them as part of CEC workshops could be a better alternative. The Utilities agreed that this would be a good approach.
    - The CEC also reiterated their interest in information on related non-EPIC Utility programs. The CEC would like more clarity on who the Utilities contacts are for key areas. The CEC will send the Utilities a list of areas/programs of interest, and the Utilities will collectively provide their respective contacts for each area. The CEC sent the Utilities a list of areas/programs of interest on March 18th.
- Match Funding (3d)
    - This recommendation is for the utility Administrators to track match funding during the current (EPIC 3) investment cycle.
    - The Utilities propose to include match funding as part of their RFP scoring criteria, and to subsequently include match funding fields in their contracts.

    - Laurie ten Hope supported the idea of the Utilities tracking match funding.
- Benefits Quantification (4c)
    - This recommendation is for the Utilities to develop more detailed processes to quantify benefits associated with their projects.
    - The Utilities plan to capture benefits in their project final reports, and consider providing updates on realized benefits in subsequent annual reports. It was noted that a funding mechanism for post-project benefits tracking will be needed. The project budget runs out with the project completion.
    - The CEC described their approach for benefits quantification, in which they have their vendors fill out a benefits questionnaire at the beginning of the project, midway and a final version of the questionnaire at the end of the project. The group also discussed the CEC's current effort to revamp their framework for quantifying DAC benefits as part of their solicitation process. The CEC will share their benefits questionnaire with the Utilities (Emailed 3/12/19) and will also share the proposed changes for quantifying DAC benefits. It was noted that in the case of the IOU projects, both the IOU and the vendor will need to formulate the benefits quantification, because they work as a team to perform the project work.
    - David Erne suggested also including quantification of benefits specifically for vulnerable (i.e. to wildfires) communities. The Utilities will follow-up with the CEC to determine if there's a good way to define/standardize this.
- Results Dissemination (4f)
    - This recommendation is to share its project results more widely with interested stakeholders. SCE provided an update on their plan to make improvements in this area.
- Project Impacts & Policy Alignment (5c)
    - This recommendation was for the Utilities to establish a process for align CEC applied R&D with Utilities TD&D projects.
    - The Utilities and CEC agreed to begin working to establish a process now, and not wait for the establishment of the PICG. Fernando Pina stated that the CEC had a history of coordinating meetings with the Utilities on research topics. For example, the CEC has held meetings with the Utilities on energy storage, microgrids, distribution modeling and vehicle grid integration.
    - The CEC and Utilities agreed to schedule recurring alignment meetings, and for each meeting to focus on identifying opportunities in a specific area. The CEC agreed to propose a list of candidate CEC applied R&D projects that may be eligible to transition to demonstrations involving Utilities, and the Administrators will subsequently meet to prioritize the potential

research topics and establish the sequence of topics for the recurring meetings.

- On-Going Program Evaluation (7b)
    - This recommendation is for the establishment of a single/centralized database of EPIC information on active and completed projects, along with monitoring and quarterly reporting of key performance metrics.
    - The EPIC 3 Decision identified the PICG as being the entity to set up this database. The Utilities and CEC agreed to work together to recommend what information should be included in the database, and to provide a handful of high-level alternatives on how that database might be established/administered/funded.
    - As an immediate next step, the Utilities will review the CEC's EPIC Showcase and identify how/where information on the Utilities' EPIC work might be rolled in.

Other miscellaneous items:

- The CEC is willing to participate in the 3/26 webinar to gather feedback from the EPIC "peer R&D program" representatives
- The Utilities will plan to share a draft of the RAP application with the CEC for input prior to sharing it with the broader stakeholder audience during the 4/2 workshop

Meeting Title: EPIC 3 Peer Program Webinar
Date: March 26, 2019
Location: Remote

Peer R&D Program Input to RAP Recommendations
Notes – March 26, 2019
(Updated 4/5/2019 @ 4:33 pm)

Utilities - Peer Webinar Coordinators:

#	Company	Last Name	First Name
1	PG&E - Pacific Gas and Electric Company	Gilani	Dan
2	PG&E - Pacific Gas and Electric Company	Adusumilli	Haritha
3	SCE - Southern California Edison	Connell	Nicholas
4	SCE - Southern California Edison	Martinez	David
5	SCE - Southern California Edison	Renfro	Aaron
6	SDG&E – San Diego Gas & Electric Company	Goodman	Frank
7	SDG&E – San Diego Gas & Electric Company	Lim	Christa
8	SDG&E – San Diego Gas & Electric Company	Miyasako-Blanco	Donna
9	SDG&E – San Diego Gas & Electric Company	Valero	Fernando

Peer Webinar Participants:

#	Company	Last Name	First Name
1	CEC - California Energy Commission	Gravely	Michael
2	CEC - California Energy Commission	Pina	Fernando
3	CPUC - California Public Utilities Commission	Lakey	Jonathan
4	CPUC - California Public Utilities Commission	Mesrobian	Amy
5	DOE Small Business Technology Transfer Program (STTR)	Oliver	Manny
6	EPRI - Electric Power Research Institute	Coleman	Andrew
7	EPRI - Electric Power Research Institute	Ghatikar	Rish
8	EPRI - Electric Power Research Institute	Rasche	Galen
9	LLNL - Lawrence Livermore National Laboratory	Grosh	John
10	LLNL - Lawrence Livermore National Laboratory	Min	Liang
11	LLNL - Lawrence Livermore National Laboratory	Stewart	Emma
12	NREL - National Renewable Energy Laboratory	Symko-Davies	Martha
13	UCEI - UC Energy Institute / Haas-Berkley	Notsund	Karen

SCE DOCUMENT SENT OUT TO PEER WEBINAR PARTICIPANTS – sent via email on 3/27/2019

- **WIP DRAFT_EPIC-3 Replacement Proposals_20190321_R2.pdf**
  - No questions on wild fire replacement project
  - CEC supports fire safety and energy storage. CEC wants to collaborate with SCE on these replacement projects;
  - LLNL – is this beyond lithium or both lithium and battery? Just lithium.

- **1a) and 1c) - Evergreen Recommendations – Program Administration**

  - ***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.***

  - ***1c) The CPUC should require the Utilities to specify the funding amount for the noncompetitive award to make it easier to assess the fraction of funding that is being directly awarded. Such information would be useful to determine how much project funding is being directly awarded versus competitively bid.***

  Questions for Audience
  - Do you require competitive bidding on all R&D contractor procurements? What rules apply?
  - What rules apply to consultants?

  Audience Feedback

  - **DOE SBIR**: Phases 1 & 2 are competitively bid. Phasing is used with the following caps--$200k for Phase 1 (6 months), up to $1.6 million for Phase 2. Phase 3 can be non-competitive and non-SBIR funds are used (such as a national laboratory source). They hope that it is picked up by private sector.
  - **CEC**: Old PIER program allowed more sole sourcing to state agencies, like UC. Under EPIC, the CEC has rarely done direct awards. When they have, they have had to write a letter to the CA legislature to justify the direct award. The CEC has thus deliberately worked to avoid any sole-sourcing.
  - **EPRI**: EPRI operates differently and has a different purpose. EPRI is a 501c3 corporation (non-profit) and has more flexibility than the government agencies. EPRI does not have any particular requirements around competitive vs non-competitive bidding. On the receiving end, EPRI does pursue competitively bid proposals from various government agencies, as well as EPIC projects
  - **UCEI**: Only get EPIC funds competitively. Had been able to get them by sole source in the old PIER program.

- **LLNL**: LLNL is not allowed to compete with industry but can bid on EPIC competitive solicitations. LLNL is not allowed to participate in sole sourcing. The rules for LLNL with EPIC funding and DOE funding are a little different.

- **2b) - Evergreen Recommendations – Program Administration**
  - ***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.***

Questions for Audience

  - **In what manner do you categorize projects and align them with key policy or strategic goals?**

Audience Feedback

  - **DOE SBIR**: Projects are categorized by the 13 different program offices that fund them and listed in the solicitations, and this stems from where the money is appropriated. They then break things down specifically. Each program office puts out plans and multi-year roadmaps. Within each program, the SBIR office looks at which components of small business should be engaged.
  - **CEC**: The CEC's EPIC investment plans are mapped to policy areas, such as energy storage, microgrids, smart inverters, electric vehicles, distribution modelling, GHG reduction, wildfires, etc. They are really striving for zero carbon emission. There are several prominent/general research topics such as microgrids, vehicle-grid integration, etc. The ultimate goal is to improve the resiliency/reliability and safety of grid while achieving GHG reduction. What has been happening recently with wildfires has contributed to a greater CEC EPIC focus in that area. Work around wildfire prevention is now a significant part of the CEC's EPIC 3 program.
  - **EPRI**: EPRI is internally structured as several distinct research programs that are each topic based (such as Substation, DER integration, Cybersecurity, etc.). Base program structure is developed and funded by the utilities. For each program, EPRI sets up an advisory committee of representatives of that program's sponsors, sets multi-year roadmaps (three-year planning horizon), and sets priorities for research. The program manager over each area keeps their roadmap updated, and keeps stakeholders aligned. EPRI also has higher-level member governance at the Sector level. Also, EPRI had looked at how proposed EPIC work during EPIC 2 & 3 investment planning had aligned with what was being pursued by other stakeholders at a national level, and EPRI would be happy to help in a similar capacity moving forward. Also, EPRI bids

on work for others, such as EPIC, and their tech experts "weigh in" on which bids to pursue.
    - **UCEI**: There aren't any formal procedures in this area.
    - **LLNL**: LLNL has a program structure that is similar to EPRI's. Policy and strategy goals are drawn from many sources but primarily based on the focus of the program. Goals are aligned in very different ways, depending on what program's focus is. Within cybersecurity, LLNL has 4 leaders for 4 different areas. They produce goals for each area. Goals are largely driven by DOE/DOD/DHS and other federal agencies, but those inputs are all boiled down to one set of LLNL program goals.

- **2d) & 2e) - Evergreen Recommendations – Program Administration:**
    - ***2d) The administrators should engage more stakeholders earlier in the investment planning process; and***
    - ***2e) The Utilities should provide more comprehensive information, to allow time for more meaningful engagement***

  Questions for Audience
    - Which stakeholders do you engage in your investment planning process?
    - What is the approach and timing of the engagement?

  Audience Feedback
    - **DOE SBIR**: In building planning documents, we go out to engage with communities, manufacturers, academia, etc. These engagements happen every year. We will have workshops to discuss and update roadmaps as part of what has become a very engrained process. Each program maintains a multiyear plan. We interact with manufacturers, academics and other stakeholders regularly to stay aware what is going on in the market.
    - **CEC**: As the CEC was developing the EPIC 3 investment plan, we facilitated stakeholder engagement in major public workshops and the annual symposium. There was a total of five workshops, of which two were conducted jointly with the Utilities. These workshops developed concepts at the initiative level. We then conduct more detailed scoping workshops, and then pre-bid workshops to answer questions from prospective bidders. We also conduct special workshops throughout the year, such as the series of 5 workshops to develop a microgrid roadmap. More workshops are added as new topics arise.
    - **EPRI**: EPRI conducts stakeholder engagement around technology transfer in a number of ways. At a high level, EPRI will support the development and logistics of ad hoc topical technology transfer workshops. EPRI also sometimes participates in site meetings for demonstrations and participates in/ provides

technical input to various workshops. In some cases, EPRI provides open briefings at the CEC, and EPRI also has 2 technical meetings a year in each of its sectors. EPRI also works directly with the Utilities and CEC to review sets of EPIC projects. EPRI has semi-annual meetings with the advisory committees in each EPRI Sector. Coverage of government projects is included in the utility advisory committee meetings, and government representatives are invited to the meetings. EPRI seeks to create stakeholder value in activities. EPRI also gives open briefings to prospective funders.

- **UCEI**: The Energy Institute conducts an annual conference, and develops conference papers and journal articles on specific projects, holds seminars, and conducts meetings with the CPUC, CEC and CARB, depending on topic/project. Topics that are pursued are always driven by interest of faculty at the UCEI. They seek funding in areas of interest to them.
- **LLNL**: LLNL's projects have technical review committees. In the early stages of the project, LLNL hold a series of meetings and webinars at the labs with these committees, or meetings via WebEx to gauge progress. These committees are often established using contacts that LLNL has built up over time. On the DOE side, at a higher program level, they also have a series of meetings, which bring together stakeholders. For LDRD—Lab Directed R&D (e.g., their machine learning program), they hold reviews at the lab.

- **3a) - Evergreen Recommendations – Program Administration:**
  - ***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.***

Questions for Audience

- What selection criteria do you use for selecting project areas to pursue in investment planning?
- What selection criteria do you use for selecting projects to be implemented?

Audience Feedback

- **DOE SBIR**: The SBIR program focuses on things with commercial potential. There has already been a down-select of projects by the time they get to the SBIR program. In terms of selecting individual projects to pursue in SBIR Phase 1 & 2, we do use a rigorous set of technical selection criteria. The selection criteria will be shared with the EPIC program Administrators. For SBIR Phase 2, we require a commercialization plan as well.
- **CEC**: In the investment planning stage, it comes down to policy drivers. Subsequently at the project level, there are a number of factors. At the project

level, they consider how much funding will be spent in California, how much funding will be spent in DACs, and how much funding will be spent in low-income communities. For microgrids, a criterion is "how will it improve an area?" Every project has a technical advisory committee (TAC), which makes recommendation on structure, contractor types, and administration. CEC staff and others comprise the membership of the TACs. The CEC Principal Investigator overseeing the project is responsible for recommending advisory committee members. The advisory committee can be comprised of 12-20 members, and the frequency of their meetings varies by project/need. They meet at key points in a project.

- **EPRI**: TACs can be good instruments for future planning. TACs are important to provide information on the health of the market and the appetite of innovations from the adoption side. EPRI agrees with the CEC on the value of TACs.
- **UCEI:** Under the PIER program, when UC Energy had received more funding, they had advisory committees (CEC, Utilities and CPUC) that met twice per year and that was very valuable. They no longer get funding for research centers. UCEI is now more in the realm of responding to competitive solicitations to get funding.
- **LLNL**: Nothing to add beyond what the others have offered.

- **3d) - Evergreen Recommendations – Program Administration:**
  - ***3d) The CEC should consider modifying the match funding requirement for TD&D projects and make it optional.***

Questions for Audience

- Do you require match funding in your procurements?
- Under what circumstances?
- How is it tracked?

