Decision **PROPOSED DECISION OF ALJ KERSTEN** (Mailed 9/12/2014)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of SAN DIEGO GAS & ELECTRIC COMPANY (U902M) for Approval of its Energy Storage Procurement Framework and Program As Required by Decision 13-10-040.	Application 14-02-006 (February 28, 2014)
And Related Matters.	Application 14-02-007 Application 14-02-009

DECISION APPROVING SAN DIEGO GAS & ELECTRIC COMPANY, PACIFIC GAS AND ELECTRIC COMPANY, AND SOUTHERN CALIFORNIA EDISON COMPANY'S STORAGE PROCUREMENT FRAMEWORK AND PROGRAM APPLICATIONS FOR THE 2014 BIENNIAL PROCUREMENT PERIOD

Table of Contents

Title **Page**

DECISION APPROVING SAN DIEGO GAS & ELECTRIC COMPANY, PACIFIC GAS AND ELECTRIC COMPANY, AND SOUTHERN CALIFORNIA EDISON COMPANY'S STORAGE PROCUREMENT FRAMEWORK AND PROGRAM APPLICATIONS FOR THE 2014 BIENNIAL PROCUREMENT PERIOD 1
1. Summary 2
2. Background 4
3. Scoping Memo Issues 8
4. Summary of Applications 9
4.1. Overall Summary of Applications 10
4.2. San Diego Gas & Electric's Application 11
4.3. Pacific Gas and Electric's Application 12
4.4. Southern California Edison's Application 14
5. Compliance Issues Before the Commission 15
5.1. Should PG&E, SCE, and SDG&E's proposed procurement plans for the 2014 Biennial Solicitation be adopted? 17
5.1.1. D.13-10-040 17
5.1.2. Parties' Positions 19
5.1.3. Discussion 19
5.2. Will PG&E, SCE, and SDG&E proposed utility procurement plans ensure safe and reliable delivery of energy to customers? 23
5.2.1. D.13-10-040 23
5.2.2. Parties' Positions 23
5.2.3. Discussion 25
5.3. Should the utilities' cost recovery methodologies for energy storage procurement through various ratemaking mechanisms be approved? 25
5.3.1. D.13-10-040 25
5.3.2. Parties' Positions 26
5.3.3. Discussion 40
6. Other Issues Before the Commission 49
6.1. Definition of Storage and Eligibility Rules 49
6.1.1. D.13-10-040 49
6.1.2. Parties' Positions 49
6.1.3. Discussion 59

Table of Contents (cont.)

Title **Page**

6.2. Consistent Evaluation Protocol (CEP) 64
6.2.1. D.13-10-040 64
6.2.2. Parties' Position 65
6.2.3. Discussion 69
6.3. Procurement/RFO/Operational Requirements 71
6.3.1. D.13-10-040 71
6.3.2. Parties' Position 72
6.3.3. Discussion 75
6.4. Biennial Target Deferment Standards 75
6.4.1. D.13-10-040 75
6.4.2. Parties' Position 76
6.4.3. Discussion 78
6.5. Contract Guidelines 78
6.5.1. D.13-10-040 78
6.5.2. Standardization 79
6.5.2.1. D.13-10-040 79
6.5.2.2. Parties' Position 79
6.5.2.3. Discussion 82
6.5.3. Contract Term 83
6.5.3.1. D.13-10-040 83
6.5.3.2. Parties' Position 84
6.5.3.3. Discussion 88
6.5.4. Deadlines to Execute and Submit Contracts 89
6.5.4.1. D.13-10-040 89
6.5.4.2. Parties' Position 90
6.5.4.3. Discussion 91
6.6. Pre-Bidding Interconnection Requirements 92
6.6.1. D.13-10-040 92
6.6.2. Parties' Position 93
6.6.3. Discussion 95
6.7. Customer-Side Storage 97
6.7.1. D.13-10-040 97
6.7.2. Parties' Position 97
6.7.3. Discussion 99

Table of Contents (cont.)

