

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



FILED
8-26-16
04:59 PM

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769.	Rulemaking 14-08-013 (Filed August 14, 2014)
And Related Matters.	Application 15-07-002 Application 15-07-003 Application 15-07-006
(Not Consolidated)	
In the Matter of the Application of PacifiCorp (U901E) Setting Forth its Distribution Resource Plan Pursuant to Public Utilities Code Section 769.	Application 15-07-005 (Filed July 1, 2015)
And Related Matters	Application 15-07-007 Application 15-07-008

**POST-HEARING COMMENTS
ON DEMONSTRATION PROJECTS C, D AND E
OF THE OFFICE OF RATEPAYER ADVOCATES**

(PUBLIC VERSION)

THOMAS ROBERTS
Senior Utility Engineer for

Office of Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Ave
San Francisco, CA 94102
Phone: (415) 703-5278
Email: Thomas.Roberts@cpuc.ca.gov

MATT MILEY
Counsel for

Office of Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102
Phone: (415) 703-3066
Email: Matt.Miley@cpuc.ca.gov

ZITA KLINE
BRIAN GOLDMAN
Regulatory Analysts for

Office of Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102
Phone: (415) 703-3113
Email: Zita.Kline@cpuc.ca.gov

August 26, 2016

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I. INTRODUCTION

Pursuant to Administrative Law Judge (ALJ) Peter Allen’s instructions during the Distribution Resources Plan (DRP) Proceeding, Track 2 Demonstration Project (Demo) C, D and E hearings on August 10 and 11, 2016,¹ the Office of Ratepayer Advocates (ORA) respectfully submits these post-hearing comments. ORA files these comments pursuant to its statutory mission to obtain the lowest possible utility rates, consistent with reliable and safe service levels. These comments are timely filed by the August 26, 2016 deadline for comments.

ORA recommends the Commission approve the following demonstration projects with the associated “soft” budget caps calculated in Appendices A, B and C of these comments.²

- PG&E Demo C, budget cap: [REDACTED],
- SCE Demo C, budget cap: [REDACTED],
- PG&E Demo D, budget cap: [REDACTED],³
- SCE Demo D, budget cap: \$0.0,
- SDG&E Demo E, budget cap: \$250,000 , and
- CSE Demo Project, budget cap \$390,000.

ORA recommends the Commission deny the following demonstration projects:

- SDG&E Demo D,
- SCE Demo E, and
- PG&E Demo E.

¹ Transcript [TR], p. 177:14-15, (“So the comments will be due end of day on Friday, August 26th.”)

² As discussed in Section III.A.2. below, ORA proposes that all budget caps could be increased if justified via a Tier 3 Advice Letter.

³ Support for this project is subject to a satisfactory proposal for coordination with GRC funding. See Section III.F.3.

ORA conceptually supports SDG&E's Demo C project, and recommends the Commission order SDG&E to provide cost information on projects that are deferred due to the use of distributed energy resources (DERs) such that a budget cap can be determined.

For approved projects, ORA recommend that Final Implementation Plans be submitted by Tier 3 advice letter, and that results of DER solicitations be submitted via application.

II. BACKGROUND

The Commission first required the Investor-Owned Utilities (IOUs) to file specifications for Demo C, D and E as directed in the *Assigned Commissioner's Ruling (ACR) on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning*, dated February 6, 2015 (Guidance Ruling).⁴ The IOUs submitted the first Demo C, D and E proposals in their July 1, 2015 DRP Applications.⁵

In August 2015, DER sourcing under Public Utility (P.U.) Code Section 769 (b)(2)⁶ and (3)⁷ was moved to the Integrated Distributed Energy Resources (IDER) proceeding for further consideration.⁸ To date, the IDER proceeding consists of the following components; (1) a cost-effectiveness working group,² (2) a competitive solicitation framework working group (CSFWG)¹⁰ and (3) consideration of an IOU

⁴ Guidance Ruling, pp. 6-7.

⁵ See PG&E Electric Distribution Resource.

⁶ P.U. Code § 769(b)(2), (“The identification of tariffs, contracts, or other mechanisms for the deployment of cost-effective distributed resources.”)

⁷ P.U. Code § 769(b)(3), (“Cost-effective methods of effectively coordinating existing commission-approved programs, incentives, and tariffs to maximize the locational benefits and minimize the incremental costs of distributed resources.”)

⁸ D.15-09-022.

² See Email Ruling Establishing a Working Group for Creating a Consensus Proposal (Oct. 9, 2015).

¹⁰ See ALJ Ruling Establishing a Working Group to Develop the Competitive Solicitation Framework (Mar. 24, 2015), p. 1.

incentive mechanism.¹¹ Ten months after the IOUs submitted their first Demo C, D and E proposals, the Commission ordered the IOUs and other parties interested in submitting demonstration project proposals to submit revised project proposals.¹² Revised proposals were submitted on June 17, 2016 (June 17 Revised Proposals) and opening and reply comments on these proposals were filed on July 22 and 29 respectively.¹³ Issues related to DRP Track 3, including General Rate Case (GRC) coordination, are proposed but not yet scheduled.¹⁴ ORA’s recommendations regarding DRP Demo projects capture the close and intertwined nature of the DRP and IDER.

III. DISCUSSION

A. **ORA recommends budget caps for all DRP Demo projects that are reasonable and consistent with CPUC guidance.**

ORA has commented previously that budget caps should be adopted for Track 2 Demo projects.¹⁵ The following sections provide additional support for the need for budget caps, define ORA’s method for determining budget caps, and justify ORA’s proposed budget caps. Workpapers supporting ORA’s recommended budget caps are provided in Appendices A, B and C for PG&E, SCE, and SDG&E respectively. While ORA acknowledges that some of the issues discussed below are pending before the Commission, progress on consensus positions currently contemplated in the IDER proceeding should be integrated into the DRP demonstration projects’ proposed procurement mechanism for the sake of regulatory efficiency. To bring more DERs onto

¹¹ See ACR Introducing a Draft Regulatory Incentive Proposal for Discussion and Comment (Apr. 4, 2016), p. 1.

¹² Joint Assigned Commissioner and ALJ’s Ruling Regarding Track 2 Demonstration Projects (May 17, 2016), pp. 1-2.

¹³ These filings are referred to as “July 22 Opening Comments” and “July 29 Reply Comments” in these comments.

¹⁴ See ACR on Track 3 Issues (Aug. 9, 2015), pp. 4-5.

¹⁵ ORA July 22 Opening Comments, p.4 and ORA July 29 Reply Comments, p. 6.

the distribution system in an efficient and cost effective manner, the IDER policies should be integrated into the Demo projects.