Audience Feedback

- **DOE SBIR**: The SBIR program does not require match funds, which is somewhat of an exception within DOE. Other major DOE programs require 20% match in R&D projects and 50% in demonstrations. Congress has recently authorized a second and third Phase 2 (They can fund companies for up to 7 years). In the second Phase 2, we strongly encourage matching funds. In the third Phase 2, we require a 1:1 match. The match needs to be from a 3rd party investor, usually cash or cash equivalent.
- **CEC**: For Applied Research, there is no match requirement, however, bidders do get extra points for proposing a match. We do prefer to have match funding

for Technology Demonstration and Deployment (TD&D). For CEC EPIC TD&D, there is a requirement of 20% for most solicitations. The CEC wants to make sure the bidder has "skin in the game".

- **EPRI**: Validating cost share is important. We see the necessity of the bidder having skin in the game. EPRI has to draw match from the source that best fits the proposed project, and EPRI is very selective about this since there are a lot of requirements it has to meet. Where EPRI needs more guidance/consideration is when we head into the commercialization space. Commercialization activities are more challenging for EPRI, due to its 501c-3 non-profit status. It is important to validate cost share entities and be sure the bidder is likely to stay in business. It may not be so obvious where the investment may be coming from. EPRI finds EPIC is reasonable in their cost share requirements, but the process is laborious and time consuming.
- **UCEI**: As a recipient of EPIC funding, we have had to deal with matching requirements. We are happy to provide matches where we can, but do want to echo comments [from EPRI] around the administrative burden and time-intensiveness. We're just now ending a large 5-year CEC project, and just recently got the documentation around how we're to go about documenting the match. EPIC awards are tremendously administratively burdensome and this makes teams less likely to want to go after them. UC has a standardized approach for tracking internal matching through a project. When there are subcontractors, they are expected to track their own matching.
- **LLNL**: We have a complicated/difficult time with match funding. Normally our industrial partner has provided the equipment/time that constitutes the match. For the most part, LLNL does not provide the match contribution themselves. Sub-awardees can provide match funding in some cases.

- **4c) - Evergreen Recommendations – Program Administration:**
  - ***4c) The Utilities should develop more detailed processes to quantify benefits associated with their projects.***

Questions for Audience

- What processes do you use to estimate project benefits and quantify any already realized benefits?

Audience Feedback

- **DOE SBIR**: The program office level handles roadmaps and tracks projects against roadmaps; as well as the benefits quantification (SBIR projects are just a small part of the larger overall DOE portfolio). They apply metrics that quantify the value of the projects. Benefit metrics are required to be more rigorous in the larger DOE programs that fund larger activities.

- **CEC**: The CEC employs a 3-step approach beginning with kickoff benefits questionnaire, then mid-term update, and a final questionnaire at the end of the project. The CEC also adheres to AB 523 for DACs. The CEC is now undergoing an effort to reevaluate its methods for quantifying benefits to DACs, and have sought public feedback. The CEC is also reevaluating how they do benefits questionnaires for the projects, and a draft proposal for a new questionnaire is expected to be available in December 2019. The CEC's benefits team evaluates/validates how the vendors fill out their questionnaires for their EPIC projects.
- **EPRI**: There are so many different benefits, and they are hard to quantify. At end of demonstration projects, there is still a lot of data that is coming in. The EPIC Administrators should think about establishing some type of cloud repository for raw data to allow for the assessment of the benefits that projects provide in the long term.
- **UCEI**: Not too much to add. Benefits questionnaires are part of each proposal. With respect to keeping data/making it available, in a lot of their cases, data are confidential and can't be shared.
- **LLNL**: For DOE work, we use standard DOE Cost/Benefits Analysis framework. The categories of benefits are Economic, T&D Savings, Reliability, and Environmental.

- **5c) - Evergreen Recommendations – Program Administration:**
  - ***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.***

  Questions for Audience
  - What criteria do you use to determine if a product of the applied R&D phase should be pursued any further?
  - What are your processes for moving R&D projects from the applied R&D phase to pre-commercial demonstration or directly to commercial use?
  - How much do you attempt to do yourself? What other stakeholders do you involve? How are financial resources for the follow-up activity secured?

  Audience Feedback
  - **DOE SBIR**: After SBIR Phase 2, we would look to the private sector to give priorities for investments and which projects have merit for further pursuit. SBIR does provide awardees with the commercialization assistance program. Through that program, we will try to identify the right partners. SBIR partners

with a third party that assists in innovation acceleration and decisions relative to further pursuit.

- **CEC**: The microgrid area is a good example. EPIC 2 was around expanding microgrids to different types of users. In the PIER days, they emphasized integration work. In EPIC, they emphasize demonstrations (examples in resiliency and ancillary services).
- **EPRI**: EPRI seeks ways to help some companies move "up the food chain". EPRI tries to help companies progress as much as they can.
- **UCEI**: Through EPIC, we had worked with a sub-awardee on developing a new energy management system, then the sub commercialized that system. We also have the clean tech to market program. It's a course every Fall. We have groups of graduate students take new technology out of the lab, and over the past few years they have taken tech that has been funded through EPIC, and student teams have reviewed tech for ability/readiness to commercialize. The end product for each technology is a market report. We have been working with the CEC to identify good matches. UC Berkeley also has a website for entrepreneurs that consolidates all available resources for commercialization of new tech (begin.berkeley.edu). This site provides resources and roadmaps.
- **LLNL**: We have not been awarded any EPIC projects in the past. The typical DOE tech transfer avenue is a CRADA. DOE has an office of technology transfer (OTT) and a technology commercialization fund, to move low Technology Readiness Level (TRL) work done at national labs to higher TRL and even commercial readiness.

Meeting Title: EPIC 3 Public Workshop
Date: April 2, 2019
Location: SCE, Grid Technology Labs, Westminster, California
Transcription:

TRANSCRIPT: EPIC WORKSHOP – RESEARCH ADMINISTRATION PLAN ("RAP") APPLICATION

Note: this transcript has been converted from Audio. As a result, the Program Administers made minor edits to ensure the dialog is clear.

Date: April 2, 2019

Moderated By: Aaron Renfro (SCE)

Opening Remarks: Jennifer Lee (SCE)

Aaron Renfro (SCE): Thank you everyone for joining us today. Please note, this Workshop is being recorded. Today we will be talking about our Research Administration Plan. We're going to start with the evaluation background. We're going to talk about how that got rolled into the EPIC III decision. And we're going to talk about how that has morphed into the Research Administration Plan requirement. We're going to talk about our engagement and collaboration that we've done in preparing for the RAP. And then we're going to get into each of the evaluation recommendations for each utility. And then at the very end we're going to talk about utility-specific modifications. When we're talking about utility specific modifications, what we're really talking about is the project replacement proposals for projects that were in the approved applications. That is going to be our game plan for the day.

The evaluation was directed by the Commission. The overall objective was to look at the EPIC program and make sure the Administrators, that being PG&E, SCE, SDG&E and the CEC are in compliance with all of EPIC's programmatic requirements. The evaluation was really looking at three different areas: ratepayer benefits, advancing energy innovation and supporting energy policy goals. The construction of the evaluation was designed to address a series of specific research questions and it was organized by topic areas. These topic areas entailed program management

planning process, project selection, project assessment and policy alignment.

The crux of the findings were that while the utilities are compliant with the requirements of the EPIC program, they can improve in fulfilling the spirit of the program. When we were thinking about how to move forward with that, we've really thought about engagement and collaboration because when you look at the decision, it really talks about a wealth of recommendation areas and then consulting with a host of stakeholders. All the engagement and collaboration really revolved around three areas. And the first was really working with the CEC and there has been a whole host of engagements that happened with the utilities and the CEC. The Administrators meet biweekly, and recent meetings have focused on RAP planning and RAP coordination. In addition, we also held a CEC RAP coordination kickoff meeting on March 5th to talk about the various aspects of the 12 recommendations mentioned. We also have a number of meetings that we're still planning for the various aspects of those specific recommendations. Then we'll get into the details of that when we talk more about the specific recommendations later today. We have also attended a number of CEC workshops. The second area was around engaging stakeholders. For this we presented at a breakout session within the 2019 EPIC symposium, to give stakeholders an overview of the RAP and how we're planning these various public forums and putting the RAP together.

The final piece was really engaging with peer R&D groups. For this we conducted a Webinar on March 26th that SDG&E graciously hosted and we got to learn a lot about peer groups' current processes in areas related to the 12 recommendations. It was a great learning experience for the utilities. Now we are in the process of assessing the specific feedback and where we can incorporate it into the RAP. One of the biggest takeaways that week was around technical advisory committees. We heard time and again during the Webinar that technical advisory committees provide a lot of value and they can help with project coordination activities and help with effectiveness. PG&E, SDG&E, and SCE are in the process of

incorporating technical advisory committees within our own proposals in the RAP. We'll now begin talking about the 12 specific recommendations from the evaluation that are being addressed in the RAP. This will be the heart of the workshop today.

Evergreen Recommendation: Program Administration

"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."

Aaron Renfro (SCE): For Edison in general, we really encourage competition for goods and services. But there are certain instances where it's been beneficial to engage with a single entity. And for most of the cases we will be justifying any direct award for projects that are over $100,000. We will be providing justification within our annual reports as to what the goods and services that we are proposed to procure and why we believe that it's most appropriate to do so through direct award.

Dan Gilani (PG&E): One of the things the Commission stressed in the EPIC III Decision was that they were looking for each utilities to provide their own responses to each recommendation, but that they were really looking for consistency in our responses to the extent possible. You'll notice that as we each walk through our proposed improvements for each of these recommendations, there's a lot of similarities. That's by no means an accident. We have done a tremendous amount of coordination starting back in in mid-November with a, a number of WebEx meetings and a number of face to face meetings. You will see strong alignment in our responses.

PG&E considers competitive bidding the preferred method of award but there are cases where circumstances warrant non-competitive bidding. Right now, we already employ a direct award request form where for each project team that wants to propose making a direct award, they are required to fill out this form where it basically articulates what the services or products are., the estimate of the dollar value of the award, and then most importantly, why they feel a direct award is a necessary or justified in this case as

opposed to doing a competitive bid. We integrate this as part of our sourcing process where along with a statement of work, we upload it to our sourcing platform and it goes through the approval process with leadership, the project team, and impacted stakeholders. What we plan to do moving forward is start providing this justification in every case where we do not competitively bid in our annual reports. We'll just start to pull the language out of these forms that we already fill out and include those in our annual reports.

Frank Goodman (SDG&E): Thanks Dan. I can almost echo what the other gentlemen have said. We do use competitive bidding and we have used it in the past. The majority of our assets and projects had an RFP involved or some other form of competitive procurement. We do in exceptional cases use what we call sole sourcing, which is what you were calling direct awarding, we have company policies that come to bear when we do sole source. For example, we can sole source, when there is a unique skill and unique capability to match the need of the project. Also, the cost of competing may be prohibitive, if it would cost more to do an RFP than the funding involved in the prospective contract. And, other things of that nature may make sole sourcing the best option. And when we do sole source, there are required approval and documentation processes we perform internally. We will do our best to embellish our coverage of the rationale and justification for sole-source contracts in our annual reports.

Aaron Renfro (SCE): Well I think we'll just take a quick pause and see if anyone has any question and this will be that the cadence that we'll use for today, before we jump into the next recommendation.

Caller (unknown): Do the utilities conduct public solicitations similar to the CEC for competitive bids?

Aaron Renfro (SCE): For Edison we do follow our standard contracting and that is public and it's not exactly the same as the CEC. We, the utilities, have slightly different contracting processes, but nonetheless, when it is competitive, it is public.

Dan Gilani (PG&E): I'll second what Aaron said. PG&E's processes are similar. We have a defined request for proposals or RFP process that we go through and we post those opportunities up on our Power Advocate website.

Frank Goodman (SDG&E): I third what we just heard. But, I would add that open procurement solicitations for project ideas that don't map to one of the approved projects are not done, as required by EPIC rules. Any of the RFPs and competitive procurements that we pursue map to one of the already approved projects from our EPIC application that was filed with CPUC.

Evergreen Recommendation: Program Administration

"1c) The CPUC should require the Utilities to specify the funding amount for the noncompetitive award to make it easier to assess the fraction of funding that is being directly awarded. Such information would be useful to determine how much project funding is being directly awarded versus competitively bid."

Aaron Renfro (SCE): Edison proposes to provide a breakdown, direct them towards and what we envision is within the summary of the report, having some information on the direct awards and then modifying the project section of the annual report to include the directive. I will note that direct awards are part of the annual report currently. They're part of the accompanying spreadsheet, but recognizing that the spreadsheet is a bit cumbersome to read and review. We've proposed to make it easier for stakeholders and others that would like to read the annual report, to have that information in the body of the report itself. That's why we add some things. It's important to provide that information at a summary level. And then also in that project section piece. With that I'll turn it over.

Dan Gilani (PG&E): We are in line with SCE with providing summary-level information on the breakdown of competitively and non-competitively bid work. We'll also provide that in the details of the individual projects. We will provide the dollar value of the non-competitively bid work, the dollar value of competitively bid work and then the total spend, which includes in-house expenditures.

Frank Goodman (SDG&E): It is already in our annual report as well, but not in the kind of detail that has been requested. So, we will develop more detail, including the breakdown of total competed contracts as a fraction of total contracts.

Aaron Renfro (SCE): Does anyone have any questions about this particular aspect of program administration? Either within the room or online?

Audience member (unknown): What is the approximate fraction you have currently between competitive and sole source?

Aaron Renfro (SCE): For Edison, we don't have any projects currently sole source, but we do have one contract, to help us with the support of the RAP itself. We needed some additional labor support creating specific proposals around outreach and communications. I'll let PG&E talk about their breakdown.

Dan Gilani (PG&E): From a historical perspective, I don't have that breakdown off the top of my head. One of the things I did want to mention, and I think Aaron you might have alluded to this, in the RAP filing we will provide information on any non-competitive bidding that had been done for EPIC III thus far. Each of us will provide that there. Like we said, we'll also capture the proportion in our annual reports moving forward.

Frank Goodman (SDG&E): We have not done the exact math, so it's a good thing that more detail be provided going forward. In EPIC-1, we had five projects, and the contracts for four of them were competitively procured. The fifth project was done entirely in house, and it had been identified as an in-house project in SDG&E's original application for EPIC-1. In EPIC-2, the fraction of direct awards was low. Approximately, 70 to 80% of the contracts were competitively procured. The exact figures would take some effort to determine. For EPIC-3, these fractions will be provided in future annual reports.

Evergreen Recommendation: Portfolio Optimization

"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."