Title **Page**

6.8. Project Approval Process 100
6.8.1. D.13-10-040 100
6.8.2. Parties' Positions 101
6.8.3. Discussion 103
7. Categorization and Need for Hearing 104
8. Comments on Proposed Decision 104
9. Assignment of Proceeding 106
Findings of Fact 106
Conclusions of Law 112
ORDER 118

Attachment A - Summary of Existing Storage Deployment

DECISION APPROVING SAN DIEGO GAS & ELECTRIC COMPANY, PACIFIC GAS AND ELECTRIC COMPANY, AND SOUTHERN CALIFORNIA EDISON COMPANY'S STORAGE PROCUREMENT FRAMEWORK AND PROGRAM APPLICATIONS FOR THE 2014 BIENNIAL PROCUREMENT PERIOD

1. Summary

In compliance with Decision (D.) 13-10-040,[1] this decision approves San Diego Gas & Electric (SDG&E), Pacific Gas and Electric Company (PG&E) and Southern California Edison (SCE) February 28, 2014 Energy Storage Framework and Program Applications for the 2014-2016 Biennial Procurement Period with modifications as follows:

1) Approves proposed energy storage procurement proposals of SDG&E (16 Megawatts (MW)); SCE (16.3 MW); and modifies storage proposal of PG&E to 80.5 MW;
2) Clarifies "eligible" technologies *including* V2G electric vehicle technologies, eligible storage component of biogas, eligible storage component of solar thermal (CSP-TES), eligible storage component of hybrid thermal generation (Hybrid-TES), but *excluding* V1G and biogas (without eligible storage component);
3) Authorizes the Power Charge Indifference Adjustment (PCIA) mechanism to recover above-market costs associated with departing load for market/"bundled" energy storage services procured via the 2014 solicitation and directs SDG&E, SCE, and PG&E to submit for Commission review and approval a "Joint Investor Owned Utilities (IOU) Protocol" proposal for a PCIA methodology to determine potential above market stranded cost of

[1] D.13-10-040 "Decision Adopting Energy Storage Procurement Framework and Design Program" issued October 21, 2013.

bundled service storage (procured in the 2014-2016 solicitation);

4) Denies request for extension of the PCIA mechanism for market/"bundled" energy storage contracts beyond 10 years;

5) Defers the resolution of the "Dual Usage" cost recovery proposal for combined generation/distribution energy storage;

6) Directs SDG&E, PG&E, and SCE, in consultation with other affected parties, to file an Application (including a proposed "Joint IOU Protocol" for PCIA methodology to determine above market stranded cost of bundled service storage) requesting Commission approval of the proposed PCIA methodology along with signed contracts for the winning bids within one year of the first energy storage solicitation;

7) Directs SDG&E, PG&E, ands SCE to file their respective "Dual Use" cost recovery methodology for combined generation/distribution storage projects if and when they propose such projects to the Commission for approval;

8) Approves SDG&E, PG&E, and SCE proposed Consistent Evaluation Protocol (CEP) with two adjustments (including weighting of qualitative factors of CEP and revised CEP definition to clarify evaluation of concurrent benefits) for reporting and benchmarking purposes, and proprietary evaluation protocols for bid selection, and directs SDG&E, PG&E and SCE to implement such adjustments in their upcoming December 1, 2014 solicitation requirements and bid materials;

9) Directs SCE and PG&E to provide a more detailed explanation of the type of storage resources and the associated MW quantities the IOU intends to procure, categorized by grid domains, use cases, and locations in their upcoming December 1, 2014 bid solicitation materials; and

10) Authorizes extension of dates to request biennial target deferment from three months from when SDG&E, PG&E, and SCE receive offers to no later than one year from the date of the first solicitation.

As to subsequent solicitations beyond the 2014 Biennial Procurement Period, the Commission may consider other venues such as workshops or Order Instituting Rulemaking to help resolve outstanding issues including, but not limited to: 1) storage definition and eligibility rules; 2) PCIA to recover above-market stranded and Dual Usage cost recovery methodologies; 3) extension of PCIA treatment to the life of the contract beyond 10 years.

Application 14-02-006 et al. is closed.