1. *A budget cap is consistent with Electric Program Investment Charge and Department of Energy (DOE) programs and the Commission's request for additional cost information.*

In prior comments, ORA recommended the Commission “evaluate the reasonableness of any cost cap as a function of the total value of the Demo project, such as the relative value of the distribution deferral plus incidental costs and some reasonable contingency margin.”¹⁶ Commission adoption of a cost cap is consistent with the Electric Program Investment Charge (EPIC) and the Department of Energy (DOE) funding requests. For example, according to PG&E’s 2015 Annual EPIC Report, PG&E encumbered \$477,287 and showed that it spent \$475,503 during the 2015-2017 Triennial Investment Plan Period on EPIC Project 2.02 to pilot the Distributed Energy Management System (DERMs).¹⁷ This project shares the objectives of Demo D because it “[d]emonstrates new technology to monitor and control DERs to manage constraints and evaluate the potential value of DER flexibility to the grid. The DERMs pilot will [provide results that] drive learning about people, process, and technology to operate the high DER penetration grid of 2025.”¹⁸ It “contributes to the objectives in . . . the DRP proceeding” and “[t]he demonstration will take place in a limited geography with a diverse set of DERs being monitored and controlled by the pilot DERMS.”¹⁹

¹⁶ ORA July 22 Opening Comments, p. 4.

¹⁷ 2015 Annual Electric Program Investment Charge Report of Pacific Gas and Electric Company (U 39 E) (PG&E 2015 EPIC Report), (Feb. 29, 2016), Attachment A, pp. 55-56.

¹⁸ 2015 PG&E EPIC Report, p. 55.

¹⁹ *Id.*

A cost cap is also consistent with the May 17 Ruling question 11, requesting parties with demonstration project proposals to “[p]rovide a breakdown of the project by activity (e.g. engineering, installation of field devices, data gathering, data analysis) and an estimated cost for each activity.”²⁰

2. *ORA’s budget caps are determined methodically and rely on market sensitive information on deferral value.*

ORA’s proposed budget caps are all determined using the same formula:

$$\begin{aligned} \text{Budget Cap} &= \text{Non-Procurement Costs} \\ &+ \text{Deferral Value of Distribution Asset} \times 1.10 \text{ Contingency,} \\ &- \text{Funding from GRC, EPIC or other sources} \end{aligned}$$

Application of this formula, to calculate the budget cap for specific Demo projects is provided in the utilities’ workpapers, are included in Appendices A-C of these comments. Justification for ORA’s methodology is provided in the following subsections. Due to the use of market sensitive estimates of deferred capital costs for the traditional “wired” alternatives that are avoided or deferred by these Demo projects, ORA’s proposed budget caps are redacted from public version of its comments. As Explained in Section II.E.4., SDG&E did not provide deferred capital costs, so Appendix C does not require redaction.

ORA’s budget cap methodology does not apply to “other non-distribution-deferral value” DER may capture or provide, as discussed below. In addition, ORA recommends the Commission consider the budget cap as a soft cap, whereby IOUs may file a Tier 3

²⁰ Joint Assigned Commissioner and Administrative Law Judge’s Ruling Regarding Track 2 Demonstration Projects (May 17 Ruling) (May 17, 2016), App. A, p. 2.

Advice Letter to raise the cap by stating their rationale for why the budget cap should be increased and proposing a new budget cap.

3. *ORA's budget cap methodology is consistent with the CSFWG solicitation framework and cost recovery proposal.*

ORA's proposed budget cap methodology is designed to test the valuation methodology ORA proposed as part of the IDER Competitive Solicitation Framework Working Group (CSFWG) report, see Appendix D.²¹ ORA elaborated on this valuation methodology in the IDER IOU Incentives Proposal workshop focusing on procurement mechanisms on August 4, 2016, see Attachment E.²² As shown on Slide 6 of ORA's August 4, 2016 powerpoint presentation on valuation methodology, the net value of proposed DER solutions in the least-cost best fit (LCBF) analysis is increased for projects with benefits other than distribution deferral benefits.²³ The separate valuation of deferral value from other benefits is necessary for differential rate recovery for any credit for unbundled customers to receive from the distribution deferral through the annual electric true-up from costs incurred by bundled customers as a result of additional value captured for procurement of energy, capacity or other values which are recoverable under ERRR.²⁴ To date, no parties objected to the valuation methodology proposed in the IDER proceeding.²⁵ In addition, SCE's proposed cost recovery methodology includes a

²¹ CSFWG Final Report filed in R.14-10-003 by SCE, PG&E, SDG&E and Southern California Gas Company (SoCalGas) (Aug. 1, 2015), pp. 39-46 and 81-84.

²² ORA Straw Proposal for a Procurement Process (powerpoint) (Aug. 4, 2016).

²³ *Id.*, slide 6. The LCBF column in this table compares the cost of the wires investment alternative, the first number, to the cost of the DER alternative, the second number. The DER value is the "Total DER Cost" minus "Other Avoided Cost" plus "Additional Cost- Florio Incentive." Projects with "Other Avoided costs," such as Project C in the table, reduce that total DER cost in the LCBF analysis and improve its LCBF ranking.

²⁴ See D.02-10-052.

²⁵ As shown on page 8 of the CSFWG Final Report, included as Appendix D, "valuation" was a consensus item.

similar apportionment of distribution deferral value and other DER values that are captured (See Appendix F.) A significant amount of work occurred in the CSFWG and ORA requests that the Commission acknowledge and incorporate the work in the IDER proceeding in evaluation of DRP Demo projects to the full extent practicable. If the Commission approves the CSFWG report, the IOUs should incorporate the Commission’s solicitation framework in these demonstration projects.

4. *Adopting a budget for distribution deferral value is necessary to retain P.U. Section Code 769’s focus on cost-effective DER solutions.*

Adopting a budget cap based on distribution asset deferral is important in evaluating the success of the demonstration projects where distribution assets are deferred. Unlike other procurement necessary for energy, reliability or greenhouse gas reduction purposes, procurement for these DER solicitations must be compared to the “wires” alternative they displace. Distribution grid assets such as substation transformers, capacitors and electrical wiring do not emit greenhouse gases. They increase reliability because they are permanent rather than intermittent facilities that require no separate dispatch signal. Distribution grid investments have come under fire as of late because they are thought to be expensive compared to the services they provide. Cost effective DER deployment is assumed to be cost effective if it can defer distribution upgrades that are otherwise needed. P.U. Code section 769 states repeatedly that DER integration must be cost-effective. Therefore, the success of any demonstration project where distribution assets are deferred must be tied to the relative value of the distribution asset it is deferring.

While transmission and distribution (T&D) deferral value are an element of locational net benefits analysis (LNBA), the T&D value differs from other elements of the LNBA because the T&D has a quantified requested through the General Rate Case (GRC). Therefore, DER that defers these quantified costs aligns with the value avoided through the GRC. An overly expensive deferral using DER without other benefits demonstrates only that the distribution asset deferral is impractical. IOUs need to

calibrate their methodologies commensurate with any calculated deferral value. Ideally, IOUs would conduct the LNBA prior to trying to capture any value through solicitations.

5. *ORA's proposed budget allows IOUs to contract with innovative solutions and to capture the full range of DER benefits.*

SCE's objection to ORA's proposed budget cap in hearings as too limiting has no merit. SCE stated that, ". . . we're expecting different value streams for these resources, and there's potentially different ways in which contracts could provide the value streams either to the utility or keep the value stream for the developer."²⁶ As explained previously in Section A.1 of these comments, ORA's budget cap applies to the distribution deferral value only. "Other DER value" captured through other value streams will be evaluated separately during the Commission's review of solicitation results.