Aaron Renfro (SCE): We envisioned starting with the project comparison matrix that we created for EPIC II and III as a public workshop to ensure there was no duplication among Administrators, and then enhancing that so that it could show similar technologies as well as energy policies. And I wanted to make sure that I provided an illustrative example today because I thought it might be somewhat difficult to envision what we're really talking about in terms of these enhancements. I'm really talking about is say if you have an area of investment and we'll just say for the sake of conversation today, peak demand side management and then we'd have projects and they'd be categorized by similar technology type. So in this case we're talking about transportation electrification and then we would have proceedings that would be pertinent to this. So in this case, we're talking about the development of rates and infrastructure for vehicle electrification. And then it would also link to pertinent legislation. So in this case we're talking about Senate bill 350 and with that you get kind of a whole landscape of not only what the drivers are from a legislation perspective, but what we're doing at the proceeding level. And then what we have in terms of our demonstration with our similar technologies to support both those proceedings and that legislation. And with that, people would be able to see the range of what we have in terms of the demonstrations and place and possibilities for synergies, possibilities for collaboration and possibilities for future projects.

Dan Gilani (PG&E): This is an inherently a joint exercise, so we're very much aligned on what SCE proposed to do and how we propose to enhance the existing matrix. As Aaron mentioned, we had an initial kickoff face-to-face meeting with the CEC. This is one of the things that we talked about in a good amount of detail and are actually having a follow-up meeting with the CEC on April 9th. This is one of two topics we're going to dive into in more detailed to get to consensus on

specifically exactly how we want to enhance the existing matrix. I did want to point out that one of the good ideas the CEC had was to differentiate between a policy areas that a project might align with and the specific relevant proceedings.

Frank Goodman (SDG&E): We have found this collaborative matrix that we've used in the past to be very useful at SDG&E. I think that it's helped all four Administrators avoid duplication and clarify how one project differed from another. As for the enhancements that the other gentlemen just described, all three Utilities embrace them and the CEC embraces them. And, as Dan just said, we have another meeting coming up with CEC to develop more specifics. The idea of using the matrix tool to enhance the collaborative effort and look for opportunities to work together on a project, not only in the context of this meeting but also in terms of the peer review that we did a week ago, has good support.

Evergreen Recommendation: Stakeholder Engagement

"2d) the administrators should engage more stakeholders earlier in the investment planning process; and 2e) The Utilities should provide more comprehensive information, to allow time for more meaningful engagement"

Aaron Renfro (SCE): For Edison, we do a number of engagements with folks during the course of the portfolio. The utilities hold our annual symposium every February with the CEC and additionally the utilities always hold one other workshop every year on the status of the portfolio. Having said that, we certainly agreed with the recommendation to engage stakeholders more comprehensively and allow for greater feedback and more interactive feedback from the community. So what Edison is proposing is, recognizing that this is the last EPIC cycle before we start the next rule making. It would be physically impossible to start that earlier now, but what we can do is engage stakeholders more with the EPIC III portfolio that we have in front of us. We think it is very important driving stakeholder feedback and not only target the service list, standard service lists that that's what utilities always do. We're also interested in working with our local community right here and we're going to continue to work with the disadvantaged communities that we have in southern

California. Edison territory engages them more and have them recognize a lot of the work that we're doing right here in this, in this lab space, in the disadvantaged community of Westminster.

Dan Gilani (PG&E): PG&E's approach aligns very closely with SCE's. PG&E launches its projects in waves. We filed a total of 43 EPIC III projects, we then down selected to a first wave in late 2017 and early 2018, and this first wave which is being executed now is comprised of 14 projects. We will be launching a second wave of projects likely early next year. And what we proposed to do is in advance of the launch of that second wave, we'll hold a workshop to socialize those projects with EPIC stakeholders to gain feedback to help us finalize the scoping of those efforts before we launch them. We touched on the technical advisory committees. This is something that PG&E is very much on board with, and as mentioned, there was a lot of feedback when we met with the peer R&D programs on the prevalence and on the value of these. That's something we've heard loud and clear. We're very much looking forward to incorporating that. Aaron also alluded to increased collaboration with disadvantaged communities. This is a probably a good place to note that through our EPIC III decision we will be holding formal workshops specifically for disadvantaged communities, and we very much look forward to that as well.

Frank Goodman (SDG&E): For anything that's done in the context of this improved engagement to really be used in EPIC III is dependent on when the rest of the EPIC III funding is released. We would like to engage going forward in these technical advisory committees, which will not only have internal stakeholders from SDG&E and the other Administrators, but also other key people who bring key technical expertise to the brain trust that shapes the projects.

Aaron Renfro (SCE): Any questions in the room on stakeholder engagement?

Audience member (CEC): The disadvantaged community type outreach you're going to be doing would be great. We have a market facilitation office works really closely in that area and I can spread the word there as well. And then the other

recommendation I have is that if possible, we're always looking to have every one of our tech to have engagement or involvement by the utilities. Um, it would probably be good and we would like to be on your tech advisory committees as well. You know, the tech advisory committees can share information, they should know what we're doing and it keeps it up and then give a certain synergistic approach to the whole thing.

Aaron Renfro (SCE): SCE agrees. And the CEC is a critical partner. You guys are a fellow administrator for the program and certainly I think it is imperative that the CEC attend any public forums, whether that's a Webinar at workshops that we conduct in advance of any project starting or just any of the planning process that goes on for the portfolio will be talking a little bit more to in terms of disadvantaged community benefits here in a little bit. But that's certainly a great suggestion. Making sure that we're aligned and sinking up with it. The Market Facilitation Office and the CEC has done a heck of a lot of work in that space. We want to make sure that we're standardizing our approach.

Evergreen Recommendation: Project Selection Process

"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." "3b) the utilities should share project research plans and budgets with the Commission and the public, at least one month prior to launch."

Aaron Renfro (SCE): For Edison, we thought it might be easiest to think about this in terms four different areas. But before I get into those four different areas, I just want to mention that Edison follows a very rigorous and disciplined portfolio management process throughout the EPIC cycle. Edison starts with looking at near medium and long term challenges to help define the strategic priorities. And Edison internal subject matter experts develop the EPIC proposals as potential projects for the EPIC investment plan. And then these proposals are screened to ensure alignment with the EPIC guiding principles in terms of providing ratepayer benefits and the investment planning

framework that the utilities have created and their potential project benefits. Prior to constructing the portfolio, potential EPIC projects first align internally around strategic priorities. And these priorities are driven by the company's business, the changing needs of the market, the regulatory and legislative landscape. And then these priorities really are consistent with the EPIC joint investment framework. And that was created during EPIC I and it's used by all three utilities throughout EPIC I, II, and III. And it's really just a way of structuring the EPIC portfolios. And there are four areas of investments within the joint IOU framework. And then the second step really is to prepare the EPIC portfolio that aligns with the priorities of the EPIC investment plan and then generating a wide range of project concepts within Edison. And we go throughout the company to engage these concepts. And then it's up to the Edison EPIC project management team to evaluate them using the following criteria. And the criteria is around three areas. And the first is the alignment to Edison strategic priorities and that EPICs investment framework that I've just talked about. And then the second area is really around likelihood of providing customer benefits. So we're really talking in this area about feasibility, timing, scope, and the benefit opportunities. And then the third area is around compliance with the EPIC program for utilities. Then when we're really talking about the projects being finalized, we're ready to prepare and launch the plan based on the priorities. And we will always make sure to have broad stakeholder engagement both internally and externally and to provide that project oversight. And then throughout the project execution, Edison continues to provide updates to stakeholders through public forums such as that annual symposium that I had mentioned early on, as well as the additional public forum, as well. So that's kind of how we think of things in terms of the four areas of defining the technologies and selecting, evaluating, and then implementing them.

Dan Gilani (PG&E): In late 2017 and early 2018, we went through a rigorous process of down-selecting and identifying the subset of 14 projects that would comprise our first wave. This is something that we did with our leadership committees. We had project teams come in

and present to a director committee and then we also presented to our office committee, and our steering committee members would score the projects with the criteria matrix that we've developed. That's how we racked and stacked or set of projects and came up with our first wave. Now after a wave of EPIC projects is selected, the project teams still need to fill out a robust business plan that's reviewed and approved before we cut them order numbers to start charging and executing the project. In these business plans, they articulate the value proposition and the scope of the project, success and benefits metrics, key impacted stakeholders and the path to production if the project is successful. The path to production is something we're harping on more and more. We make sure all impacted stakeholders get a chance to review it, and formally approve the business plan. So that's the process that we employ. That's what we did with our first wave of EPIC III projects. And we intend to go through that same process moving forward. As I mentioned, we'll be launching a second wave of EPIC project and we'll go through this rigorous process again. One thing I mentioned a minute ago was that before we launch our next wave of projects, we will do a stakeholder workshop to socialize it, get feedback, and finalize the scoping based on that feedback. Also, when we were talking to the CEC they had offered that for whatever subset of our next wave of projects that aligns with a wildfire resiliency, we can discuss those as a part of one of your ongoing workshops in the area and we very much look forward to that.

Frank Goodman (SDG&E): We have a rigorous process for vetting projects to determine which are placed in our application. In EPIC-3, we had seven projects that made it into the application, and we started in the Fall having strategy sessions with stakeholders for each of the seven projects. And, we were finding out at that time that just two thirds of the EPIC-3 funds would be released initially, with the rest not to be released until the RAP is filed and approved. So we took a look at those seven projects to determine which ones we would start as our first wave with the funds that we had available. We met with the stakeholders for each project. And it's not just one group that's a stakeholder for any one project. A project may have

multiple stakeholders, such as our fire science group, our operations group, our engineering group or others, depending on the project topic. So, we engage all the stakeholders to look at what was approved in our application. We select the highest priority projects, and we don't change the project objectives. But within any approved project objective, we choose a focus and start brainstorming around implementation issues, such as: Do we have a suitable site for the demonstration? What equipment would be needed? What internal staff need to be assigned to the project? Are they available? And of course, what are the most urgent projects? We choose a champion director for each project, select the highest priority projects for release, and proceed with the project plan writing.

Evergreen Recommendation: Match Funding

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

Aaron Renfro (SCE): What we plan to do in the match funding area is to modify our own contracting processes, really encourage, more vendor contributions for match funding when it comes to project demonstrations. And then to not only explicitly have this in our contracting negotiations and in our public RFPs or are public solicitations for competitive award or bids. But we're also proposing to then track the match funding within future annual reports. We really haven't had too many opportunities for match funding, but we think that at least we being the utilities think that there's a lot of potential in terms of changing our own contracting processes to encourage more of the vendors match funding opportunities.

Dan Gilani (PG&E): I think that like the direct award recommendations, this one is also pretty straight forward. I think we're well aligned on how we're going to tackle this. Like Aaron said, we're going to modify our procurement processes. So in the RFP we will request them to identify how much match funding they proposed to provide. We will include it in the scoring criteria in the RFP. We'll propose to include a field in the subsequent contract as well for the actual match

funding that's going to be agreed upon. And then like Aaron said, we'll provide information on any match funding that's been provided for any projects in the EPIC annual reports.

Frank Goodman (SDG&E): I agree. This one is straight forward, and we have encouraged match funding in the past. We're going to more strongly encourage it in the future. It's not going to be a requirement in the RFP, but it will be strongly encouraged, and it will be one criterion used in making our final selection. There are different forms of match funding. Some program sponsors use a term called program sharing, which is broader than match funding. For example, if a bidder wants to offer test equipment or make a lab available, or other in-kind services, it is something that will be taken into consideration. Program sharing is not limited to just dollar matching in the overall project budget. We will document matching and program sharing in the annual reports.

Evergreen Recommendation: Benefits Quantification

4c) "The Utilities 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 Utilities' project scopes of work; and*
- *The Utilities 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)."*

Aaron Renfro (SCE): In terms of how we think about benefits and identifying them, the first step is really thinking about the specific capabilities that the EPIC project supports. Directly enabling the capability or supporting it indirectly by providing lessons learned or knowledge that can inform subsequent demonstration project. The next is to identify the specific benefits each capability provides. And we're really talking about basically two different areas. You're talking about customer benefits. So we're talking about greater reliability, lower costs, and increased safety. And then we're also

talking about complimentary benefits such as societal benefits, greenhouse gas reductions, emission mitigation, the loading order, low emission vehicles, transportation, economic development and efficient use of rate, payer money. And then the process of identifying which capabilities the project is expected to advance in which benefits the capabilities are expected to deliver, whether directly or indirectly it should be performed by the project team and the ideation period of each EPIC project. And then when we're thinking about the second step in evaluating a project's potential benefits is to describe each benefit in greater detail and to really define the expected project capabilities and benefits more specifically. And this should really include describing how the technology delivers capabilities, the scope of capabilities and the benefits. So what we're talking about there is system geographic region, circuit or customer specific benefits, any dependencies or restrictions on realizing the capabilities and benefits and over what time they might be realized. And then the third step is about expressing the potential benefits of a project quantitatively. And then this requires the team to demonstrate the benefit and the meaningful quantitative metric. For example, if the project is expected to improve reliability, potential metrics would include potentially CMI, which is customer minutes of interruption avoided annually. Or taking a look at which is our system average interruption duration index. Or maybe it's a monetary interruption avoided annually or maybe it's a momentary average interruption, a frequency index. And then once the team has identified the relevant benefit and metric, the next step is either to measure the metric directly once the technology has gotten to operation in the field or the lab or estimate the metric value. And in some instances it may be possible to translate benefit metric and do estimates on financial value. And one of the customer benefits identified by the Commission, lower cost is already expressed in terms of just financial value. And also I wanted to mention as a CEC has alluded to in one of the earlier comments today, they put a lot of work into disadvantaged community benefit work. And Edison really wants to make sure that we plan to standardize an approach across the

utilities to evaluate DAC benefits using the CEC's approach for our demonstration projects with that.

Dan Gilani (PG&E): We do a lot of qualitative description of the benefits or the value proposition through our final reports and through our annual reports, and PG&E is very much onboard with now also providing quantification of those benefits; a subset of which might be hard financial benefits. One of the things that we do now in the upfront business plans that I alluded to before was we have the benefit section where teams identify the benefits category, provides a short description of the benefits mechanism, and then the third thing that they provide the calculation methodology for the benefits. That's something that we intend to continue to leverage as we will now be sharing quantitative benefits externally. What we plan to share is both a projection of benefits at scale, and also quantification of any benefits that might have already been realized through projects that have a field demonstration component. One of the things that we're thinking now that we want to add to our business plan template is a fourth column in the benefits section where in addition to saying here's the benefits category, here is the qualitative description of the value proposition, and here's how we would calculate the metric, the fourth column that we would add to our business plan template would capture how we are going to collect the data that you would need to quantify and track these benefits. We look forward to adding that. Another thing I wanted to mention is that we also, in addition to the public facing final reports for each project. We have teams fill out a supplemental internal closeout document. In that closeout document, teams fill out a projection of the quantitative benefits when the project is deployed at scale. So, we'll leverage the things that we have in place and already use internally, and make enhancements to be able to share externally the quantitative benefits.