2. Background

On December 16, 2010, the Commission opened Rulemaking (R.) 10-12-007 to implement the provisions of Assembly Bill (AB) 2514 (Stats. 2010, ch. 469). Pursuant to Public Utilities Code Section 2836,[2] the Commission shall determine appropriate targets, if any, for each Load-Serving Entity (LSE) as defined by Section 380(j) to procure viable and cost-effective energy storage systems and sets dates for any targets deemed appropriate to be achieved. Following comments on the Assigned Commissioner's Ruling (ACR) issued on June 10, 2013, and the Proposed Decision, the Commission issued Decision (D.) 13-10-040 or energy "Storage Decision" on October 21, 2013.

Among other things, D.13-10-040 established a program for procurement of energy storage including:

[2] All further references are to the Public Utilities Code unless otherwise noted.

1. Procurement targets for each of the investor-owned utilities and Electric Service Providers (ESPs)/Community Choice Aggregators (CCAs);
2. Mechanisms to procure storage and means to adjust targets, as necessary; and
3. Program evaluation criteria.[3]

With the issuance of this Decision, R.10-12-007 was closed.

D.13-10-040 set procurement targets for 2014 to 2020, adopted the Energy Storage Procurement Framework and Design Program, and directed San Diego Gas & Electric Company (SDG&E), Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) (collectively as the Investor-Owned Utilities (IOUs)) to file four biennial storage procurement applications starting in March 2014.[4]

Accordingly, the following procurement targets are allocated to each of the IOUs and are organized by three "grid domains" (points of grid interconnection): transmission connected, distribution connected, and customer-side applications as presented in the table below:[5]

[3] D.13-10-040 at 2.

[4] D.13-10-044 at 77, Ordering Paragraph (OP) 3, Appendix A at 7.

[5] D.13-10-040 at 15.

Energy Storage Procurement Targets (in Megawatts (MW))

Storage Grid Domain (Point of Interconnection)	2014	2016	2018	2020	Total
Southern California Edison					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal SCE	**90**	**120**	**160**	**210**	**580**
Pacific Gas and Electric					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal PG&E	**90**	**120**	**160**	**210**	**580**
San Diego Gas & Electric					
Transmission	10	15	22	33	80
Distribution	7	10	15	23	55
Customer	3	5	8	14	30
Subtotal SDG&E	**20**	**30**	**45**	**70**	**165**
Total - all 3 utilities	**200**	**270**	**365**	**490**	**1,325**

In addition to updated procurement target tables with adjustments and proposed types of storage to be procured, including quantities and operational requirements, D.10-13-040 required IOUs to provide proposed procurement details, including Power Purchase Agreements (PPAs), bid evaluation protocols, request for cost-recovery authorizations, and to report on storage procurement to date. Utility-owned storage is limited to 50% of cumulative targets across all grid domains. The competitive process for procuring utility-owned storage must be consistent with the process outlined in D.07-12-052 or IOUs must justify another approach.

In compliance with D.13-10-040, on February 28, 2014, SDG&E, PG&E, and SCE filed three separate applications (Storage Applications) for consideration by the Commission.[6]

On March 14, 2014, Energy Division (ED) conducted a workshop that allowed parties the opportunity to review the content of IOU Storage Applications, proposed procurement process and Request for Offer (RFO) documents, and bid evaluation protocols.

On March 26, 2014, the assigned Administrative Law Judge (ALJ) issued a ruling consolidating the Applications into a single proceeding (A.14-02-006 et al.), authorizing an extension of time to file comments on Applications, and providing notice of a Prehearing Conference (PHC) on May 14, 2014.