6. *ORA's recommended contingency factor is consistent with distribution and transmission asset budgeting.*

ORA's budget cap formula includes a 10% contingency factor to account for the fact that these are demonstration projects that have a degree of budget uncertainty. In hearings, PG&E stated, "Typically, a contingency factor is -- you know the price of steel moves up and down a certain amount before you go and purchase steel for a substation, for example. So in this case, since it's something that is a new solution, I don't think a contingency factor would be appropriate."²⁷ This objection to a budget which provides for a contingency factor on distribution deferral value is unpersuasive.

It is entirely appropriate to apply a contingency factor to the budget for DER based on the contingency factor typically used by the CPUC for a "wires based" distribution asset. ORA's recommended 10% contingency factor is consistent with the range of 10-15% contingency factors the CPUC typically uses for transmission projects approved

²⁶ TR, p. 202:10-16 (SCE).

²⁷ TR, p. 146:12-23.

under General Order (GO) 131-D.²⁸ PG&E’s statement that “I think it’s too early to put a price tag on the contingency value”²⁹ is unpersuasive considering that the CPUC adopted an 8% contingency when PG&E proposed the first Advanced Metering Infrastructure (AMI) system in California.³⁰

7. *ORA recommends keeping the budget cap confidential.*

In hearings, SCE objected to ORA’s recommendation for a budget cap in stating “One reason is that if we were to send out to the market our willingness to pay for these resources that would make it less likely that we had competitive outcomes in our solicitation and could potentially make it harder to get the best value for our customers through the procurement.”³¹ SCE’s concern is a nonissue because ORA proposes to keep the budget confidential, as discussed in Section III.A.1. of these comments.

B. If the CPUC approves Demo projects without budget caps, it should limit expenditures to full project development, and require an additional review based on more accurately defined projects.

Setting budget caps from the onset for Demo C, D, and E projects, as described in Section A above and tabulated in Appendix A–C, provides the best balance of cost

²⁸ CPUC Decision D.13-07-018 at page 4 states “This maximum cost includes the Commission-approved contingency factor for the Project, 15%.” CPUC Decision D.09-12-044 at page 72 states “Finally, a contingency of 15% is consistent with Commission precedent. For example, D.08-12-058 adopted a contingency of 18.35% for SDG&E’s Sunrise Powerlink Project, D.07-01-040 adopted a contingency of “almost 15%” for SCE’s Devers-Palo Verde No. 2 Project, and D.01-12-017 adopted a contingency of 14.6% for PG&E’s Northeast San Jose Project. For the previous reasons, we decline to adopt SCE’s proposed contingency of 32%. Instead, we adopt a contingency of 15%. A contingency of 15% applied to the total cost is \$174,400,000.”

²⁹ TR, p. 22:17-19 (PG&E).

³⁰ D.09-03-026 in A.07-12-009, p. 87. The average contingency adopted for all AMI programs in California was 8.1%. See DRA’s March 30, 2012 testimony in R.11-02-019, Amended Report on the Pipeline Safety Enhancement Plan of Pacific Gas & Electric Company Pipeline Modernization Plan, Exhibit DRA-03, Table 16, p.104. This testimony contributed to denial of PG&E request for a contingency adder for its Pipeline Safety Implementation Plan. See D.12-12-030 COL 35, p.125, and discussion at p.29.

³¹ TR, p. 201:15-21.

control and speed of project implementation. In the event the CPUC does not approve a budget cap for the Demo projects, ORA recommends a backstop process for the projects it approves as follows:

- Authorize expenditures up to \$500k to develop a detailed specification for each project to include baseline evaluation of the demonstration area, project design and engineering, final cost estimate, and development of the technical portion of the DER solicitation,³² and
- The IOUs should file Tier 3 Advice Letter(s), with detailed specification and costs for each project, to be reviewed and approved by the CPUC.

While this process would be slower than ORA’s primary recommendation for adopting budget caps for the Demo projects at the onset, this backstop process will allow more complete definition of the projects, more accurate cost estimates, and potentially allow DER providers to provide cost information in response to the technical portion of the DER solicitation. This backstop proposal would also address statements in comments and hearings that the actual scope of some projects requires additional CPUC guidance,³³ and that opportunities for integration between projects will be known once project engineering is completed.³⁴

C. ORA recommends IOUs submit an application for approval of solicitation results rather than an Advice Letter.

ORA recommends the Commission review solicitation results through applications because of the uncertainty expressed by the IOUs regarding the solicitation process during hearings. First, all IOUs stated that the solicitation process has many unknowns. PG&E stated in hearings, “[s]o first off we will say that we do share the concerns over

³² This value is based on the design and engineering cost provided in the utilities’ June 17 and July 22 filings, which have an average cost of \$411,000.

³³ TR, p. 126:8-27 and 183:1-15.

³⁴ SCE July 22 Opening Comments, p. 23, “SCE will identify synergies across the Demos to reduce overall costs.”

the cost of moving forward in these solicitations. However, this is definitely a new area that we're approaching."³⁵ Similarly, SDG&E stated, "[s]o I think one of the issues here -- and I think it was mentioned earlier -- is that this is all new services that we're procuring. So this isn't something that -- like, pipes and wires that we've been building for 100 years. This is an entirely new field with new services, with innovative solutions." Second, IOUs are ready to consider all bids, even for experimental technologies³⁶ and ones they don't consider to be commercially viable.³⁷ Since the solicitation incorporates many new elements, evidentiary hearings are likely needed to develop the record on solicitation reasonableness.

Requiring an application for solicitation approval is also consistent with Commission approval of other all-source DER procurements, including SCE's Local Capacity Requirements Request for Offers (LCR RFOs) in the Western Los Angeles Basin (A.14-11-012) and the Moorpark (A.14-11-016) sub-areas. It is also consistent with DER procurement for distribution asset deferral purposes, such as solicitation results reviewing SCE's preferred resources pilot solicitation through its *Application of SCE's Approval of the Results of Its Preferred Resources Pilot Request for Offers* (A.15-12-013).

D. Coordination with other DER-related research development and deployment (RD&D) programs should be addressed in final project implementation plans.

Section C of ORA's July 22 comments discussed the statutory requirements and legal precedent that RD&D "[p]rojects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical gas corporations or research organizations."³⁸ These comments also identified that at least seven related

³⁵ TR, p. 19:26-20:2.

³⁶ TR, p. 15:21-23 (PG&E); p. 201:22-27 (SCE); p. 143:22-144:7 (SDG&E).

³⁷ TR, p. 15:28 (PG&E); p. 199:22-28 (SCE); p. 141:25-16 (SDG&E).

³⁸ ORA July 22 Opening Comments, pp. 13-17.

smart grid programs have goals similar to Demos D and E, and provided a review of the EPIC and California Solar Initiative Research, Development & Demonstration (CSI RD&D) program guidance.³⁹ ORA also listed EPIC projects related to Demo D objectives, and provided the objectives of these projects, projects related to Demo E objectives, and related CSI RD&D projects.⁴⁰

In reply, PG&E stated that it “disagrees with ORA’s assertion that PG&E’s demonstration projects would largely duplicate other demonstration projects approved in other programs,” and that “to the extent that expected “learnings” or inter-dependencies with existing EPIC projects are available or needed, PG&E’s demonstration projects are coordinated with those learnings and inter-dependencies, and will not duplicate those earlier projects.”⁴¹ In hearings, the utilities generally clarified that EPIC projects in particular were foundational to the proposed Track 2 projects, rather than duplicative, and generally that Track 2 projects would be coordinated with, and build on the learnings from related RD&D projects.⁴²

Sections D-G below provides ORA’s position on each proposed Demo project. Each of the projects that ORA supports either: (1) appear to provide clear value through additional learnings beyond existing projects or, (2) extensive leveraging of existing projects. However, none of the utilities have defined the objectives and success metrics of the proposed Demo projects with a level of detail that allows comparison to approved projects in EPIC, CSI RD&D, and other programs. In addition, integration and coordination between DER related projects should be an ongoing effort. ORA recommends that all projects approved by the CPUC be required to include a deliverable to define interdependencies between DER related RD&D projects, how these projects

³⁹ ORA July 22 Opening Comments, pp. 17-21.