Frank Goodman (SDG&E): We have a process where in planning the project, we consider an initial estimate of the benefits that would come from actual successful follow-up commercialization of whatever's being demonstrated in the pre-commercial demonstration phase. We do an initial estimate of benefits, but then we also choose

metrics that will be examined as part of the demonstration. So, you have that initial estimate, then you apply metrics during the demonstration to get data that will help you check your initial estimate. When the data is available from the demonstration, we analyze the data to update the benefits estimate. For example, are there more benefits areas than you included in your original estimate? A more precise benefits estimate is made based on the demonstration results. The desired result is to have a benefit story or value stream at the end of the project, which provides enough information to support a recommendation on whether or not you really want to pursue this technology commercially. In the project documentation, we make the same information available to the other Utilities or other potential users to help them decide whether or not they really want to commercialize it. If commercialization is recommended, the benefits story should outline the cost and the resource requirements for future steps. In summary, it's a benefit story that starts with an initial estimation and metrics to examine the accuracy of the initial estimate. Then, a final estimate is made that provides information that can support decisions about commercialization.

Audience member (UCLA): I have a question about the process for which you're going to identify metrics. And one tool that we use at UCLA for a current project that's looking at climate focus projects and investments in disadvantage communities is a logic modeling and it's really helpful to kind of identify metrics and measure benefits at different points in the process. We can kind of capture benefits that occur early on versus later. We tried it to be useful to be like consistent across projects. Have utilities considered any sort of tool to identify trackable metrics at different points in the phases or across different project types?

Aaron Renfro (SCE): We weren't necessarily aware of some logic based modeling in the context of disadvantaged communities. We had really thought about disadvantaged community benefits and taking a look at what the CEC has done, but we weren't necessarily aware of others that have taken an interest in this area and potentially doing some complimentary work. I

think it really would be beneficial at least for Edison and potentially if the utilities to have the conversation around what this logic modeling can do in the disadvantage disadvantaged community space and see how that kind of maps with what the CEC has done thus far with the air resources board and a number of nonprofit groups.

Frank Goodman (SDG&E): I have two questions for Kelly. You heard what was said about benefits estimation before, during and after the pre-commercial demonstration. I'm wondering if the logic tool that you described is intended to be a benefits tracking tool during commercialization? Or, does it also have applicability during the pre-commercial demonstration phase, which is what the utility EPIC projects are?

Audience member (UCLA): Potentially. I'd be happy to share a link with you. It's pretty simplistic, but we've applied it to a variety of stuff.

Frank Goodman (SDG&E): We'll certainly schedule a meeting in the near future. I'd like to get a better sense of how the UCLA approach might potentially complement the approaches that we currently use.

Evergreen Recommendation: Results Dissemination

"4f) SCE should share its project results more widely with interested stakeholders, including delivering presentations at conferences and workshops."

Aaron Renfro (SCE): And it was a little bit, uh, unfortunate timing when the evaluation was taking place. For Edison, the grid technology organization that administers EPIC was going through a reorganization. And so we were not broadcasting as widely as we did in the past or as we envision in the future. So it just so happened that it appeared that we were disseminating our results. We certainly take the recommendation quite seriously. So we are already in the process of identifying a number of different conferences and workshops where we can talk about our EPIC projects and some of those workshops and conferences where we're already lined up to speak and present is going, is that DistribuTECH

uh, the Western Energy Institute Operations Conference, The Energy Storage Technologies And Applications Conference, The Institute Of Electrical And Electronics Engineers, IEEE Photovoltaic Specialists Conference And The Center For Energy Advancement Through Tech Technological Innovation Smart Grid Conference. There's going to be a number of other conferences and workshops that were in the process of identifying where we can present. We're also in the process of publishing a number of white papers on our projects. And additionally, as I had kind of alluded to earlier in the day, we've also brought on some supplemental Labor support to help specifically with the results and RAP in general and we are going to be putting together an outreach and communication strategy that we have a more comprehensive vision and focus as to how we put together our presentations for conferences and workshops as well as our white papers. Also wanted to mention that as part of this process in terms of our communication strategy, we plan to update our website, our external website, and we plan to have not only our investment plans, our annual reports or project final reports, but we also plan to have our presentations from these conferences and workshops that I talked about and we also plan to have the white papers are worked out on our website, so we have a number of improvements in the works. Going to take a little while for all of that to come to fruition. Our it department is spread pretty thin, but we certainly have plans in place to dramatically improve the effectiveness and the efficiency of our results dissemination for EPIC demonstrations

Project Impacts & Policy Alignment

"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."

Aaron Renfro (SCE): This particular recommendation is one where it's critical that we have a collaborative process. And so the utilities and the CEC are in the process of meeting to further talk about how we want to transition the applied R&D projects into potential utility demonstrations. I also want to mention though that

depending on the timing of when we have these meetings, the potential demonstrations may end up being in a subsequent EPIC cycle if the utilities have already committed or encumbered all of their funds. So there may be a timing issue in of how quickly the results get incorporated, but also wanted to emphasize that in the future there will be a process to make sure that that result is identified and discussed among all of the Administrators and potentially look at any follow-up demonstrations.

Dan Gilani (PG&E): I don't have much to add. I think Aaron summarized well - we're all working together, we're working to identify the specific list of topics for these recurring meetings that we've agreed to, and we'll be doing that over the coming weeks and months.

Frank Goodman (SDG&E): Just to add in, we had a really good interaction with CEC around this issue and options for addressing the matter.

On-Going Program Evaluation

"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."

Aaron Renfro (SCE): So this particular recommendation is connected to the earlier discussion that we had about portfolio optimization. Remember we're talking about wanting to create an enhanced matrix that has filter capabilities for the technology types and for energy policies. And this is the part, once we get that matrix done, we want to work with the CEC to have one centralized database. So for everyone's awareness, the CEC has a great database of all of their projects. It's on their website. And what we want to do is overlay that information on utility projects, being able to filter as I mentioned, but then being able to have just one database. So if you're a stakeholder, if you're a vendor, if you're a researcher, if you're a fellow utility or if you just live in the community and you want to take a look at everything that is taking place in the EPIC program, whether that's from CEC or one of the utilities, you'll

have that ability to do so on a public website. Now having said that, there's going to be an awful lot of coordination and collaboration that we'll have to take place to make sure there's consensus among all four Administrators because well, Edison has a number of projects, it pales in comparison to the number that the CEC runs. And so we want to make sure that the CEC is comfortable with all the different fields that we might have for the database. In the short term, I should say the utilities will be maintaining this database, but per the EPIC III Decision, it talks about having the PICG coordinator maintain the website or maintain the database. So we want to make sure that the maintenance isn't too overly burdensome for the PICG coordinator and is efficient. So for this particular recommendation, as I mentioned, we're meeting with CEC very shortly, to talk about a whole host of programmatic issues. We're going to continue to talk about how we can work together to create this database so that all stakeholders can really take a look at things and get a good sense about the status of the program.

Dan Gilani (PG&E): Aaron, I think you summarized it well and I don't have a whole lot to add. I just want to reiterate that, between the enhancement of the current project comparison matrix and our standing up processes to quantify and track benefits, largely serve as the foundation for this database. We'll also continue to collaborate with the CEC. We have the meeting on April 9th that I referenced and we'll continue to work with them on coming up with a recommendation on the data elements that might be included in the database, and recommendations on how the database is established.

Frank Goodman (SDG&E): One point: In addition to doing all the things that were just said, one of the things that needs to be considered, as we plan this database, is the budget. How is the database going to be funded? And if it's done right, it could be a blessing, because when I look at our individual website that we do at SDG&E for EPIC and all the other EPIC administrative items, the administrative budget is getting pretty strained, as far as covering something else like this database. If properly designed and implemented, the collaborative database could help us achieve efficiencies and enable

us to avoid having to cut other things from the administrative budget.

Audience speaker (CEC): On behalf of the CEC, we already administer a database, and then to kind of hand it over to someone else to do it. I don't know how that works, but that would be interesting to see how that would work.

Aaron Renfro (SCE): I think utilities are even open to other structures, but when it comes to the database maintenance, I know we had some explicit direction and guidance from the Commission. That's certainly something that we could continue to kind of discuss as well and whether that really makes sense for the PICG to do or whether it made more sense for one of the Administrators to continue to maintain it, being that you already maintaining the database.

Audience speaker (CPUC): I think the only database concern is that the functionality is actually useful. I like the energy innovation showcases, it is good when we want to get a sort of project by project look, but it's not as good as when aggregated. If you're wanting to sort of, you know, say what's the funding per technology types or project types, it doesn't do that. So it looks nice. So for someone looking for key performance metrics that doesn't exist currently.

Audience speaker (CEC): Right, right. So there are definitely some limitations, filtering limitations that those are the types of things. I think it would be really beneficial when we collectively meet that we could have some of those additional capabilities and you get take a look at those things because you're right. Um, right now the energy showcase doesn't allow that sort of thing. But with some minor modifications that we can certainly allow, it'd be some work. But no, that's a good point. There are some adjustments to be made.

Speaker 4: Okay. So that kind of wraps up that portion of the workshop today in terms of all the different recommendations.

Meeting Title: IOU & CEC Follow-up Meeting on EPIC 3 Research Administration Plan
Date: April 9, 2019
Location: Remote (WebEx)
Attendees:

- CEC: Fernando Pina, Angie Gould, Virginia Lew, Rizaldo Aldas, Jesse Rosales
- PG&E: Dan Gilani
- SCE: John Minnicucci, Aaron Renfro, Nick Connell
- SDG&E: Frank Goodman

Meeting Summary:

- Process for aligning CEC R&D with IOU TD&D efforts (Recommendation 5c)
    - Action: CEC to provide the Utilities with a prioritized list of topics (which might each include multiple projects) for the recurring meeting series. Target is end of week.
    - It was decided that we'll hold meetings monthly, with one in-person meeting per quarter, and the rest via WebEx.
    - Each meeting will focus on one topic area, to make it easier to coordinate SME attendance.
    - Administrators will alternate hosting in-person quarterly meetings.
- Establishing consensus on proposed enhancements to existing Administrator Project Comparison Matrix (Recommendation 2b)
    - For adding categorization of administrator projects by technology type, it was decided to use the following categories from the CEC's Innovation Showcase: Combined Heat and Power, Demand Response, Energy Efficiency, Environmental and Climate Change Research, Market Acceleration, Public Health and Safety, Renewable Energy, Smart Grid, Storage, Transportation.
    - Action: Utilities will propose any additions they feel are needed to this set of categories.
    - It was decided to also refresh our mapping of projects to policies and CPUC proceedings, since it's been 1.5 years since the matrix was developed.
- Establishing consensus recommendation on the set of data elements to be included in the joint administrator database (Recommendation 7b)
    - Beyond what will be provided through the enhanced Project Comparison Matrix, going forward the Utilities should be able to provide the same project-level data that the CEC provides through its Innovation Showcase. The CEC was supportive of the Utilities proposing two additions to this set of data:
        - Differentiation between total project spend vs. amount awarded to vendor(s) (as much of the Utilities' spend will be in-house)
        - Differentiation between projected benefits and benefits already realized through demonstration (as the Utilities are proposing in the RAP to capture these distinctly in their reports)
    - In terms of categorizing the benefits that are included in the database, it was agreed to use the following categories (which the CEC already uses in the

Innovation Showcase): Lower Costs, Greater Reliability, Increased Safety, Economic Development, Environmental Benefits, Public Health, Consumer Appeal, Energy Security.
    - It was also decided that Increased Resiliency should be added as a distinct category.
- The Utilities noted that it could be extremely difficult to retroactively capture various data elements (particularly benefits data) for their completed EPIC 1 & 2 projects. In these cases where there will be blank cells in the database, it was decided to include links to the project final reports.

IOU Discussions with DACs (April 15 – 17, 2019)

DAC Group: Blue Lake Rancheria

Representative: Jana Ganion

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/15/2019

- Introductions and EPIC/RAP Background Discussion
    - Jana offered that in addition to her being a member of the DAC Advisory Group, she has been involved with two EPIC microgrid projects to date, and thus has some familiarity with the program. She complimented PG&E for being an extraordinary partner with Blue Lake Rancheria in supporting the EPIC microgrid projects.
    - Jana was not fully aware of the distinction between Applied R&D, TD&D and Market Facilitation within the EPIC portfolio.
    - Microgrids have been successful for Blue Lake Rancheria, and have resulted in significant benefits, in every category that was envisioned. These microgrid efforts have resulted in increased employment.
    - Jana sees microgrids and DERs as opportunities to solve local problems for tribes, many of which have never had access to the grid in their communities. These solutions could be more efficient alternatives to building new transmission lines.
    - In her experience over the past 3 years, Jana has developed an appreciation for the amount of expertise needed to operate a microgrid, and suggested that while in some cases tribal governments may have the resources to operate them, in other cases they might need to be operated by the utilities.
- Stakeholder Engagement
    - Blue Lake Rancheria receives numerous inquiries from a wide range of organizations (including other utilities, tribes and communities) for technical expertise/assistance on microgrid projects and the facilitation of the first steps of microgrid design. Where these EPIC projects prove successful, Jana sees the need to provide centralized outreach and education activities specifically around best practices, since the lessons learned do not seem to currently be getting out in a meaningful way. It was noted that the CEC is currently leading an effort to conduct interviews and establish and share best practices associated with all the microgrid projects they've conducted through EPIC.
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Jana offered that the symposiums and workshops have been effective, but it would be good to rotate them to the

farther regions in each IOU's service territory. Video conferencing could also help with accessibility for more remote locations. Jana offered additional idea for improving DAC participation: scheduling events and sending out information/invitations several months in advance, conducting targeted outreach with individual groups, tailoring the message in a way that will appeal to the recipient, and marketing events as an opportunity to weigh into scoping.

    - In response to the question of what emerging technologies would be of particular interest to Blue Lake Rancheria, Jana suggested that microgrids and DERs have been very valuable, and they'd like to see those continue. She also suggested that for California's north coast more broadly, she would like to see offshore wind solutions demonstrated, as that area has an ideal wind profile for this type of solution. The military has interest in wind solutions in this area. Lastly, Jana felt that building energy efficiency was of interest (though the Utilities do not conduct energy efficiency emerging technology through EPIC).

- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Janna offered that it's always difficult to effectively dissemination information to all stakeholders. She suggested generally that it's good to pick one avenue for sharing information and stick with it. There should not be multiple websites/resources that a stakeholder needs to access to get all the information they need on a topic. There has also been some indication that project final reports are difficult to locate on the CEC's Energy Innovation Showcase.
- Results Dissemination
    - In response to the question of how to best disseminate results of completed EPIC projects, Jana suggested that for tribal communities, reaching out to the tribal chairman's association, and tribal leaders would be effective. They have regular meetings, and the Utilities could get on their agendas to present to those bodies. There are tribal association meetings in Sacramento, but also conferences all over the state. Per the previous suggestion, it would be good to move the locations of the existing workshops around a bit.

DAC Group: Pacoima Beautiful

Representative: Andres Ramirez

IOU Participants: Aaron Renfro (SCE), Haritha Adusumilli (PG&E), Frank Goodman (SDG&E)

Date: 4/15

- Introductions and EPIC/RAP Background Discussion
    - Pacoima Beautiful is a grassroots environmental justice organization that provides education, impacts public policy, and support local arts and culture in order to promote a healthy and sustainable San Fernando Valley.
- Stakeholder Engagement
    - In response to this issue, Andres expressed his feeling that more partnering with organizations in the communities is desirable. He indicated that we should increase our efforts to get more participation from DACs. He believes our general announcements do not attract full stakeholder engagement. Timing is critical, and how we disseminate announcements is critical. Our announcements should minimize use of technical terms so as not to overwhelm the audience. Additionally, the Utilities should provide handouts to help provide further context to grid demonstration presentations. To give us input or otherwise engage, the community needs to understand the issues.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the question, "What types of emerging technology do they want to see demonstrated—for Pacoima and the San Fernando Valley in general?", Andres replied: Solar power systems and electrification for transportation. He then stated that the "old grid" needs to be updated to be more resilient and reliable. They experience intolerable blackouts in the very hot days of the summer months in the Valley. He also suggested that we seek future engagement with the following two organizations: California Environmental Justice Alliance and California Calls.

Results Dissemination

- Andres described the current CEC database as hard to find. He stated that it needs to be made more accessible. CEC should be informed of this issue.
- Aaron described our plan for enhanced benefits quantification and working with CEC to leverage their resources and approach. Andres agreed that more uniformity would be good for comparisons.
- Aaron described our processes for disseminating results in reports, workshops and papers. In response to the question on what would be most beneficial to him in this context, Andres stated: More public workshops

would be helpful, more on-line information would be good, more illustrated information on projects (less technical), enhanced websites, and putting information on social media. He stated that we need to get the workshops out to the people, by rotating locations for them including holding workshops in DACs.

DAC Group: Greenlining Institute

Representative: Madeline Stano

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/15/2019

- Introductions and EPIC/RAP Background Discussion
    - Madeline offered that she's been aware of/ involved with EPIC since 2015/2016.
    - Madeline found the breakdown of the current EPIC program structure to be very helpful.
- Stakeholder Engagement
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Madeline suggested that any outreach is a step in the right direction. She offered that there are a lot of DACs, CBOs and low-income areas that are interested in participation in EPIC. In general, partnering with a local CBO to facilitate a stakeholder workshop would be helpful. Madeline offered to share her list of organizations that they know are interested. The co-host CBO would be able to help a lot with outreach and coordination. Beyond this, Madeline also offered that people will want to participate if they feel they will have influence over the scope, and when they can clearly see the benefit to participation. Earlier in the cycle there's an opportunity to be more inclusive when defining each project's set of key/impacted stakeholders and associated engagement points. In addition, with respect to workshops, earlier planning and outreach as well as highlighting and celebrating successes would also be helpful.
    - The CEC is in the process of creating a database of CBOs that the Utilities could leverage. Madeline will connect the Utilities with the people at the CEC leading this effort.
    - In response to the question of what emerging technologies would be of particular interest to DACs, Madeline suggested said their focus is more on identifying problems and the associated desired improvements in their communities, and less on identifying specific technologies due to what oftentimes limited knowledge in that area. Greenlining Institute does a lot of needs assessment work with DACs.
    - Madeline offered that DACs are under-invested in, and thus might have more openness to various technologies that could solve their problems.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Madeline first offered that the CEC's Energy Innovation

Showcase can be somewhat difficult for people who aren't professional advocates to navigate, as it assumes a high baseline of energy knowledge and vocabulary. It can seem wonky to people unfamiliar with the program. Adding visualizations and reducing the volume of text would be helpful. It's also important to clearly tell the story of non-energy benefits in a way that will resonate with people on the community side. Madeline also offered that in the past it has sometimes been difficult for people to navigate the Innovation Showcase and suggested providing more accessible community-facing tabs.

  - Madeline supported the Utilities' plan to leverage the results of the current DAC benefits quantification effort that the CEC is leading, and noted that Greenlining Institute has been participating and providing comments in that process.
  - With respect to the future joint database/website, Madeline suggested including notices on upcoming workshops and stakeholder events.
- Results Dissemination
  - In response to the question of how to best disseminate results of completed EPIC projects, Madeline suggested that it is important to have an in-person component. This helps generate dialogue, develop networks, and develop trust. Some stakeholders also have limited access to the internet. As mentioned before, tailoring the language/messaging to the audience is also important.

DAC Group: Rising Sun Energy Center

Representative: Jodi Pincus

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/15/2019

- Introductions and EPIC/RAP Background Discussion
    - Jodi conveyed that workforce development was a particular area of interest for her organization, to which it was indicated that this was more directly aligned with what the CEC is authorized to support through EPIC.
- Stakeholder Engagement
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Jodi offered that clearly articulating the value proposition and specific goal of the engagement to the target audience are very important. Adding a personalized touch and following up can also be effective. In planning workshop locations, it is important to ensure the locations have a lot of CBOs, and not just policy groups that will participate.
    - In response to the question of what emerging technologies would be of particular interest, Jodi suggested anything that will mitigate pollution, and further climate resiliency. She also noted that her organization recently moved into their new building, and that they would love to partner through EPIC to conduct an energy efficiency demonstration. It was noted that the Utilities are not permitted to conduct energy efficiency work through their EPIC portfolios.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Jodi voiced support of the effort and suggested that knowing what resources are available and how to use them is currently challenging. Jodi suggested that the common database should have a simple name that is easy to find via search, such as “EPIC Awards”. She also suggested that the database/website include information on upcoming stakeholder engagement events and perhaps also funding opportunities.
- Results Dissemination
    - In response to the question of how to best disseminate results of completed EPIC projects, Jodi suggested that webinars would be good, along with individual outreach to add a personal touch. If there’s a project that specifically pertains to DACs, partner with the communities, otherwise workshops and symposiums are fine.

DAC Group: Leadership Counsel for Justice & Accountability

Representative: Phoebe Seaton

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/15/2019

- Stakeholder Engagement
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Phoebe suggested that the CEC's approach of co-hosting various events with CBOs is very helpful. She also suggested that getting a notification for an upcoming event on the agenda of a DAC Advisory Group would be helpful. Members could provide feedback on the agenda and then help with outreach.
    - In response to the question of what emerging technologies would be of particular interest, Phoebe identified the electrification of rural ridesharing as an area of interest.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Phoebe suggested that she would review the current CEC EPIC Innovation Showcase and get back to the Utilities with her feedback.
    - Phoebe supported the Utilities' plan to leverage the results of the current DAC benefits quantification effort that the CEC is leading,
- Results Dissemination
    - In response to the question of how to best disseminate results of completed EPIC projects, Phoebe recommended the website, since it's live and broadly accessible. She stressed the importance of having one place for stakeholders to access all EPIC-related information, as well as the importance of apples-to-apples consistency across the Administrators' reporting.

DAC Group: Central CA Asthma Collaborative

Representative: Angela Islas

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/16/2019

- Introductions and EPIC/RAP Background Discussion
    - Angela offered that she isn't currently very up-to-date on what has been going on with EPIC, though she did attend the PG&E-hosted Fall EPIC workshop in Fresno, CA. She reviewed the RAP in advance and reiterated the importance of the Utilities addressing the evaluation's recommendations.
    - Angela thanked the Utilities for the overview of the EPIC program, and the breakdown of Applied R&D, TD&D and Market Facilitation. She said it helped her appreciate the challenges associated with the different categories to allocate funds to specific communities.
- Stakeholder Engagement
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Angela recommended that the Utilities interact directly with individual CBOs. She also stressed the importance of translating the message to DACs out of technical terms and into terms that will be meaningful to them, as well as boiling it down to how they'll benefit. She called this shaping the language to be community friendly. Angela also agreed with other interviewees' recommendations to use more images in place of text.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Angela suggested that she would review the current CEC EPIC Innovation Showcase and get back to the Utilities with her feedback.
    - The CEC has compiled a service list of DAC groups, and it would be beneficial for the Utilities to leverage that list for outreach.
- Results Dissemination
    - In response to the question of how to best disseminate results of completed EPIC projects, Angela reiterated the importance of translating the message into relatable terms and leveraging more images to explain concepts. She also suggested that the Utilities should get on the agenda of an upcoming DAC Advisory Group to share past and upcoming work in their EPIC portfolios and begin to identify targeted opportunities for collaboration. She would like to see more alignment with EPIC as part of the DAC Advisory Group meetings.

Group: Natural Resources Defense Council

Representative: Peter Miller

IOU Participants: Aaron Renfro (SCE), Dan Gilani (PG&E), Frank Goodman (SDG&E)

Date: 4/17

- Introductions and EPIC/RAP Background Discussion
    - Peter noted that a significant amount of time has passed and much has changed since decision had been made on the Utilities' involvement in generation, energy efficiency and demand response through EPIC and suggested it would be beneficial to revisit these positions at the program level.
- Stakeholder Engagement
    - In response to the question of how the Utilities might increase DAC participation in their outreach events, Peter suggested personal outreach is the way to go. He also agreed with previous interviewees' suggestions to partner with local CBOs for workshops, and on making the language of the messaging more relatable and using more pictures and providing handouts.
    - In response to the question of what emerging technologies would be of particular interest, Peter identified building decarbonization and other areas of energy efficiency and demand response but acknowledged the Utilities limitations in supporting these areas directly through EPIC.
- Portfolio Optimization & On-Going Program Evaluation
    - In response to the questions of how to enhance the existing project comparison matrix and provide a useful database/website of consolidated EPIC information, Peter noted that he did not have much familiarity with the current practices or the CEC's Energy Innovation Showcase.

Appendix B

Direct Award Request Form

APPENDIX B: DIRECT AWARD REQUEST FORM

PG&E DIRECT AWARD REQUEST FORM:

Requisitioner's Name Lan ID Phone Number

PG&E recommends goods and services to be competitively bid if the aggregate or planned contract award is $250,000 or greater.

NOTE: This form is NOT required when issuing contracts(eg, "CWAs") linked to a preferred supplier (suppliers with a PG&E-issued MSA or Blanket Agreement)

Use this form if you are requesting:

a. a standalone contract(with no MSA in place) that exceeds $250K

b. a change order contract(with no MSA in place) that exceeds $250K

c. a new MSA that was not competitively bid, with a target value that exceeds $250K

The purpose of this form is to determine why your request is an exception to using a preferred "Source of Supply" or a competitive bid.

The following reasons may warrant a direct award: *Notice of Violation, Work has started (this will result in an After-the-Fact-Purchase order reported to your VP), Natural Disaster, Emergencies(does not include scheduling constraints), CPUC mandated supplier, other mandates, Sole Source – highly specialized technical requirements.*

Complete all items in Part 1. If this direct award is approved by Sourcing , Sourcing will also strive to collaborate with you to negotiate with the supplier to achieve the best possible deal for PG&E in accordance with Corporate Governance and the Employee Code of Conduct.

Part 1: Name of Supplier and Summary of Proposed Award:	
Supplier Name:	
Address:	Contact Name Phone & Email:
City/State:	Job Title:
Required Start Date: Proposed contract amount: 1. Description of goods or services: 2. Please clearly state why your recommendation for a direct award, including reasons for not selecting a Preferred Source of Supply or competitive bid, is the **best business decision for PG&E:**	
Part 2: Contractor Safety Details:	
What is safety risk level?: [Low/Medium/High]	
ISN-ID:	Vendor Grade in ISN:

Does vendor excavate? [Yes / No]	Gold Shovel Status: [Certified / Not Certified / Not Applicable]

Part 3: Sourcing Review & Approval	**APPROVAL SHOULD MATCH SOURCING DELEGATION OF AUTHORITY**
Sourcing Specialist Name:	**Sourcing Specialist: (e-signature required)_____**
Sourcing Supervisor Name:	**Sourcing Supervisor: (e-signature required)_____**
Portfolio or Sourcing Manager Name:	**(if needed)** **Sourcing Manager: (e-signature required)_____**
Portfolio or Sourcing Director Name:	**(if needed)** **Sourcing Director: (e-signature required)_____** **(if needed)**
Part 4: LOB Review & Approval (*GAS ONLY*)	
LOB Director Name:	**LOB Director: (e-signature required)_____**
Part 5: LOB Review and Approval (*POWER GENERATION and DECOMMISSIONING ONLY*) *Additional MSA guidance for this specific portfolio shown in the footnote below*[1]	
LOB Director Name:	**LOB Director: (e-signature required)_____**
LOB Senior Director Name:	**LOB Senior Director: (e-signature required)_____**
LOB VP Name:	**LOB VP : (e-signature required)_____**

DAD Dollar and Approval Thresholds				
Thresholds	***Minimum Approver (Sourcing)***	***Approver (LOB)***	***Approver (LOB) - GAS ONLY***	***Approver (LOB) Power Generation and DECOM ONLY***
Under $250,000	**Not required**	**Not required**	**Not required**	**Not required**
$250,000 to $999,999	**Sourcing Supervisor**	**Optional**	**Director**	**Director**

[1] **Power Generation Only**: Direct awards to MSA holders shall be capped at $1,000,000 (contracts above $1,000,000 shall be competitive bid unless it is reviewed, approved and documented through the Power Generation Direct Award Document (DAD) process).