In response to this Ruling, on April 7, 2014, 14 parties served and/or filed timely protests/responses to the initial Applications of SDG&E, PG&E, and SCE.[7] On April 18, 2014 SDG&E, PG&E, and SCE served and filed timely replies.[8]

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[6] These Applications are entitled as follows: *Application (A.) 14-02-006 Application of San Diego Gas & Electric Company for Approval of its Energy Storage Framework and Program*; *A.14-02-007 Application of Pacific Gas & Electric Company for Authorization to Procure Energy Storage Systems During the 2014 Procurement Period Pursuant to Decision 13-10-040*; and *A.14-02-009 Application of Southern California Edison for Approval of its 2014 Energy Storage Procurement Plan.*

[7] Responses or Protests to Applications were filed by: Agricultural Energy Consumers Association (AECA), Brookfield Renewable Energy Partners LP (Brookfield), California Energy Storage Alliance (CESA), Calpine Corporation (Calpine), Clean Coalition, Consumer Federation of California (CFC), Direct Access Customer Coalition and Alliance for Retail Energy Markets (DACC/AReM), Green Power Institute (GPI), Joint Long Duration Energy Storage Parties (Joint LDES Parties), Marin Clean Energy (MCE), Office of Ratepayer Advocates (ORA), Shell Energy North America (US), L.P. (Shell), Sierra Club, and The Utility Reform Network (TURN).

[8] According to Rule 2.6 (e), only an applicant may file replies to protests to an application within 10 days of the last day of filing protests and responses.

On May 14, 2014, a PHC was held to discuss the service list and party status, scope of the proceeding, categorization and need for hearings, and timeline for the remainder of the proceeding.

On May 27, 2014, the ALJ issued a Scoping Memo that directed a workshop be conducted on June 2, 2014 to discuss outstanding issues that parties raised at the PHC and in comments including issues associated with storage definition and eligibility, IOU procurement, RFO requirements, IOU evaluation protocols, and related matters that ED may deem necessary to implement D.13-10-040. In response to issues raised at the PHC, the Scoping Memo also directed parties to file and serve written responses to a series of fifteen questions. Responses were filed on June 12, 2014.[9] Replies were filed on June 19, 2014.[10]

3. Scoping Memo Issues

Consistent with AB 2514,[11] the Commission's energy storage procurement program is guided by three purposes:

1) Optimization of the grid, including peak reduction, contribution to reliability needs, or deferment of transmission and distribution upgrade investments;
2) The integration of renewable energy; and

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[9] Responses to Scoping Memo Questions were filed by: AECA, BrightSource Energy, Inc. (BrightSource), Brookfield, CESA, California Hydrogen Business Council (CHBC), Calpine, ChargePoint, Inc. (Chargepoint), Clean Coalition, CFC, DACC/AReM, Environmental Defense Fund (EDF), General Motors LLC (General Motors), GPI, Joint LDES Parties, MCE, National Resources Defense Council (NRDC), ORA, PG&E, SDG&E, Shell, Sierra Club, Small Business Utility Advocates (SBUA), SolarReserve, LLC (SolarReserve), SCE, and TURN.

[10] Replies to Scoping Memo Questions were filed by: AECA, BrightSource, Calpine, CESA, CFC, Clean Coalition, DACC/AReM, GPI, Joint LDES Parties, MCE, ORA, PG&E; SCE, SDG&E, Sierra Club, SolarReserve, and TURN.

[11] *See* Pub. Util. Code § 2835(a)(3).

3) The reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050, per California's goals.[12]

While energy storage may serve additional purposes within California's energy supply, the Commission has applied these three overarching goals in setting procurement targets, designing procurement, and evaluating progress.

As listed in the May 27, 2014 Scoping Memo, the following are the primary issues that are addressed in this decision:

1. Should PG&E's, SCE's and SDG&E's proposed procurement plans for the 2014 Biennial Solicitation be adopted?
2. Will PG&E, SCE, and SDG&E proposed utility procurement plans ensure safe and reliable delivery of energy to customers?
3. Should the utilities' cost recovery methodologies for energy storage procurement through various ratemaking mechanisms be approved?

Other "secondary" issues are highlighted in Section 6 or "Other Issues Before the Commission."

4. Summary of Applications

Following is a brief summary of the IOU anticipated procurement targets and their applications for the 2014-2016- biennial period. In respective applications, IOUs also raise issues regarding specific policy, program, and procedural requirements contained in D.10-14-040. Most of these issues will be systematically addressed in Section 6 or "Other Issues Before the Commission."