⁴⁰ ORA July 22 Opening Comments, pp. 22-25 and Attachments 1 through 6.

⁴¹ PG&E July 29 Reply Comments, pp. 2-3.

⁴² For example, SDG&E at TR 134:16-19 and PG&E at TR 27:20-25.

will be coordinated over time, and how new projects will be incorporated into this coordinated process. SCE stated in reply comments that it “anticipates that such additional details [more details about learning objectives and project milestones] can be provided through a final implementation plan to be submitted following the Design and Engineering activities.”⁴³

In Section III.F.1.below, ORA recommends Final Implementation Plans to be provided for each approved Demo project after design and engineering are completed. A RD&D integration and coordination plan should be included in these plans.

E. ORA recommends approval of SCE and PG&E Demo C projects subject to budget caps, and seeks additional information regarding SDG&E’s proposal.

Demo C projects are intended to have the IOUs “develop a specification for a demonstration project where at least three DER avoided cost categories or services for which ‘normative value data’ presently exist (e.g., avoided resource adequacy capacity, distribution capacity deferral, voltage/reactive power management) can validate the ability of DER to achieve net benefits consistent with the Optimal Location Net Benefit Analysis.”⁴⁴ Section B of ORA’s July 22 comments discussed the purpose of the IOUs’ Demo C projects, and how the Demo C projects should be a practical application of the LNBA.⁴⁵ These comments identified the IOUs’ Demo C projects in relation to the Demo B projects.⁴⁶

ORA generally supports the adoption of the IOUs’ Demo C projects. However, ORA also recommended that the Demo C projects should be refined to fully incorporate a LNBA analysis as a metric of success to evaluate the LNBA’s ability to measure DER locational benefits, and that the CPUC order the IOUs to identify the ability of Demo C

⁴³ PG&E July 29 Reply Comments, p. 2.

⁴⁴ Guidance Ruling, p. 6.

⁴⁵ ORA July 22 Opening Comments, pp. 8-9.

⁴⁶ ORA July 22 Opening Comments, pp. 9-11.

DER deployment to capture locational benefits identified in the LNBA as a metric of Demo C success.⁴⁷

1. *ORA's general recommendations regarding Demo C Projects*

ORA generally supports Demo C projects as a means to vet the new LNBA methodology. The IOUs reply comments generally agreed with ORA on the methodology for determining the success of these Demo C Projects. SCE explained how their Demo C site will validate the LNBA tool at a minimal cost.⁴⁸ PG&E stated that data from the LNBA could be used for benchmarking the “non-wires” winning bidders’ costs, along with other price and non-price data.⁴⁹

2. *ORA supports SCE's Demo C Project.*

SCE proposes to meet Demo C's goals to extend traditional utility planning, design, cost analysis, and implementation activities to evaluate DER potential to meet identified grid needs in the Irvine Substation region. SCE identified four circuits within the substation that are facing load growth and would require traditional system upgrades to meet the increased demand.⁵⁰ In response to an ORA data request, SCE provided additional information detailing the traditional upgrade solution and costs for these circuits.⁵¹ SCE forecast the cost of this project to be \$9.3 million plus the “significant” cost of DER procurement.⁵² ORA supports the implementation of SCE's Demo C Project with a budget cap of [REDACTED]. This will allow SCE to meet the goals of Demo C while maintaining reasonable costs.

⁴⁷ ORA July 22 Opening Comments pp. 11-12.

⁴⁸ SCE July 29 Reply Comments, p. 3.

⁴⁹ PG&E July 29 Reply Comments, p. 2.

⁵⁰ The four circuits are the Hines, Elden, Keeline, and Paragon circuits. Comments of Southern California Edison Company (U 338-E) Proposing Demonstration Projects, R. 14-08-013, June 17, 2016, p. 9.

⁵¹ ORA July 29 Reply Comments, Attachment 3, SCE's Response to Question 1, parts A and B of ORA's Data Request (CONFIDENTIAL).

⁵² Comments of Southern California Edison Company (U 338-E) Proposing Demonstration Projects, R.14-08-013, June 17, 2016, pp. 12-13.

3. *ORA supports PG&E's Demo C Project.*

PG&E proposes to meet Demo C's goals to validate, through commercial scale field deployment, the ability of DERs to achieve net benefits consistent with the indicative LNBA for three or more types of benefits in the Chico Distribution Planning Area (DPA).⁵³ PG&E identified four substations within the DPA that would require traditional system upgrades to meet increased load growth.⁵⁴ PG&E updated this estimate in its June 28, 2016 workshop presentation which identified three alternatives.⁵⁵ One alternative was the proposed Demo C project DER which PG&E estimated to cost \$1.7 million plus additional costs for DER procurement cost.⁵⁶ Costs for the other two alternatives were provided in response to an ORA data request.⁵⁷ Appendix A provides workpapers based on PG&E's response to ORA's data request that result in ORA's proposed budget cap of [REDACTED]. This will allow PG&E to meet the goals of the Demo C while maintaining reasonable costs.

4. *SDG&E should provide information on the deferral value of its Demo C Project so a budget cap can be established.*

SDG&E proposed to meet Demo C's goals to verify the ability of DERs provide local benefits as calculated by the LNBA in Circuit 701 of the Mission Substation, and

⁵³ Revised Track 2 Demonstration Project Proposals of Pacific Gas and Electric Company (U 39 E) Pursuant to May 17, 2016, Joint Assigned Commissioner and Administrative Law Judge's Ruling, R.14-08-013, June 17, 2016. P. A-6 to A-7.

⁵⁴ The four Substations are the Chico B, Sycamore Creek, Notre Dame, and Esquon substations. PG&E's Distribution Resources Plan (DRP) Field Demonstration Project Proposals Workshop Presentation, June 28, 2016.

⁵⁵ PG&E Presentation at the June 28 workshop on Track 2 Demo Projects, p. 9.

⁵⁶ Revised Track 2 Demonstration Project Proposals of Pacific Gas and Electric Company (U 39 E) Pursuant to May 17, 2016, Joint Assigned Commissioner and Administrative Law Judge's Ruling, R.14-08-013, June 14, 2016. P. A-9-A-10.

⁵⁷ ORA July 29 Reply Comments, Attachment 1, PG&E's Response to ORA's Data Request (CONFIDENTIAL).

Circuit 470 in the Felicita Substation.⁵⁸ SDG&E expects only Circuit 470 to have load growth which would require traditional system upgrades to increase capacity in the near future.⁵⁹ SDG&E provided an estimated cost of \$6.4 million for the Demo C Project plus unspecified DER procurement costs.⁶⁰ ORA conceptually supports SDG&E's Demo C project as a means to test the LNBA.