$1 Million to < $10 Million	**Sourcing Manager**	**Optional**	**Director**	**Sr. Director**
$10M to < $25 Million	**Sourcing Director**	**Optional**	**Director**	**VP**
$25 Million to < $50 Million	**Sr. Sourcing Director**	**Optional**	**Director**	**VP**
$50M and greater	**VP of Supply Chain**	**Optional**	**Director**	**VP**

SCE DIRECT AWARD REQUEST FORM:

Justification of Award
In accordance with Corporate Procedure SCE-PCURE-MORDER-PR-99 Non-Competitive Award Process

OU representatives and Supply Management (SM) Procurement Agents shall collaborate to complete the form for mutually-agreed non-competitive awards as required by the company's Non-Competitive Award Process. Use JOA form for non-competitive PO's/CO's that exceed $100K in total value.

Requesting OU: Enter text	**Date:** Enter date
Requestor's Name: Enter text	
Total Dollar Value of the Procurement:[1]	**Purchase Requisition/PO Number:** Enter text
Recommended Supplier and SAP Vendor #:	
Description of Purchase:	

1. Select reason(s) to eliminate other qualified suppliers/contractors:

☐	This supplier is required to meet emergency conditions.
☐	Special discounts, rates, or terms are available for a specified time, and such discounts, rates, or terms are not available in the market under competitive conditions at the time of the offer. Offered discounts/rates should be verifiable and supported with proper documentation.
☐	The supplier is being used to: (i) establish alternate sources of supply to ensure continuity; or (ii) acquire advanced technological product for research or experimental.
☐	The supplier is being evaluated on a trial basis to establish alternate/additional sources of supply.
☐	The project's significant technical or schedule constraints warrant award to a particular supplier that has a higher likelihood of successful performance.
☐	Interim solution as part of a category strategy as determined by SM.
☐	Sole Source: Only one responsible source and no other supplier will satisfy SCE requirements (e.g., OEM required materials, limited rights in data, patent rights, copyrights or trade secrets, or control of basic raw material).
☐	This Supplier is required by a governing legal entity or statute for this work.

[1] If dollar value > $10M or contains one or more of the following work scope: SONGS decommissioning, hydro dam, vegetation management, grid modernization or IT (Cyber, CSRP, SAP), FRM approval and/or official internal stakeholders' contract signoff might be required. Please consult Non-Competitive Award Procedure for additional information.

2. **Provide a detailed explanation (i.e., facts, verifiable risks, etc.) supporting the benefits to SCE from a non-competitive award to this supplier:**

Authorization Signatures:

I certify that this justification is accurate and complete to the best of my knowledge.

OU Transaction Approver[2]	Printed Name & Date
OU Leader[3]	Printed Name & Date
Authorized SM Agent	Printed Name & Date
SM Manager	Printed Name & Date

[2] OU Transaction Approver is the person with approval authority for the transaction based on the OU Delegation of Approval Authority (DOAA).

[3] OU Leader is the person one leadership level above the OU Transaction Approver, not to exceed a Level 8 Approver based on the OU DOAA.

Appendix C

Information for All Direct Awards Made for EPIC III

APPENDIX C: INFORMATION FOR ALL DIRECT AWARDS MADE FOR EPIC III

SCE:

While SCE has not used any direct awards for projects, SCE did use a direct award for Corepoint to support SCE's approach for EPIC demonstration benefits, as well as helping to create a communication outreach strategy. The RAP requires both an approach for project benefits and also requires SCE to further disseminate the results of demonstrations to interested stakeholders. The total budget for Corepoint is $473,550 for 2019. The short schedule to file the RAP necessitated specialized support from a firm which is already familiar with SCE's Grid Technology organization and past technology demonstrations (e.g., Corepoint was a key contributor for the Irvine Smart Grid Demonstration ("ISGD"), US DOE demonstration project). As aforementioned, SCE does not envision any other direct awards and all other EPIC solicitations plans to be competitively bid.

PG&E:

At the time of this filing, PG&E has not directly awarded any contracts for EPIC III.

SDG&E:

SDG&E has not made any direct awards for EPIC III as of April 23, 2019. SDG&E will describe any new direct awards in its next annual report.

Appendix D

External EPIC Communications

APPENDIX D: EXTERNAL EPIC COMMUNICATIONS

PG&E: RELEASED COMMUNICATIONS IN 2018

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
2.02-DERMS	Distributech 2018 Utility University	23-Jan-18	External_Industry Conferences / Workshops	San Antonio, Tx	Utility University Seminar Implementing DERMS to Meet the Challenges of Distributed Resources Integration
2.02-DERMS	Distributech 2018	24-Jan-18	External_Industry Conferences / Workshops	San Antonio, Tx	Presentation and Panel: Implementing DERMS module of ADMS
2.19C-Customer-Sited Community Stg	Shared report with another utility to help inform their upcoming DG demonstration	8-May-18	External_Direct Outreach	Webex	Shared information with another utility
2.23-Demand Side Utility Planning	DOE Voice of Experience – WebEx	9-May-18	External_Industry Conferences / Workshops	WebEx	DOE identified utility projects that have used AMI data to improve operational efficiencies & customer programs. As a result of several regional meetings (this

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
					being one of them), a publication will be prepared that documents the different programs and initiatives.
2.22- Demand reduction - analytics	DOE Voice of Experience – Meeting	15-May-18	External_Industry Conferences / Workshops	SMUD - Sacramento, CA	DOE identified utility projects that have used AMI data to improve operational efficiencies & customer programs. As a result of several regional meetings (this being one of them), a publication will be prepared that documents the different programs and initiatives.
3.43 - Momentary Outage Information	DOE Voice of Experience – Meeting	15-May-18	External_Industry Conferences / Workshops	SMUD - Sacramento, CA	DOE identified utility projects that have used AMI data to improve operational efficiencies & customer programs. As a result of several regional

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
					meetings (this being one of them), a publication will be prepared that documents the different programs and initiatives.
2.02-DERMS	Silcon Valley Energy & Sustainabilty Summit	24-May-18	External_Industry Conferences / Workshops	Oracle, Redwood City	Panel Presentation at Grid of the Future breakout on impact of DER growth
EV Pilots - SB350	Silcon Valley Energy & Sustainabilty Summit	24-May-18	External_Industry Conferences / Workshops	Oracle, Redwood City	Panel Presentation at Grid of the Future breakout on impact of DER growth
2.05-Inertia-Response	Joint Press Release with NREL	30-May-18	External_News Release	N/A	NREL-led joint press release on 2.05 EPIC project
EV Pilots - SB350	Innovation & Impact Symposium	31-May-18	External_Industry Conferences / Workshops	San Jose City Hall	EV panel
Grid of Things Feeder EPIC Projects: 2.02, 2.03A, 2.19C	Innovation & Impact Symposium	31-May-18	External_Industry Conferences / Workshops	San Jose City Hall	DER panel - acceleration of microgrids
Multiple	Meeting with Korean Electric Power	7-Jun-18	External_Other	PG&E GO	Shared outcomes of EPIC 2.02 and

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
	Company & EPRI				2.03A Smart Inverter project learnings and influence to Statewide working group
2.03A-Customer-Sited Smart Inverter	NY Joint Utilities Meeting	12-Jun-18	External_Working Groups / Tech. Advisory Committee	Webinar	presentation
2.02-DERMS	EPRI - DERMS Whitepaper	14-Jun-18	External_Whitepaper	N/A	EPRI Authored DERMS Whitepaper
3.04 - Digital Ledger	GTM Grid Edge Innovation Summit	21-Jun-18	External_Industry Conferences / Workshops	San Francisco, CA	Panel
EPIC Program	CPUC Grid Modernization Workshop	28-Jun-18	External_Other	San Francisco, CA	Presentation
2.03A-Customer-Sited Smart Inverter	Joint Press Release with JKB	30-Jun-18	External_News Release	Web	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Press Release - PG&E Demonstration Project Tests Smart Inverter Benefits, Electric Grid Impacts	18-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Currents	18-Jul-18	External_Currents Blog Post	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
2.03A-Customer-Sited Smart Inverter	Renewable Energy World	19-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Power Engineering	19-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	PV Magazine	19-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Twitter	20-Jul-18	External_Direct Outreach	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Dispatches from the Grid Edge	20-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.03A-Customer-Sited Smart Inverter	Electric Lights & Power	23-Jul-18	External_News Release	San Francisco, CA	Press release for Smart Inverters Location 1 completion and field study
2.02-DERMS	IEEE PES General Meeting	6-Aug-18	External_Industry Conferences / Workshops	Portland, or	Panel Presentation

Project / Program	Title of Specific Conference/ Communication/ Award	Date of Event/PR	Delivery Method / Channel	Location	Description of Communication / Deliverable / Award
2.02-DERMS	EPRI Power Delivery and Utilization Advisory Meeting	19-Sep-18	External_Industry Conferences / Workshops	Atlanta, GA	Presentation
1.02-Energy Storage - Distrib Ops	Smart Energy Internation's: Global Smart Energy	1-Oct-18	External_News Release	n/a	Magazine
1.23-PV Submetering	Smart Energy Internation's: Global Smart Energy	1-Oct-18	External_News Release	n/a	Magazine
1.02-Energy Storage - Distrib Ops	AEE Region 5 (West Coast) Innovative Energy Project of the Year Award	16-Oct-18	External_Industry Conferences / Workshops	Charlotte, North Carolina	Presentation
2.03A-Customer-Sited Smart Inverter	CIGRE Grid of the Future Symposium	28-Oct-18	External_Industry Conferences / Workshops	Reston, VA	Paper
2.02-DERMS	CIGRE Grid of the Future Symposium	28-Oct-18	External_Industry Conferences / Workshops	Reston, VA	Paper
1.02-Energy Storage - Distrib Ops & 2.23-Demand Side Utility Planning	Press Release	2-Oct-18	External_News Release	N/A	PG&E EPIC Projects 2.23 and 1.02 were recognized in the special edition of Smart Energy International's called, "Global Smart Energy Elites"

SCE: PLANNED COMMUNICATIONS FOR 2019

Project	Title of Event (Conference/Workshop)	Date of Event	Location	Description
Integrated Grid Project (IGP)/EPRI Smart Inverter	IEEE Joint Technical Committee Meeting	January 15, 2019	Anaheim, CA	Presentation
Next Generation Distribution Automation, Phase II	Distributech	February 5-7, 2019	New Orleans, LA	Presentation
Integrated Grid Project (IGP)/EASE	EPRI DERMS Interest Group	March 1, 2019	Remote (WebEx)	Panel
Next Generation Distribution Automation, Phase II	Edison Electric Institute TDMMA Conference	April 1-3	Chicago, IL	Presentation
DC Fast Charging	Energy Storage Technologies & Applications Conference (ESTAC)	April 11-12, 2019	Riverside, CA	Presentation
Integrated Grid Project (IGP)/EASE	IEEE Engineers Photovoltaic Specialists Conference (PVSC)	June 16-21, 2019	Chicago, IL	Presentation
Integrated Grid Project (IGP)/NODES	IEEE Power & Energy Society General Meeting 2019	August 4-8, 2019	Atlanta, GA	Presentation
Integrated Grid Project (IGP)/EASE	CEATI Smart Grid Conference	November 19-20, 2019	Palm Springs, CA	Presentation

Appendix E

Project Descriptions

APPENDIX E: REPLACEMENT PROJECT DESCRIPTIONS

SCE REPLACEMENT PROJECT PROPOSALS:

REPLACEMENT PROJECT NAME: "WILDFIRE PREVENTION & RESILIENCY TECHNOLOGIES DEMONSTRATION"

EPIC DESCRIPTION	PROJECT EXPLANATION
Technology or strategy to be demonstrated	This project will demonstrate the latest technology advancements in hardware-based solutions (e.g., field devices, sensors, protection devices, etc.) and software-based solutions (e.g., data analytics, climate and fuel regrowth models, etc.) in support of climate adaptation and wildfire prevention, detection, and mitigation at all voltage levels. While SCE has outlined a comprehensive strategy and specific programs to address the year-round wildfire threat via the 2018 Grid Safety & Resiliency Program (GS&RP) application, and 2019 Wildfire Mitigation Plan (WMP), those initiatives are focused on implementing commercial-ready technologies and strategies that are considered "shovel ready". This project is intended to focus on new or emerging wildfire prevention and resiliency-focused technologies that have a high probability of commercial viability, but require more in-depth assessment and demonstration within the utility's operating environments in order to reduce technology and adoption barriers on the path to commercialization. In the case of hardware-based technologies, SCE would like to demonstrate the next generation of distribution-level and transmission-level sensing, measurement, protection, and control technologies that are capable of detecting the presence of wildfires, or operational abnormalities that may trigger wildfire ignitions (e.g., broken conductors), with greater speed and accuracy then what is currently available today in the marketplace. In the case of software-based technologies, SCE would like to demonstrate the latest advancements in data analytics, climate, weather, and fuel growth modeling, etc., in order to enhance/expand the situational awareness and operational practices capabilities that are being implemented today. In addition, software-based technologies that can leverage the new hardware-based tools and technologies and provide improved resiliency, ignition prevention, fuels management, decision-support, automated high-speed control actions, etc. are also contemplated in this project.

EPIC DESCRIPTION	PROJECT EXPLANATION
Concern, problem or gap to be addressed	California's wildfire risk has increased in recent years due to climate change, drought, and other factors such as increased development in the wildland-urban interface and significant build-up of fuel, including on federal and state forest lands. The full magnitude of the increased threat and the significance of its consequences did not become apparent until 2017, when California experienced five of the most destructive fires in its history. The 2017 and 2018 fires emphasize that California's wildfire risk has increased to the point where the safety of our communities necessitates additional measures designed to address a higher level of wildfire risk not contemplated by existing state standards or traditional utility fire mitigation practices. Wildfire mitigation measures have been part of SCE's operational practices for years, as high fire risk areas (HFRA) account for about 35 percent of SCE's service area. However, SCE shares the state's conclusion that the unprecedented changes in this risk area require making further investments in utility infrastructure and enhancing operational practices. This project is intended to expand upon SCE's existing wildfire mitigation efforts as outlined in our 2018 GS&RP application and 2019 WMP, by facilitating the demonstration and appraisal of promising new pre-commercial technologies that could potentially be deployed at scale in the future
Pre-commercial technology or strategy aspect	The hardware-based and software-based technologies contemplated in this project shall be pre-commercial in focus. This project will seek to advance the industry's knowledge base of emerging wildfire prevention and resiliency-enhancing solutions in terms of technology performance, use case applications, and operating costs.
How the project avoids duplication from other initiatives	This project shall be considered complementary, or augmentative, to the activities contemplated in SCE's GS&RP application. In addition, this project shall not duplicate existing activities proposed in the GS&RP's "Wildfire Mitigation Program Study" section. Furthermore, SCE will coordinate with the CEC, PG&E, and SDG&E to ensure project duplication does not occur.
Prioritization: High priority project	This project is considered a high priority. The pervasive wildfire challenges facing California will require a robust, diversified portfolio of preventative and resiliency-focused technologies. The EPIC program provides a great opportunity to demonstrate the latest developments in this space, and transfer the lessons learned to the broader industry.
EPIC primary or secondary principles met	This project provides clear electricity ratepayer benefits and supports EPIC's primary principles of promoting greater reliability, lower costs, and increased safety by demonstrating the next generation of viable technology candidates that can help to further reduce wildfire risks related to climate change, and utility operations.