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[12] The Global Warming Solutions Act of 2006 (AB 32) requires California to reduce greenhouse gas emissions to 1990 levels by 2020. Cal. Health & Safety § 38500 *et seq*. Executive Order S-3-05 (Gov. Schwarzenegger, 2005) states an additional goal of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.

4.1. Overall Summary of Applications (As Proposed by IOUs)

(MW)	Transmission	Distribution	Customer	Total
San Diego Gas and Electric				
Storage Target	10	7	3	20
Existing / In Progress	40 (1)	6.15	-	46.15
Expected	-	-	4.66	4.66
Required Min Procurement	-	0.85	-	.85
IOU Proposed 2014 Procurement	***10***	***6***	***0***	***16***
Pacific Gas and Electric				
Storage Target	50	30	10	90
Existing / In Progress	- (2)	8.5 (3)	-	8.5
Expected	-	-	3.5	3.5
Required Min Procurement	50	21.5	6.5	78
IOU Proposed 2014 Procurement	***50***	***21.5***	***6.5***	***78***
Southern California Edison				
Storage Target	50	30	10	90
Existing / In Progress	-	13.68	-	13.68
Expected	50 (4)		16.28	66.28
Required Min Procurement	-	16.3	-	16.3
IOU Proposed 2014 Procurement	***No min or max*** (5)	***16.3***	***-***	***>16.3***
Total IOU				
Proposed 2014 Procurement	***>60***	***43.8***	***6.5***	***>110.3***

(1) Includes 40 MW Lake Hodges Pumped Hydro

(2) Excludes 150 MW Rice Solar CSP (to be counted in future solicitation)

(3) Includes 2.5 MW biogas proposed by PG&E as existing, but rejected by this decision as ineligible (thereby increasing the distribution-level required procurement to 24 MW).

(4) The 50 MW of expected storage from SCE's Local Capacity Requirements (LCR) RFO may be transmission-distribution-, or customer-connected.

(5) The grid-domain of SCE's proposed 2014 procurement will depend on the results of the LCR RFO and the offers in the Storage RFO.

(Note: Customer domain numbers indicate forecasted installations in the Self-Generation Incentive Program (SGIP) and Permanent Load Shifting (PLS) Program and are subject to true up in the biennial procurement period.)

In short, SDG&E has already met its 2014 procurement targets in total (with a relative shortfall relative to the distribution domain-specific target) but would like to procure more storage in the upcoming solicitation to meet its 2016 and 2018 targets. It may procure more than the planned 16 MW to exceed its procurement targets depending on cost, viability, and other factors. PG&E plans to procure 78 MW but reserves the right to ask for a deferment if necessary and count any over-procurement to future targets. Similarly, SCE may procure more than 16.3 MW depending on the offers it receives in the upcoming solicitation.

For reference, please refer to Attachment A that lists IOU "existing" storage deployment (90.43 MW) and comprises the total portfolio existing energy storage deployment.

4.2. San Diego Gas & Electric's Application

In its Application, SDG&E asked the Commission to approve its Energy Storage Procurement Plan, including its procurement methodology for proposed

2014 energy storage procurement, its evaluation protocol for energy storage, and its cost recovery mechanisms.

SDG&E anticipates plans to solicit energy storage for procurement via one transmission program and two distribution programs.[13] The transmission program (10 MW) is for Local and Flexible Capacity Requirement—Transmission Connected. The first distribution program (2 MW) is for Local and Flexible Capacity Requirements—Distribution Connected. The second distribution program (4MW) is for utility owned devices for distribution reliability and power quality. The transmission and first distribution programs will use a procurement methodology significantly similar to SDG&E's Long Term Procurement Plan (LTPP) methodology and could be procured in the same solicitation. The second distribution program will utilize the standard process that SDG&E has used in the procurement of distribution reliability assets. SDG&E does not include a program for customer side procurement for this year, beyond that expected through SGIP and PLS. In future procurement periods, SDG&E may seek utility or third party owned energy storage systems in any of all of the three domains. SDG&E issued an all source RFO on September 5, 2014 pursuant to the Commission's authorization in the LTPP proceeding.