SDG&E did not supply any additional information regarding its Demo C Project in its initial or reply comments.⁶¹ Unlike the other utilities, SDG&E declined to provide ORA with information regarding any traditional wire solutions which could be deferred by its proposed Demo C project, even though SDG&E had identified a future capacity project for Circuit 470.⁶² In hearings, SDG&E verified that there was no defined deferral opportunity for Circuit 701, while there was a deferral opportunity for 470.⁶³ SDG&E envisioned that an adjacent circuit to Circuit 470 would need to be reconductored to prevent an overload from Circuit 470 to the adjacent circuit.⁶⁴ SDG&E also noted that the Demo C Project would defer the need for the reconductoring project if there was sufficient DER in Circuit 470.⁶⁵

Both SCE and PG&E provided deferral cost data information in data requests, which provides key inputs to ORA's budget cap calculations. Without this data, the CPUC would be unable to determine whether SDG&E's proposed Demo C project is a cost-effective alternative to the traditional wired solution. Therefore, ORA recommends

⁵⁸ Response To Track 2 Demonstration Projects Questions of San Diego Gas & Electric Company (U 902-E), R. 114-08-013, June 16, 2016, p. 5.

⁵⁹ *Id.*, p. 5-6.

⁶⁰ *Id.*, p. 8.

⁶¹ See SDG&E July 29 Reply Comments.

⁶² ORA July 29 Reply Comments, Attachment 4, SDG&E's Response to ORA's Data Request.

⁶³ TR pp.124-125: 28-6.

⁶⁴ TR p.124: 6-15.

⁶⁵ TR p.125: 11-13.

that the CPUC require SDG&E to provide cost information on the deferral value of its proposed Demo C Project so a reasonable budget cap can be established for this project.

F. ORA recommends approval of SCE and PG&E Demo D projects subject to budget caps.

Demo D projects are intended to show if and how a utility can keep distribution feeders and substations operating safely and reliability with high penetrations of installed DER. ORA's July 22 preliminary evaluation found that the IOUs' filings regarding Demo D generally lacked required information. ORA then recommended specific information of utilities to include in an updated proposal, and offered provisional support for SCE's Demo D project.⁶⁶

The IOUs' July 22 opening comments provided additional data per the July 12 Ruling, but a review of these comments reveals a wide range of new data: while SCE provided significant new information on project costs and incrementality SDG&E provided almost no new data of value, and PG&E's showing of additional data falls between these two extremes. This information, in conjunction with additional information revealed during evidentiary hearings and discovery, allows ORA to make final recommendations about Demo D projects generally, and the specific projects proposed by each utility.

1. ORA's general recommendations regarding Demo D Projects

Based on the findings above, ORA has four general recommendations regarding the Utility Demo D project proposals:

1. Demo D projects should only be approved if the utility leverages existing RD&D projects to minimize projects costs and accelerate dissemination of learnings,
2. Given the breadth and depth of RD&D projects addressing integration of DER, Demo D projects should not be required for every utility,

⁶⁶ ORA July 22 Opening Comments, pp. 35-36.

3. Demonstration circuits should have a level of DER penetration prior to DER procurement that provide grid disturbances to be addressed by DER,
4. Final implementation plans should be submitted following the Design and Engineering activities for each approved project. These plans should include the following:
 - Revised learning objectives that clearly articulate the specific objectives of the project, and metrics that provide a benchmark to determine project success on an ex-post basis,
 - Additional details regarding how the proposed demonstration site compares to the utility service territory generally such that the replicability of results can be evaluated,
 - Definition of the services to be provided, and the technical requirements to be addressed via third-party DER,
 - Better definition of the specific tasks to be performed as part of the project (e.g. write computer code, perform laboratory testing, install hardware, perform field testing on one feeder vs. an entire substation),
 - Explicit definition of all equipment (hardware and software) to be procured and installed,
 - Detailed budget estimate consistent with the more detailed definitions of tasks and equipment; including breakdown of funding from other sources for each source; and an estimate of DER procurement costs, where applicable,
 - A RD&D integration and coordination plan, per Section C above,
 - A detailed schedule consistent with the more detailed definitions of tasks and equipment, including key milestones, time for baseline measurements, and tasks and milestone for all related RD&D projects,
 - Accurate estimates of any “wired alternatives” that could be deferred or avoided by the project.⁶⁷

⁶⁷ To the extent the CPUC determines that providing this data publicly would bias competitive solicitations, these costs could be provided under seal.

- Details on the “analysis of potential benefits and locational values associated with high-DER penetration,”⁶⁸

Regarding Recommendation 3 above, candidate test circuits should have a baseline condition of significant DER that is causing adverse impacts that can be measured, and this baseline condition should provide a reference condition to be addressed by the procured DER. ORA recommends using only test circuits that currently have DER related adverse impacts.

Regarding recommendation 4 above, the Assigned Commissioner’s Ruling on Guidance clarified that the IOUs should include the following in their DRP filings for each of five defined demonstration projects A-E: “Develop a specification for a demonstration...”⁶⁹ The Commission has signaled that the original specifications, as provided in the July 1, 2015 DRPs were not complete, both through the July 12 ALJ ruling requesting additional information, and in holding evidentiary hearings. It is reasonable for the IOUs to provide a final and complete specification for each project as originally requested.

For the final bullet under Recommendation 4 above, ORA agrees with SDG&E that evaluation of locational benefits from DER is an objective that should primarily be addressed in Demo C Projects.⁷⁰ However, ORA views Demo D projects as an opportunity to gather data that could be used to evaluate the cost-effectiveness of the projects, even though ORA does not recommend specific cost-effectiveness goals. Specifically, project costs should be recorded and categorized such that actual expenditures can be accurately allocated to tasks and equipment defined in the schedules and cost estimates provided in the final implementation plan. In addition, services and benefits expected from DER should be described in advance, and

⁶⁸ Guidance Ruling, Attachment, p. 7.

⁶⁹ *Id.*, pp. 6-7.

⁷⁰ TR, p.139: 17-27.

performance towards those expectations should be reported in project status reports. These benefits should be described qualitatively at a minimum, and quantified if possible.

2. *ORA supports SCE's Demo D Project.*

SCE proposes to test, deploy, and operate systems in the field that monitor and control multiple DERs during this project at the Camden and Johanna Jr. substations in urban Orange County. The key strength of SCE's proposal is that it will likely fully leverage the existing EPIC Integrated Grid project (IGP) and as such SCE is not requesting any additional funding in this DRP proceeding, except potential DER procurement costs. In addition, SCE acknowledges the CPUC's direction to analyze the potential benefits and location values of high penetrations of DER.

SCE has provided additional information on this project both in its July 22, 2016 comments and during evidentiary hearings that better defined this project. Based on this additional information, ORA supports approval of this project subject with a \$0.0 "soft" budget cap.⁷¹ For example, SCE stated that "based on the guidance, we don't believe that there's anything that the integrated grid project will not be able to accomplish that's defined in the guidance for Demo D."⁷² SCE also stated that it does not believe Demo D project would need to extend beyond completion of the IGP, which accelerates this project compared to SCE's other proposed projects.⁷³

Finally, SCE stated in hearings that it believes the proposed test circuits for Demo D meets the definition of "high penetration" as is, and that DER would only

⁷¹ As discussed in Section III.A.2., above, ORA proposes that all budget caps could be increased if justified via a Tier 3 Advice Letter.