REPLACEMENT PROJECT NAME: BEYOND LITHIUM-ION ENERGY STORAGE DEMONSTRATION

EPIC DESCRIPTION	PROJECT EXPLANATION
Technology or strategy to be demonstrated	This project will demonstrate the next wave of next-generation, pre-commercial, "beyond lithium-ion" energy storage technologies that have a high probability of commercial viability, but require real world field experience to reduce technology and adoption barriers on the path to commercialization. This project will focus on advanced energy storage technologies that are non-lithium ion based (e.g., advanced electrochemical batteries, flow batteries, thermal storage, etc.). This project will demonstrate non-lithium ion storage systems against a variety of traditional use cases (i.e., in accordance with the CPUC's energy storage use cases outlined in D 13-10-040), and emerging use cases (e.g., regional/community resiliency, etc.). Lastly, this project will demonstrate a complete energy storage system, including the storage technology, power conditioning system(s), product/systems integration, and grid interconnection. The objectives of this project are to identify technologies most likely to achieve commercial viability with the next 3-5 years, and opportunities to accelerate the commercialization process.
Concern, problem or gap to be addressed	The adoption and integration of lithium-ion based energy storage systems has increased significantly in recent years, to the extent that it is widely considered a mature technology. Furthermore, it is worth noting that advancements over the past decade in lithium-ion based energy storage systems have been facilitated by investment from federal and state government funding programs. SCE has been a leader in this regard, based on the company's successful energy storage demonstrations completed under the federal government's American Reinvestment and Recovery Act (ARRA) via the Tehachapi Storage Project (TSP) and Irvine Smart Grid Demonstration (ISGD). In order to achieve California's ambitious long-term energy policy goals, and SCE's own Clean Power and Electrification Pathway, the marketplace will require a diversity of cost-competitive energy storage products. This project will help to advance the industry's knowledge-base of lithium-ion alternatives to ensure new storage products can "cross the chasm" and compete with traditional storage technologies in the near-future.
Pre-commercial technology or strategy aspect	The energy storage technologies under consideration in this project shall be pre-commercial in focus. This project will seek to advance the industry's knowledge base of "beyond lithium-ion" storage technology performance, use case applications, and operating costs relative to the needs of California's energy system.
How the project avoids duplication from other initiatives	Within SCE, there are no other groups working on a similar project. Present energy storage initiatives within the company are focused on lithium-ion based storage pilots and deployments. In the case of "beyond lithium-ion" storage technologies, SCE will coordinate with the CEC, PG&E, and SDG&E to ensure project duplication does not occur.

EPIC DESCRIPTION	PROJECT EXPLANATION
Prioritization: High priority project	This project is considered a high priority. Viable alternatives to lithium-ion based storage technologies will be required to achieve California's ambitious energy and climate policy goals in the long term.
EPIC primary or secondary principles met	This project provides clear electricity ratepayer benefits and supports EPIC's primary principles of promoting greater reliability, lower costs, and increased safety by supporting the diversification of viable energy storage commercial products that are cost-competitive with lithium-ion based technologies.

Appendix F

EPIC III Project Scoring Matrix

APPENDIX F: EPIC III PROJECT SCORING MATRIX

PG&E PROJECT SCORING MATRIX:

Category	Question	Scoring Criteria
Cost / Benefit	Strategic Benefit Value: Is cost / budget for project in line with project deliverables and PG&E and California policy objectives strategic need?	1 = low strategic value at high cost 5 = high strategic value at reasonable cost
	Hard Financial Benefits / Cost Savings: Is there potential for financial benefits and/or cost savings from full production deployment?	1= no hard financial benefits 5= significant hard financial benefits
Category	**Question**	**Scoring Criteria**
Project Readiness / Risk	Resource Capacity: Does the project team's proposal align with sufficient bandwidth to support ask?	1 = leverages resources with little / no bandwidth 5 = clearly defined and agreed resource plan in place
	Path to Production: Does the solution have a defined and clear path to production?	1 = test for learnings only, no path to production 5 = clear path to production scoped in S1 / GRC
	Scope Readiness: Are project activities clear, and do they align with expected output?	1 = activities are unclear, with poor alignment to expected output 5 = activities are very clear, with strong alignment to expected output
	Technology Readiness: Does PG&E have the base technology capabilities to successfully execute this project?	1 = PG&E does not have any of the necessary capabilities 5 = PG&E has all of the necessary capabilities

Category	Question	Scoring Criteria
	Urgency: Will opportunity be lost, and will the value of the project diminish, if it is not started in <x date>?	1 = No lost opportunity or diminished value with delaying project start to next Wave 5 = Any delay past a <x date> will significantly impact opportunity and the value of the project
Category	**Question**	**Scoring Criteria**
Strategy	Technical Capabilities: Does this demonstration give PG&E the opportunity to evaluate or develop technical capabilities that will strengthen PG&E's role as distribution planner, operator, and decider?	1 = No, or limited, opportunity to evaluate or develop these technical capabilities 5 = Excellent opportunity to evaluate these technical capabilities
	Market & Technology Insights: Does this demonstration give PG&E the opportunity to learn about market trends and new technologies that will further enable PG&E to support California's environmental leadership objectives / policy goals?	1 = No, or limited, learning opportunities into market trends or new technologies 5 = Excellent learning opportunities into market trends or new technologies
	New Business Model Opportunities: Does this demonstration explore a technology or capability that could present a new business model opportunity for PG&E?	1 = No relevance to any new business model opportunities 5 = Direct relevance to new business model opportunities
Category	**Question**	**Scoring Criteria**
Market Presence & IP	New/ Novel: Is this solution different than demonstrated in other jurisdictions to avoid unnecessary duplication?	1 = In flight at PG&E or another location with minimal new function added in PG&E's approach 5 = no presence / never attempted

Category	Question	Scoring Criteria
	IP Opportunity: Does the project present a solution that may result in IP creation for the benefit of PG&E's customers?	1 = no opportunity to develop IP 5 = high opportunity to develop IP

SCE PROJECT SCORING MATRIX:

Overview

[Insert brief project overview]

Budget

[Insert cost forecast]

Timing

[Insert expected completion date]

Initial Screening[1]

All projects must have medium or high alignment with at least one policy and strategic objective

Alignment with Joint IOU Framework	None	Low	Medium	High
Renewables & DER Integration				✓
Grid Modernization & Optimization				
Customer-focused Products & Services Enablement				
Cross Cutting/Foundational Strategies and Technologies				
Alignment with SCE Strategy				✓

All projects must provide at least one primary customer benefit (medium or high)

Customer Benefits (EPIC Primary Guiding Principles)				
Increase safety				✓
Improve reliability				
Reduce costs				

Project Evaluation[2]

Feasibility	None *(0)*	Low *(1)*	Medium *(2)*	High *(3)*
Alignment of capability need date with tech maturity level				✓
Ability to complete work with available resources			✓	
Ability to manage org. impacts, dependencies and risks			✓	
Value				
Criticality of project in enabling the necessary capabilities				✓
Magnitude of the associated customer benefits			✓	
Ability to produce complementary benefits				✓
Magnitude of the associated complementary benefits			✓	
Reasonableness of project cost for advancing capabilities			✓	

1. To be considered viable for EPIC, a project must be aligned with at least one of the three Joint IOU framework areas and SCE's internal strategy, and provide at least one customer benefit.
2. To support SCE's prioritization of the various EPIC projects, the EPIC team will calculate an index based on the above evaluation. Feasibility and Value are both indexed based on the value for each line item (0 to 3, respectively). The Feasibility and Value indices are both weighted equally (50% each). Project indices are used as an initial screening mechanism that SCE leadership will consider when determining the final prioritization. This prioritization will ultimately be based on leadership judgement, which may differ from the project indices.

Appendix G

EPIC Business Plan Template

APPENDIX G: EPIC BUSINESS PLAN TEMPLATE

PG&E BUSINESS PLAN TEMPLATE:

Electric Program Investment Charge (EPIC) Project Business Plan

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EPIC 3 #XX Project Name

EPIC PMO Version 11

For use with PG&E's Electric Program Investment Charge (EPIC) Technology Demonstration & Deployment (TD&D) projects

Revision, Review & Approval History

Date	Version	Description	Author

Document Purpose:

- **Provide an overview of EPIC TD&D projects that meet the following definition:**
  - **(TD&D Definition):The installation and operation of pre-commercial technologies or strategies, or technologies not yet widely deployed 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**
- **The document is meant to be a living document to track EPIC project deliverables at key project stages, including compliance requirements, business sponsorship and PMO approvals**

- **This document may be made available externally as part of the EPIC annual report or via other methods consistent with program requirements per EPIC final decision November 19, 2013 (D.13-11-025)**

Congratulations!

Your project has been officially approved by the PG&E Steering Committee and to be funded by the California Public Utilities Commission (CPUC) for EPIC 3.

This Business Plan will serve as your first deliverable to the Program Management Office (PMO). This Plan should be reviewed and approved by your Project Sponsor.

Please review the PMO Handbook for guidance regarding the management of your project.

If you have any questions, feel free to reach out to any member of the PMO.

Thank you, and good luck!

Section I: Project Overview Information

Please respond to all prompts throughout this document. Where not applicable, enter "NA." Responses should be a few sentences each unless otherwise specified.

Project #/Name:	
Project Sponsor:	
Project Leads:	
Supporting LOB Stakeholders	

ID	Question	Description
1	What are the Concern, Problem, and/or Gap to be Addressed?	
2	What is the hypothesis that you are testing? Describe the project's objectives.[1]	
3	To achieve the objectives of the project, what is the project's scope of work, including key milestones and deliverables that are testing the hypothesis?	
4	What metrics will be used to evaluate the successful testing of your project's objectives/hypothesis? Please also identify CPUC approved metrics (see pp. 6 – 8 in the EPIC final report template) that are potential areas for measurement. These metrics will be included in the project's EPIC annual report.	
5	What metrics will be used to calculate the full deployment benefits? Please also identify CPUC approved metrics (see pp. 6 – 8 in the EPIC final report template) that are potential areas for measurement. These metrics will be included in	

[1] The objectives and scope must align with the project scope as approved by the CPUC.

ID	Question	Description
	the project's EPIC annual report.	
	What is the "end product" at the end of the demonstration period?	
7	What is the "end product" at "full deployment"?	
8	What is the "net new" that this project aims to bring to our customers, California, the Utilities and/or the commercial marketplace?	
9	What is "not" in scope for this project?	
10	Describe any "unique" constraints or dependencies for the project (e.g. GIS availability, Data Cleanliness, Access to key systems or data, etc.)?	
11	What California Energy Policy and/or CPUC proceeding does this project contribute?	
12	How does the project align to PG&E's Strategy, Core Values and/or Goals, including safety, reliability and affordability?	
13	To ensure internal alignment, how is this project complementary and/or different from other existing PG&E programs such as Energy Efficiency, Demand Response, GRC funded programs, SB350, Smart Grid Pilots, previous EPIC projects, or other PG&E efforts?	
14	Can we outsource some of this work to be more efficient with internal resources? For example, using NREL,	

ID	Question	Description
	Academia, LLNL, CEC, Vendor labs, etc. If so please describe. Note: The PMO can help facilitate these partnerships/collaborations	
15	As an EPIC project, please identify which of the following is best applicable to your project: 1) demonstrating a new technology, 2) using an existing technology in a novel way, or 3) demonstrating a novel process? Describe how the project fits into this category.	
16	What are PG&Es alternatives (incl. status quo) and/or risks to not doing this Technology Demonstration project?	
17	Have your project Sponsor and Sponsor of the Project's end product (if different), made this project part of their goals? If so, who agreed, and on what date did he/she agree?	

Use Cases and Path to Production Owners:

	Use Cases	Success Criteria	Path to Production Owners (Key Stakeholders)
1	Use case 1		**Use Case Owner** – **Use Case Implementer** – **Use Case End User** –
2	Use case 2		**Use Case Owner** – **Use Case Implementer** – **Use Case End User** –
3	Use case 3		**Use Case Owner** – **Use Case Implementer** – **Use Case End User** –

Section II: Benefits
Please outline preliminary potential hard and soft benefits should this strategy or technology be deployed at full scale. While only preliminary estimates, hard benefits quantification is important to justify the project objectives. In addition, the potential for benefits should be discussed with the appropriate stakeholders for high level agreement.

Benefit categories are as follows:

- Primary: Safety, Reliability, Affordability
- Secondary: Societal Benefits, GHG Emissions Reduction, Loading Order, Low Emissions Vehicle and Transportation, Economic Development, Efficient Use of Rate-Payer Monies, Compliance

Estimated Hard Benefits:

Benefit Description, Category & Rating	Estimated Hard Benefits	Benefits Calculation Methodology for Year 1 Upon Full Deployment	Plan for Collecting Data to Calculate Demonstration and Full Deployment Benefits
Example **Affordability (H) Improve CYME modeling efficiency.** DERs are coming online, currently do not have a way to model them efficiently. This tool will help to do that.	$825K	There are 3200 feeders. It would take 3 hours per feeder to find optimal locations. This would take 3200*3 or 9600 hours or 5.5 FTE's. At $150,000 per FTE, this would be $825,000 for the 1st year full deployment. This benefit in subsequent years would be approximately 10%-25% of first year based on the number of feeder that need to find optimal location in the later year.	

Estimated Soft Benefits:

Benefit Category & Rating	Benefit Description
Example Compliance	Enables compliance with new PUC 769 – Electric Distribution Resource Plan Process. PUC 769 and related EDRP OIR Guidance ruling orders Utilities to develop standardized tools to evaluate and incorporate DERs in the Distribution Planning Process. The EPIC project will develop and demonstrate the enhanced tools that will enable compliance.