4.3. Pacific Gas and Electric's Application

In its Application, PG&E asks the Commission to approve its 2014 Energy Procurement Plan, including the 2014 RFO process, evaluation method for offers and agreements, and cost recovery.

[13] SDG&E Application at 4.

PG&E emphasizes that it will count pre-approved transmission, distribution, and customer-side energy storage projects for which it has executed contracts or made other commitments. Toward its 2014 targets, it will only count its currently operational projects.[14] PG&E proposes 8.5 MW of storage projects at the distribution-level, including 2.5 MW of dairy biogas, and 3.5 MW of eligible storage projects at the customer-level. It maintains that it has procured 150 MW of storage from an eligible pre-approved storage project at the transmission level but plans to apply it to later procurement periods. For the 2014 biennial period, PG&E proposes to reduce its Storage Decision target by 8.5 MW at the distribution level and 3.5 MW at the customer level to a total of 78 MW. PG&E expects to procure energy storage for market/bundled service and distribution reliability and seeks additional customer side storage through the SGIP/PLS programs. PG&E believes it is premature to defer or shift procurement between the transmission and distribution domains because a solicitation has not yet been conducted.

From a policy perspective, PG&E asks the Commission to: 1) consider biogas generation as energy storage and count it towards PG&E's targets; 2) allow PG&E to submit RFO results, contract review and approval via tier three Advice Letters instead of Applications; and 3) allow above market stranded cost recovery for the full term of an energy storage contract because the standard term length for recovery through non-bypassable charges associated with bundled service is usually limited to ten years.

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[14] D.13-10-040 at 5.

From a program and procedural perspective, PG&E also asks that the Commission clarify the program pursuant to D.13-10-040 and Appendix A:

- Instead of requesting program deferment from the Commission three months from when IOUs receive RFO offers, the Commission should allow the deferment request 12 months after the IOUs shortlist the offers.
- Instead of submitting contracts from the 2014 RFO for Commission for approval within one year after the RFO, the Commission should allow the IOUs to submit executed contracts within one year of IOUs creating the short list.
- The Commission should forego the option of requiring the IOUs to change the RFO materials submitted in their Applications in the forthcoming decision because the Independent Evaluator will ensure the RFO complies with the decision and the Commission will review the executed agreements.

These policy, program, and procedural issues will be addressed in Section 6 or "Other Issues Before the Commission."

4.4. Southern California Edison's Application

SCE requests that the Commission approve its 2014 Energy Storage Procurement Plan, valuation methodology and selection process, and its proposal for procurement methodologies, including a 2014 Energy Storage RFO, the potential use of bilateral contracts for procurement under special circumstances, and the potential to develop utility-owned storage.

SCE may procure additional storage for its current Local Capacity Requirements (authorized in the LTPP proceeding) or market/bundled service depending on the response received from its 2014 Energy Storage RFO. In the pending solicitation cycle, SCE has no plans to seek storage for distribution reliability. SCE identifies that it has a number of existing energy storage projects that are eligible to count toward its storage targets. SCE also plans to procure

energy storage through existing procurement mechanisms, including at least 50 MW from the Local Capacity Requirements solicitation currently in progress, and potentially its Renewable Portfolio Standard solicitation or its Preferred Resources Pilot.[15] SCE claims that "market-transformative" storage opportunities might exist outside of a solicitation, and would like to consider bilateral contract opportunities as well as utility-owned storage.[16]

5. Compliance Issues Before the Commission

In Protests/Responses, and Replies to the original Applications filed and served on April 17, 2014, 14 various parties identified issues that the Commission should address before it approves the Applications. IOUs filed and served replies to these protests on April 18, 2014. Further identification and analysis of these issues provided a suitable framework upon which to develop an Assigned Commissioner's Scoping Memo that apply to "primary" compliance issues which are addressed in Sections 5.1 through 5.3 of this decision. These primary issues pertain to procurement plans, adherence to safety requirements, and cost recovery methodologies through various ratemaking methodologies. "Secondary" compliance issues and/or policy considerations are contained in Sections 6.1 through 6.8 of this decision. These pertain to definition of storage and eligibility rules, Consistent Evaluation Protocol (CEP), Procurement/RFO/Operational Requirements, Biennial Target Deferment Standards, Contract Guidelines, Pre-Bidding Interconnection Requirements, Customer-Side Storage, Post-Solicitation Review Process, and Project Approval Process.