⁷² TR, p. 182: 11-15.

⁷³ TR, p. 183:19 to p.184:1. SCE's July 22 Opening Comments indicate that projects for Demo C and E would be completed in 4Q2019 and 2Q2020 respectively. See pages 15 and 45.

need to be procured if the CPUC ruled that additional DERs were required.⁷⁴ Based on SCE comments, DER procurement beyond the DER funded in the IGP would only be required if mandated by the CPUC, so ORA recommends that the CPUC clarify that the current DER penetration levels are sufficient to meet the objectives of Demo D, and that DER procurement is not required, when it adopts this project.

3. *ORA supports PG&E's proposed Demo D Project, subject to a satisfactory proposal for coordination with GRC funding.*

PG&E proposes to perform this project at the Huron substation in rural Fresno County, and estimates the project to cost \$2.1 million plus the cost for any DER to be procured.⁷⁵ ORA's opening comments raised issues including questions about the configuration of the Huron substation, coordination with projects at Huron requested in the 2017 GRC, potential overlap with EPIC projects, and whether the project provided results that were replicable due to the presence of 20 MW of wholesale solar.⁷⁶ ORA performed extensive cross examination on this project during hearings and received expedited discovery responses from PG&E following the hearing that allow ORA to now support this project subject to a budget cap of [REDACTED]. ORA justifies its support for this project based on the following:

First, ORA confirmed that Huron currently has only one transformer bank, and that a second bank was forecasted in the 2017 GRC to avoid saturation.⁷⁷ It therefore appears that Demo D has a current and timely deferral opportunity.

⁷⁴ TR, p. 183: 5-15.

⁷⁵ PG&E July 22 Opening Comments, p. 9.

⁷⁶ ORA July 22 Opening Comments, pp. 26-29.

⁷⁷ ORA confirmed that Huron has only one permanent transformer bank based on a review of the Huron substation schematic provided as a confidential attachment to PG&E's response EDRP-2015-DR-ORA-010-Q1 to ORA's data request dated August 15, 2016. Narrative descriptions of upgrades for the Huron and Schindler substations from 2010 through 2020 are provided in response to ORA-DR-10, Q2 and Q3 respectively, included in Appendix G.

Second, in the July 22 comments, ORA raised concerns about whether having two large 10 MW wholesale solar projects tied to one substation was typical, and whether solutions implemented on this circuit would provide results that were meaningful system-wide. Solar parties with a vested interest in ensuring this project supports their DER objectives had the opportunity both in July 29 reply comments and in hearings to comment on this issue but did not.⁷⁸ In hearings PG&E stated that while this configuration is not typical now, it will become more common as DER penetration increases.⁷⁹ Based on PG&E's June 28 workshop presentation, this substation will experience summer peak load issues in 2018 and winter reverse flow issues in 2021. Given these existing and projected issues, PG&E will not need to procure DER to create grid issues, but instead can solicit DER services to help resolve them.

Third, in hearings PG&E acknowledged that results and learnings from related RD&D programs should and would be incorporated into this project's objectives.⁸⁰

Finally, in hearings the ALJ indicated that the CPUC is concerned about potential funding of both the wired and DER alternatives. PG&E agreed to address this issue in post-hearing comments.⁸¹ Even if PG&E's post-hearing comments do not adequately address this issue, ORA is confident that the CPUC will carefully consider these funding issues. Also, ORA will monitor the implementation and funding of this project to ensure ratepayers do not pay twice for upgrades to the same circuit.

4. *ORA opposes SDG&E's Proposed Demo D Project.*

ORA's June 22 preliminary evaluation did not support this project because \$8.5 million of the \$9 million budget was not defined beyond "field installations"; the project was generally poorly defined, coordination with EPIC projects does not appear to

⁷⁸ For example, a Demo D location with more distribution rooftop solar could provide more meaningful results for parties that operate this type of resource.

⁷⁹ TR, p. 63:11-23.

⁸⁰ TR, p. 41:3-6 and p. 40:11-16.

⁸¹ TR, p. 51:5-15.

reduce the budget request or schedule duration, and the burden for integrating Volt/VAR control was placed on DER providers rather than requiring utilities and DER providers to share responsibility.⁸² SDG&E’s July 22 comments provided a paragraph of additional definition of the field devices, but neither this filing nor SDG&E’s July 29 reply comments addressed the other issues.⁸³ In hearings, SDG&E stated that it would need to procure DER, at an unquantified cost, to “get the [DER] penetration high enough to try and observe some of the issues that you might find with high penetration of DER.”⁸⁴ ORA interprets the CPUC guidance for Demo D as using DER as a solution to high DER penetration issues, not to create issues that could adversely impact customers served by the Valley Center substation. This new information buttresses ORA’s ongoing concerns about this project, and supports ORA’s final recommendation that the CPUC reject this project.

G. ORA recommends approval of SDG&E’s Demo E project subject to a budget cap.

The CPUC provided guidance for Demo E projects to “demonstrate DER dispatch to meet reliability needs” and specified that the IOUs “develop a specification for a demonstration project.”⁸⁵ Many of the preliminary findings in ORA’s July 22 comments regarding Demo D projects are applicable to Demo E projects, including potential overlap with prior RD&D projects. ORA’s findings specific to Demo E included that the CPUC and the California Energy Commission (CEC) have issued reports regarding microgrids investments; the two commissions are currently working with CAISO (Joint-Agencies) to developing a roadmap to support commercialization of microgrids;⁸⁶

⁸² ORA July 22 Opening Comments, pp. 31-34. Volt-ampere reactive (VAR) is a unit by which reactive power is expressed in an AC electric power system.

⁸³ SDG&E July 22 Opening Comments, p. 2.

⁸⁴ TR, p. 130:12-15.

⁸⁵ Guidance Ruling, Attachment, p. 7.

⁸⁶ Joint Energy Agency Workshop to Kick-Off the Development of a Roadmap to Commercialize

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and that microgrids will serve a limited set of customers for whom the added cost of the microgrid is balanced by the added benefits.⁸⁷ ORA recommended specific information from the IOUs as part of their updated proposal and in coordination with the Joint-Agencies pending microgrid roadmap, and offered provisional support for SDG&E and PG&E Demo E projects.⁸⁸

1. *ORA's general recommendations regarding Demo E Projects.*

ORA's general recommendations for Demo D, as provided in Section E.1. above, also apply to Demo E projects. In addition, ORA reiterates the need for coordination with the CEC guidance regarding microgrid investments and the pending Joint-Agency roadmap for microgrid development.⁸⁹ For Demo E projects, the final implementation plans from ORA Recommendation 4 above should also integrate any direction resulting from the Joint-Agency roadmap process.

2. *ORA supports SDG&E's Proposed Demo E Project.*

ORA's opening comments supported SDG&E's proposed project largely because it leveraged the existing EPIC project at Borrego Springs, which resulted only in \$500,000 of DRP expenditure and a final report less than two years after project

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Microgrids in California (May 24, 2016), available at <http://www.energy.ca.gov/research/notices/#05242016>.