Section III: Project Detailed Information

Activities, Duration and Deliverables by Project Phase
Provide the summary information below and additional references to detailed documentation as noted below. The PMO will require each project to provide a schedule (i.e. Microsoft Project) as part of the deliverable for the Planning Phase. Deliverables identified for each phase should be reviewed with your PMO lead before transitioning to the next phase.

ITEM	PLANNING	DESIGN/ENGINEER	STAGING	BUILD/TEST	CLOSEOUT
Project Phase Description	1. Develop Resource Plan 2. Establish Success Criteria for each Project Phase 3. Develop Requirements / Use Cases 4. Create Detailed EPIC Business Plan (updates and expansion of Project Submittal Package)	1. Project Management for Execution Begins 2. RFPs and/or RFIs released as needed via competitive solicitation	1. Demonstration Rollout Plan Initiated	1. Build, Test & Deliver Proposed Proof of Concept, Prototype, or Demonstration 2. Deliver EM&V Results (if applicable) 3. Perform Analysis to Estimate Potential Full-scale Deployment and Cost, or Analysis to Sunset Demonstration	1. Full Deployment Strategy Delivered or Demonstration Sunset Conducted 2. Summary of Project & Operating Results Routed for Approval 3. Public Final Report Delivered after EDRS Approval
Planned Duration					
Describe Key Activities					
What is your Success "Exit" Criteria?	Approved Business Plan				Approved Closeout Documentation

ITEM	PLANNING	DESIGN/ENGINEER	STAGING	BUILD/TEST	CLOSEOUT
Off Ramp: What criteria would cause you not to pursue the next stage of the project?					
What is your estimated budget by phase?	$	$	$	$	$

Internal Resources and Cost by Project Phase

Project teams should confirm resource estimated during the Planning Phase and identify if there are any resource constraints. These constraints should be noted in Section IV of the Business Plan and issues and risks should be documented and escalated via the PMO monthly reporting process.

Project teams should validate that EPIC funds are being used exclusively for EPIC project work. PG&E personnel who are normally funded by other sources (e.g. GRC, TO filing etc.) but have dedicated material (generally defined as over 25%) incremental time to EPIC projects can adjust their time/cost allocation appropriately. For example, managers and above may remain GRC funded, whereas SMEs may allocate a percentage of time to EPIC. Project teams should give consideration to other LOB SMEs that may need to be involved in the project and reach out early to secure resources.

Internal Business Resources

#	Project Role	Resource Input Name or Describe Resource Type	Department Name	Estimated Hours Planning Phase	Estimated Hours Design/Eng Phase	Estimated Hours Staging Phase	Estimated Hours Build/Test Phase	Estimated Hours Closeout Phase	Totals
1	Business Lead								
2	Project Lead								
3									
TOTAL INTERNAL (NON-IT) & PM RESOURCE COSTS									$

Internal IT Resources

#	Project Role	Resource Input Name or Describe Resource Type	Department Name	Estimated Hours Planning Phase	Estimated Hours Design/Eng Phase	Estimated Hours Staging Phase	Estimated Hours Build/Test Phase	Estimated Hours Closeout Phase	Totals
1	IT Lead								
2	IT Project Lead								
3									
TOTAL INTERNAL IT RESOURCE COSTS									$

Internal Construction Resources

#	Project Role	Resource Input Name or Describe Resource Type	Department Name	Estimated Hours Planning Phase	Estimated Hours Design/Eng Phase	Estimated Hours Staging Phase	Estimated Hours Build/Test Phase	Estimated Hours Closeout Phase	Totals
1	Construction Lead								
2									
TOTAL INTERNAL CONSTRUCTION RESOURCE COSTS									$

Non-Labor IT Costs

Project teams should work with IT to review detailed scope and obtain an IT concept estimate to confirm IT resource assignments.

Question	Response
If IT is required, please work with Business Technology Lead (BTL) and/or IT Contact and prepare initial IT Cost Estimate.	IT Contact: IT Confirmation:
Enter Non-Labor IT Cost Estimate Provided from IT:	Enter Costs in Numerical $
Describe a breakdown of Non-Labor IT Costs (H/W, S/W, etc.):	

Question	Response
IT Environment: Describe the environment the systems will be hosted in. Teams should avoid where possible the need to host projects in a production environment not only to minimize costs and risks, but to avoid compliance issues. EPIC projects are demonstration only, and must avoid production-related demonstrations. Project approach and architecture should be discussed with IT.	
In the planning phase, work with IT to further develop scope as necessary. Please provide date that IT Concept Estimate has been provided to the project team by IT, and provide the concept estimate to the PMO.	

Construction Activities and Costs

Project teams should work with construction resources to discuss the approach and determine effort and cost estimates for construction work. Construction costs should be identified separately from other categories such as IT or Other. Please ensure the estimates provided are not double counted in other categories.

Question	Response
If construction work is required, please identify the construction lead who will support this project.	Construction Contact:
Enter Construction Cost Estimate:	Enter Costs in Numerical:
Enter Construction Classification & describe nature of work:	

Vendor Activities and Costs

Project teams should work with vendors to discuss approach, detailed scope and obtain quotes to validate estimates provided in the pre-planning exercises. Please provide updates to information below. Also keep in mind that project teams should work within their approved budget to meet the project objectives.

Question	Response
Describe any external contracting needs that could include labor, material, other (not PMs, covered above):	
Approximate External Contracting Cost:	Enter Costs in Numerical Value here--->
Describe your basis for the cost estimate (RFP, quote received, similar request, etc.).	
Other needs if does not fit above categories:	Enter Costs in Numerical Value here--->

Question	Response
To what extent is there a potential "Next Phase" for this project? For example, integration highlight components, or consideration of other use cases?	
At the end of this project, assuming a successful outcome, what is the full deployment funding strategy and year expected to be filed (GRC, TO, EE or DR filing, etc.?). Indicate the potential first full deployment year.	
Who would be the full deployment sponsor and as part of what program (i.e. reliability, foundational IT, etc.)? Have you confirmed with the sponsor his/her potential to support in full deployment? Please note the person/date discussed and agreed.	
Is full deployment included as part of the S-1 planning process and if not, when will it be incorporated? Please describe how, status of planning, and where it will be included.	
Provide where possible, a high-level, order of magnitude cost and description of full deployment. This should specifically describe what IT work/integration would need to be done. *Note: Project teams will be asked to update this information at later project phases and incorporate into LOB S-1 planning & budgeting sessions.*	
Provide details about how this work will be moved from a demonstration project to full deployment if successful by answering the following questions: 1. What is Changing and who is impacted by this change? 2. How will the change be communicated to all affected end users and stakeholders? 3. Is training required? If so, how will you ensure training is conducted prior to rolling out the change?	

Project Success Factor: How is the project team maintaining regular visibility of this project, costs & resource usage to the project sponsor and line of business leadership?	
Describe the decommissioning approach: If the demonstration is unsuccessful – what contracts would need to be amended (i.e. extended/cancelled). What demonstration systems would have to be removed? *Note: Decommissioning costs must be included in the overall project costs.*	

Project Budget Totals

Project teams will be responsible for creating annual budgets with monthly breakdowns and reporting monthly plan to actuals/forecasts to the EPIC PMO.

Cumulative Preliminary Project Costs (Sections 2 - 5):		What is your Estimated Accuracy on this Cost? (See Project Cost Management Standard for guidance)	+- %	What factors impact your estimate accuracy?	

Additional funds will only be considered on an exception basis and part of the innovation challenge is to prove the objective of the demonstration at lowest possible cost. The teams must execute their project within their approved budget amount or the project may be at risk of being de-funded and/or stopped. Scope creep and unforeseen factors may contribute to higher than expected costs. Teams are expected to develop mitigation plans to work within their approved budget.

Funds Not-To-Exceed Challenge:

Question	Response
Please indicate options the team has considered to reduce/restrict overall project costs if needed throughout the project lifecycle: Examples could include reducing the length of the demonstration, reducing the number of demonstration participants, fixed fee vendor contracts, outsourcing the demonstration, reducing the number of use cases, etc.	

Section IV: Project Risks, Dependencies, Constraints & Assumptions

Below find a table to identify major risks, dependencies, constraints and assumptions for your project. Please provide entries (three minimum) in order of importance. *Note: Project teams are expected to maintain an Issues Log and raise any critical risks to the PMO along with proposed remediation. This will be reviewed as part of in the monthly report and check-in with the PMO.*

In the table below, enter Project ***Risk, Dependencies, Constraints & Assumptions*** (See Example):

ID	Risk / Dependency / Constraint /Assumption Description	Probability of Occurrence (H/M/L)	Impact to Scope / Schedule/ Cost	Mitigation Plan
1.0	**Example** **Risk:** Ability to access and transfer interval meter data for all customers.	Low	Scope impact: Would limit the amount of customer load shapes used in the enhancements Schedule Impact: Would require working through our Load Research Team to develop a "sampling" approach that would be acceptable Cost Impact: May increase internal costs but those costs would be offset by some reductions in vendor costs	Have already reached out to the TerraData/IDA team to schedule data request. Vendor IA has already completed TSR for earlier test project on two substations using similar data. Have reached out to PG&E Load Research and vendor to discuss backstop plan.
2.0				
3.0				

Section V: Compliance
The following tables represent EPIC-specific compliance items and/or information reported as part of the Annual EPIC Annual Report to the CPUC and other external stakeholders. These items will be tracked as part of the PMO monthly reporting process.

Compliance Item	Response
Alignment with EPIC Application Language: CPUC Decision 15-09-005 states PG&E cannot propose new projects or make material scope changes to projects without an approved Tier III Advice Letter. • Confirm and describe how your project aligns with the scope as written in the approved EPIC Application	**Project Specific Application Language from PMO:** **Explanation:**
Non Duplication: EPIC projects should not be unnecessary duplicative of existing projects within PG&E or other utilities/institutions. Project teams should perform preliminary research to verify non-duplication, which can include: review current PG&E filings/programs as applicable (EE, DR, Smart Grid, EPIC, CES-21, TO, GRC), review CA IOU & CEC programs, benchmark with other utilities, review industry literature, understand/review market via trade associations, research organizations, and other affiliations. 1. Explain how this project is different from other existing PG&E programs such as Energy Efficiency, Demand Response, GRC funded programs, Smart Grid Pilots, or other PG&E efforts? 2. Describe of analysis performed to determine that this project does not duplicate any PG&E or other utilities/institutions efforts.	
Leveraged Funds: Will any other funding sources be used in addition to EPIC for this project? For e.g. DOE, CEC EPIC, other PG&E funds?	
Partners: Will there be any formal or informal partners for this project? For e.g. other Utilities, Academia, EPRI, NREL, etc.	

Compliance Item	Response
Match Funding: Will there be any formal or informal match funding for this project? For example, funding from partners, vendor price discounts, donations in kind, etc.	
Purchasing of Equipment (CAPEX Approach): The EPIC program may result in the installation of equipment which provides benefits of longer than one year. The costs are classified as expenses for ratemaking purposes. Therefore, these costs should be charged to expense to match the ratemaking treatment. Project specific costs in this category could include Computer hardware, trucks, and technologies to be demonstrated, other assets with a lifespan more than 1 year. When these items are purchased with EPIC dollars, teams must contact Tax and provide him the item procurement detail to be able to track these items for accelerated depreciation purposes. The EPIC PMO has obtained sign off from capital accounting on this treatment and specific steps – please consult the handbook for additional alternate procedures. Project teams should note here that they have read and understood the conditions and describe specific instances where this applied.	

Procurement Compliance
EPIC has specific procurement related requirements for ***technology vendors only*** (i.e., the new thing that the project is demonstrating, potential new market offering, etc.). Note: The below requirements ***do not*** apply to normal course of project procurements such as staff augmentation (e.g., hiring a PM, Agile1 contractors, etc.), course of business materials, and supplies purchase, etc.

Compliance Item	Response
Describe expected "technology vendor procurement(s)" for this project, estimated amount and timing for such procurement(s).	
All procurements including Technology Vendor procurements are expected to follow company sourcing guidelines including competitive bidding (sole sourcing is acceptable under some circumstances – consult the handbook). The following will be reported for all competitive technology vendor bids: a) If competitively selected, the number of bidders passing the initial pass/fail screening for project. b) If competitively selected, provide the name of selected bidder.	

Compliance Item	Response
c) If competitively selected, provide the rank of the selected bidder in the selection process. d) If competitively selected, explain why the bidder was not the highest scoring bidder, explain why a lower scoring bidder was selected. e) Does award recipient identify as California-based entity, small business, businesses owned by women, minorities, or disabled veterans? Please confirm discussion of these items with sourcing before beginning the procurement and date discussed. In addition, provide the PMO with this information within one week of bid award.	
All competitive technology vendors passing the initial pass/fail will be served the EPIC Annual Report by the EPIC PMO. Please confirm discussion of these items with sourcing before beginning the procurement and date discussed. In addition, provide the PMO with email information for each successful and unsuccessful bidder to submit the annual report.	
For all "technology vendor procurement(s)", the following hold harmless clause must be added to contracts. Discuss with sourcing and confirm that you have reviewed the required language in the contract. Provide confirmation and date reviewed/confirmed. *"Contractor will indemnify and hold harmless the California Public Utilities Commission, the California Energy Commission ("CEC"), and their employees free from any liability for use of EPIC Funded Intellectual Property."*	
For all "technology vendor procurement(s)", standard PG&E IP consulting terms that grant PG&E the full and transferable rights to IP must be used. Other acceptable language is provided in the PMO handbook and must be discussed with Sourcing. Discuss these items with sourcing and confirm that you have reviewed the required language in the contract before beginning the procurement and date language is confirmed.	

Compliance Item	Response
Intellectual Property (IP) Financial Benefits – EPIC Revenue Sharing Mechanisms Indicate whether the project team has any plans for patent, copyright and/or trademark of IP developed under EPIC. If so, please describe the potential IP that may be developed with this project. Also, refer to the below requirements for intellectual property revenue sharing. If there is no intent to patent, copyright or trademark, please mark "N/A." 33. PG&E, SCE, and SDG&E shall apply a 67 percent /33 percent (ratepayer/shareholder) sharing mechanism for proceeds from the conversion of warrants and the gain-on-sale of Intellectual Property, consistent with the gain-on-sale allocation approach approved by the Commission in D.06-05-041, as modified by D.06-12-043. 34. PG&E, SCE, and SDG&E must apply a 75 percent/25 percent (ratepayer/shareholder) revenue sharing mechanism for net revenues (from future or ongoing royalties, license fees, and other "financial benefits of Intellectual Property (IP)") related to financial benefits of IP that was developed under investor-owned utility contracts with Electric Program Investment Charge funds.	