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[15] SCE Application at 4.

[16] SCE Application at 4.

The focus of this decision is "compliance" with D.13-10-040. However, as the Scoping Memo states, "to the extent that some of these positions can be clarified or refined without compromising the major policy direction established in D.13-10-040 or the milestones of this proceeding, this decision will provide the clarifications/refinements to enhance the quality and momentum of the energy storage program moving forward."[17] Because the Energy Storage Program is a new program, we acknowledge that some minor adjustments may need to be made to ensure the energy storage program successfully meets its program objectives in a changing business environment.

Toward this end, we rely on expertise from a diverse stakeholder population including IOUs, industry, non-governmental organizations, ESPs, CCAs, and consumer advocates to help shape direction of this program in the future. The summaries of comments are not exhaustive but reflect a cross-section of viewpoints received from parties on June 12, 2014 and June 19, 2014. In this decision, we "rule by exception" in those areas where stakeholders identified issues that we believe need to be discussed and addressed by this Commission. As such, any exception we make to D.13-10-040, especially as they relate to programmatic details, shall in no way necessarily establish a precedent for any future energy storage related rulemaking or compliance decision.

Each of the three major compliance issues, as detailed in the Scoping Memo and "Other Issues before the Commission" are discussed in the following Sections. For each issue, the format of the discussion is as follows:
1) D.13-10-040 Requirements; 2) Parties' Comments; and 3) Discussion.
D.13-10-040 Requirements will provide the "standard" by which compliance is

[17] Scoping Memo at 5.

measured. Parties' Comments will provide feedback from parties in response to various Scoping Memo questions. Finally, the discussion will provide Commission determinations or rulings that will provide IOUs needed direction as they prepare final RFO solicitations due on December 1, 2014. Other "Application" issues, including RFO/Operational requirements, evaluation methodology, proposed storage equipment/power/services purchase agreements, and request for cost-recovery authorization, as appropriate, are covered in other Sections.

5.1. Should PG&E, SCE, and SDG&E's proposed procurement plans for the 2014 Biennial Solicitation be adopted?

5.1.1. D.13-10-040

D.13-10-040 directed each IOU to file an Application on or before March 1, 2014 that will contain proposals as needed to address specifics applicable to different grid domains, use-cases, or ownership scenarios for the first procurement period, including the first competitive solicitation (RFO) involving third-party owned storage. Section 3.d. of the Storage Decision lists the minimum information that must be included in the application:[18]

- An updated table with estimates for biennial procurement targets for each storage grid domain from current year to 2020 adjusted to account for:
  - any offsets expected to be claimed by the IOU as credits, against the procurement targets applicable at the time of the application for storage resources procured pursuant to Commission authorizations in any

[18] D.13-10-040, Appendix A at 7-8.

proceeding in accordance with the guidelines in Section 2.d above (resulting in a reduction in target);

  - any deferments of procurement targets authorized by the Commission in prior procurement cycles as discussed in the "Deferment" section below (resulting in an increase in target);
  - any excess procurement in the prior procurement cycle or shortfall resulting from contract rejections, contract cancellations, or less than expected installations of customer-owned projects since the last procurement cycle (resulting in a reduction or increase in target); and
  - any shifting of MW between the transmission and distribution grid domains planned by the IOU (resulting in an increase or a reduction of target in those domains).

- Reference to: 1) needs study by the California Independent System Operator (CAISO) for the IOU's system, local, and flexible needs, if available, or 2) upgrade needs identified in the IOU's transmission or distribution planning studies;
- A list of all applicable rules and statutes impacting the procurement plan;
- An explanation of the type of storage resources and the associated MW quantities the IOU intends to procure, categorized by grid domains and use cases;
- A report on all storage resources procured to date in all Commission proceedings. In the report, the IOUs are directed to identify the type of storage technology, the capacity of the projects (in MW and MW hours (MWh)), the location of the project (city and zip code level if public), the proceeding in which it is procured, and the procurement mechanism (e.g., RFO, Renewable Auction Mechanism (RAM), SGIP, etc.), applicable storage grid domain, status of the project (CPUC approval, construction stage), estimated online date, expected operational life, primary and secondary applications of the project, technology manufacturer and project owner & operator.