⁸⁷ CPUC Whitepaper "Microgrids: A Regulatory Perspective," Villarreal and Erickson, Apr. 14, 2014, p. 23.

⁸⁸ ORA July 22 Opening Comments, pp. 42-45.

⁸⁹ A workshop for the Joint-Agency road map is scheduled for September 6, 2016. Based on an August 23, 2016 conversation with the CEC lead for this project, Mike Gravely, over 200 stakeholders are participating in this process which is expected to produce a final report/roadmap in the third-quarter of 2017. The Roadmap will highlight future actions, research and demonstrations needed to help move Microgrids from research to commercialization in California. The CEC anticipates holding another three workshops over the next 6-8 months as the Roadmap development process is completed.

approval.⁹⁰ In hearings, SDG&E stated that while there is significant overlap between the EPIC and DRP projects, it requested additional funding in case additional analysis or reporting is required.⁹¹ ORA continues to support SDG&E's Demo E proposal because there is a timely opportunity to gain DRP specific information from a project that is already in process.

ORA's only residual concern regarding this project is that SDG&E has forecasted \$300,000 for design and engineering. This is higher than the design and engineering cost SDG&E provided for Demo C and D projects of \$200,000 and 250,000, respectively,⁹² even though "microgrid installation" and "DERMS deployment," both of which require design and engineering, are funded as part of the EPIC project that began on June 22, 2015.⁹³ ORA therefore recommends a budget cap for this project of \$250,000 to account for overlapping engineering efforts.⁹⁴

3. *ORA opposes SCE's Proposed Demo E Project.*

SCE proposes to perform its Demo E in a suburban area of Irvine where a previous DOE Irvine Smart Grid Demonstration (ISGD) project was performed.⁹⁵ SCE requests \$10.2 million for this project plus the cost of DER procurement.

ORA's July 22 comments opposed this project because it did not leverage any other funding sources and because the proposed location was not a natural candidate for a

⁹⁰ Response To Track 2 Demonstration Projects Questions of San Diego Gas & Electric Company (U 902-E), R. 114-08-013, June 16, 2016, Attachment 1, section on Demo E (pages are not numbered.)

⁹¹ TR, p. 125:14-21 and p. 126:13-27. SDG&E stated that there is uncertainty because initial CPUC guidance provided limited details regarding reporting and tasks that need to be performed.

⁹² Response To Track 2 Demonstration Projects Questions of San Diego Gas & Electric Company (U 902-E), R. 114-08-013, June 16, 2016, Attachment 1, section on Demo C and D (pages are not numbered.)

⁹³ SDG&E July 22 Opening Comments, p. 5.

⁹⁴ Appendix C provides support for ORA's recommended budget caps for SDG&E. ORA's budget cap proposal allows for adjustments to the cap if justified.

⁹⁵ SCE Comments Proposing Demonstration Projects (Jul. 17, 2016), p. 38.

microgrid.⁹⁶ SCE’s July 29 comments offered rebuttal showing existing equipment that would be leveraged, and stating that this project would be unique in that it provided an “inverter-only microgrid, in contrast to many other microgrid projects that rely in part upon fossil generation with rotating mass.”⁹⁷ However, in hearings, SCE indicated that significant equipment beyond the existing resources would be required. First, a microgrid requires islanding switches, telecommunication equipment “to get from the control system to the device and back,” and protection equipment, and that for Demo E investments would be required for all these types of equipment.⁹⁸ SCE estimates the cost for equipment and services for this project to be \$5.5 million.⁹⁹ Second, SCE stated that the proposed demo area has a peak demand of “approximately 450 kW”, but only 70 kW of existing solar.¹⁰⁰ For the proposed project, SCE would need to procure both 350 kW of additional generation and additional storage to provide 2 hour islanded operation as planned.¹⁰¹ Finally, SCE includes \$850,000 for “maintenance and decommissioning” which suggests that the microgrid is not needed and that SCE does not intend to operate the system beyond this demonstration project phase.¹⁰²

SCE’s proposed Demo E project would incur significantly more than \$10.2 million once the required additional generation and storage is included, and this investment would not be used beyond this demo project. The purported value added by this project is data on operating one type of microgrid: an inverter-based system without fossil generation. SCE has not provided evidence that such a system is likely to be

⁹⁶ ORA July 22 Opening Comments, pp. 44-45.

⁹⁷ SCE July 29 Reply Comments, pp. 4-5.

⁹⁸ TR, p. 189: 2-19.

⁹⁹ SCE July 22 Opening Comments, p. 12. This is for all equipment and services, and could include equipment beyond that required to create the microgrid.

¹⁰⁰ TR, p. 189: 23-26.

¹⁰¹ TR, p. 190:1-13.

¹⁰² SCE July 22 Opening Comments, p. 12.

needed, the extent of that need, or the cost-effectiveness of such a system compared to systems that include non-renewable DER. Based on the evidence to date, ORA opposes this project because it is an expensive exercise that provides minimal potential for learnings beyond SDG&E's Demo E project.

ORA recommends that demonstration of an inverter-based microgrid be delayed until the need of such a system is determined through the Joint-Agency microgrid roadmap process. If an inverter-based microgrid is prioritized for deployment in that venue, ORA recommends that the CPUC investigate using SDG&E's Borrego Springs microgrid as a test bed of inverter based microgrids. Alternatively, the CPUC could consider directly leveraging the communication and control systems deployed through SCE's EPIC IGP or "Beyond the Meter" projects, since these systems would likely be similar to those to be used for the proposed Demo E project.¹⁰³

4. *ORA opposes DRP funding for PG&E's Proposed Demo E Project.*

PG&E's proposed project is located on Angel Island, a small island in the San Francisco Bay. PG&E's estimated cost for this project is \$4.2 million plus the cost of DER procurement.¹⁰⁴ PG&E's primary rationale supporting this project is its ability to avoid replacing two 12 kV undersea cables that have historically served Angel Island.¹⁰⁵ ORA previously questioned the value added by this project compared to the previously funded EPIC Blue Lake Rancheria project, and separately recommended that this project be considered for DRP Demo funding only if a cost and benefit analysis was provided to show the project had net benefits compared to replacing the undersea cables.¹⁰⁶ Based on the hearings and additional information obtained through discovery, ORA does not recommend using this project for Demo E as discussed below.

¹⁰³ TR, p 190:14-20 and pp. 191-193.

¹⁰⁴ PG&E Demos C, D E Revised Proposal (June 17, 2016), p. A-25.

¹⁰⁵ PG&E Demos C, D E Revised Proposal (June 17, 2016), p. A-21.

¹⁰⁶ ORA July 22 Opening Comments, pp. 39-41.

First, ORA opposes this project as a demonstration project since it has limited value in terms of providing learnings that are generally applicable across PG&E’s service territory, and that meet CPUC guidance. PG&E stated in hearings that it seeks to build a microgrid that can serve Angel Island customers even when the remaining cable fails.¹⁰⁷ Such fully islanded operation will require significantly more DER, including non-renewable DER, than a microgrid providing limited islanding capacity. This increases the cost of this particular Demo E project. PG&E stated in hearings that it does not have an estimate of the environmental impact of this project, but that preliminary estimates were that non-renewable generation would be “less than 1 percent.”¹⁰⁸ This project may therefore provide a net environmental benefit compared to the wires alternative, but this will require even more storage at additional cost to ensure reliable service to Angel Island customers when the energy from sun and wind is insufficient to meet the island’s load. Alternatively, more fossil generation could be used to lower cost, but this could result in increased environmental impact compared to a wired alternative.¹⁰⁹ PG&E proposes to create a microgrid system with high DER procurement to support full islanding, yet it has not justified the extent to which such a system would be required within its service territory.

ORA interprets the DRP guidance for Demo E as investigating not only the benefits of a microgrid on the reliability of customers within the microgrid, but also the

¹⁰⁷ TR, p. 33:4-15. Also, TR, p.50:9-17.

¹⁰⁸ TR, p. 37:10-17 and p.53:10-11. PG&E’s response to ORA-DR-12-Q5, included in Appendix G, states that “The correct preliminary estimate was less than 3 percent. This value is based off of the percentage of the propane generator production (kWh) to the total production from all of the generators in the portfolio. PG&E will clarify this number in its post-hearing comments.”

¹⁰⁹ California utilities are required to meet increasingly stringent requirements for providing renewable energy via the grid. Senate Bill X1-2 set a Renewable Portfolio Standard (RPS) target at 33% by 2020. This new RPS required publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators to adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent requirement being met by the end of 2020. Senate Bill 350 requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030.

benefits it can provide to customers outside of the microgrid, particularly in the normal grid-connected state. While the proposed microgrid would provide a benefit by removing the approximately 100 kW of load from the Alto 1123 circuit, the approximate 370 kW of new DER added by this project would not be able to provide energy, storage capacity, VAR support, or other DER services to the circuits on the adjacent Tiburon peninsula.¹¹⁰

Second, ORA also opposes this project as an alternative to replacing the two 12 kV cables. ORA appreciates that PG&E is attempting to do what Assembly Bill 327 intended by proposing a DER project to avoid a planned wires investment, but in doing so it must provide cost and benefit data to show which alternative is preferred. PG&E has not made this showing. As explained above, PG&E has specified a fully islanded microgrid which will be expensive, could have adverse environmental impacts, or both. It is also uncertain how long the proposed project would defer replacing the 12 kV lines, even though PG&E stated that “the duration of deferral is expected to be a 3 year timeframe.”¹¹¹ There is also a question of need and timeliness. PG&E stated in reply comments that time is of the essence for this project because it is intended to provide a “non-wires” alternatives to real-world distribution reliability and safety needs.”¹¹² However, PG&E previously requested to replace the cables in a 2012 GRC application, but determined that other projects were higher priority and did not replace these cables.¹¹³ PG&E cannot now provide a need date for the new cables.¹¹⁴

¹¹⁰ PG&E Demos C, D E Revised Proposal (June 17, 2016), p.A-21 to A-23. In hearings, PG&E stated that this project will provide reliability for both sets of customers (TR, p. 27:8-16) but provided no examples beyond that of general load reduction at the interconnection point at Angel Island (TR, p. 57:9-28).

¹¹¹ PG&E response to ORA-DR-12-Q3, included in Appendix G.

¹¹² PG&E July 29 Reply Comments, pp. 3-4.

¹¹³ PG&E response to ORA-DR-12-Q4, included in Appendix G.

¹¹⁴ PG&E response to ORA-DR-12-Q1, included in Appendix G.

Two months after PG&E submitted the application for this project, it requested funds to replace the two 12 kV cables in 2018.¹¹⁵ A proposed settlement agreement provides funding for this project in 2017.¹¹⁶ For PG&E’s Demo D project, ORA is satisfied that integration with the GRC funding could be resolved, in part because ORA supports funding the replacement of the 12kV through the GRC. However, the situation for Demo E in this proceeding is different because ORA opposes the project. If the pending settlement agreement in Application15-09-001¹¹⁷ is adopted and PG&E receives funding for replacing the two 12 kV cables, PG&E may argue that it could build the Angel Island microgrid instead. If so, PG&E will need to address how this is consistent with D.12-05-037 in the EPIC proceeding which orders that RD&D projects should not be funded in GRCs.¹¹⁸

ORA recommends the CPUC preemptively address this issue by requiring that PG&E report in this proceeding the status of any Angel Island reliability projects, whether building a microgrid or replacing cables, including which alternative it implements and the cost and benefit analysis supporting this decision. If PG&E is allowed to proceed with the Angel Island microgrid as an alternative to the 12 kV cable replacement, ORA recommends that PG&E should be required to meet the same reporting requirements as the CPUC adopts for other DRP Demo Projects, including providing data that allows benefit to cost analysis.

¹¹⁵ ORA July 22 Opening Comments, p.40.

¹¹⁶ See Appendix A.

¹¹⁷ PG&E’s 2017 GRC application.

¹¹⁸ CPUC Phase 2 EPIC decision D.12-05-037, Ordering Paragraph 17, p. 106: “Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (SCE) shall no longer include technology demonstration and deployment expenditures in their general rate cases (GRCs) unless specifically directed by the Commission to do so in a proceeding related to the Electric Program Investment Charge (EPIC). The investment plans for the EPIC program shall become the primary vehicle for considering utility proposals for electric research, development, and deployment (RD&D) purposes.”

H. ORA supports CSE’s proposed Demo Project.

The Center for Sustainable Energy (CSE) proposed a DRP demonstration project in addition to previously proposed projects A-F to “demonstrate how local jurisdictions and utilities can work together to incorporate local planning data into utility grid plans, and incorporate grid information from Distribution Resource Plans into local DER plans.”¹¹⁹ CSE is requesting \$389,551 for this project in this proceeding. It should be noted that CSE has requested \$350,551 for this demonstration project from the U.S. Department of Energy Cities Leading through Energy Analysis and Planning.¹²⁰ ORA supported CSE’s proposed demonstration project subject to a determination of cost reasonableness.¹²¹ On August 5, 2016, ORA discussed CSE’s project in a telephone conversation, and received an additional response regarding the project’s cost estimates.¹²² ORA found these to be reasonable. Therefore, ORA recommends approval of up to \$389,551 for this project, less any funding provided by the USDOE.¹²³

¹¹⁹ Comments of CSE Proposing a Demonstration Project, R.14-08-013, June 17, 2016.

¹²⁰ Center For Sustainable Energy San Francisco Integrated DER Planning Project Workshop Presentation, June 28, 2016.

¹²¹ ORA July 29 Reply Comments, p. 10.

¹²² ORA/CSE call for DRP Pilot Cost Estimate Details, August 8, 2016, 2:00pm -3:00pm; Project Cost Estimate for San Francisco Integrated DER Planning Project: Project Applicants’ Response to Questions from Office of Ratepayer Advocates on August 8, 2016. See Hearing Exhibit DRP2-CSE1.

¹²³ TR, p. 106:2-21.

IV. CONCLUSION

ORA requests the Commission adopt ORA's recommendations, as discussed herein.

Respectfully submitted,

/s/ Matt Miley

MATT MILEY
Attorney for the Office of Ratepayer
Advocates

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-3066

Email: Matt.Miley@cpuc.ca.gov

August 26, 2016