ED may provide additional direction on changes in the required content and format of the reports as needed.

5.1.2. Parties' Positions

PG&E, SCE, and SDG&E believe that their Applications correctly identify and calculate its 2014 adjusted targets.[19]

Most parties do not object to the overall adherence to program goals or targets with the exception of parties (e.g., CESA, AECA, Sierra, CFC, ORA, TURN) who objected to either the inclusion of 2.52 MW of biogas, or how it is configured, in PG&E's targets. Other parties have issues with other aspects of the program including application of end use cases and identification of their project location (Joint LDES Parties); contract terms and interconnection requirements (Brookfield); CEP (GPI, EDF); and eligibility of V1G (EDF, etc.), hybrid thermal generation with thermal energy storage (Hybrid-TES), (TURN, etc.), eligible storage component, solar thermal/with thermal energy storage (CSP-TES), (ORA, etc.).

Joint LDES Parties state that the Commission's guiding principles are properly adhered to in the Application but object that PG&E's and SCE's Applications lack detail of storage end uses it intends to procure in 2014 including MW quantities and locations. Joint LDES Parties state that SDG&E comes closest to providing the necessary detail.[20]

5.1.3. Discussion

Other sections of this decision address eligibility of storage technologies under debate, contract terms and interconnection agreements, and CEP.

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[19] PG&E Response to Scoping Memo Questions at 1-7; SCE Response to Scoping Memo Questions at 4; SDG&E Response to Scoping Memo Questions at 1.

[20] Joint LDES Parties Response to Scoping Memo Questions at 2.

Therefore, the discussion in this section will primarily address overall targets themselves and Joint LDES Parties' concern about perceived lack of adherence to an appropriate explanation of the type of storage resource in MW, categorized by grid domain, use case, and location.

Overall Targets:

In this decision, of the total 200 MW target for 2014, we approve energy storage procurement proposals of SDG&E at 16 MW, SCE at 16.3 MW or more, and modify energy storage procurement proposal of PG&E to 80.5 MW. This includes SCE's 50 MW of storage under procurement from the September 2013 LCR solicitation, SDG&E's 40 MW Lake Hodges Pumped Hydro, and combined IOU forecasted installations in SGIP and PLS programs. It excludes 150 MW of Rice Solar that may be counted by PG&E in future solicitations. With the exception of the 2.5 MW PG&E Distribution-connected/Biogas project, SDG&E, PG&E, and SCE are in compliance with or exceed 2014 procurement targets after properly making adjustments based on already approved projects/programs in service or under development and existing projects that comply with procurement eligibility under D.13-10-040 requirements.

Type of Resource by Grid Domain, Use Case, and Location:

The Energy Storage Procurement Framework and Design Program is in a startup phase. Therefore, during the nascent stages of this program, we will allow some latitude to the IOUs in the program implementation, until more real world experience is gained and business lessons become clear through the initial solicitation, development of short-list of bids, negotiation process, final selection of bids, and submission of contracts to the Commission for approval.

As D.13-10-040 directs, future biennial storage procurements in 2016, 2018, and 2020 will involve applications that include "modifications based on data and

experiences from previous procurement periods."[21] Further, "Energy Division (ED) will conduct an evaluation of the Energy Storage and Procurement Framework and Design Program by no later than 2016 and submit to the Commission."[22] This proceeding aims to both implement the mandates of D.13-10-040 and continue to address major policy issues that will require continual evaluation in a business environment of changing technologies, new market participants, and competing diverse interests. Therefore, the "design" and "implementation" of the program are not mutually exclusive categories. The challenge is to provide a clear and enforceable mandate while providing flexibility to develop innovative strategies that will achieve market transformation goals.

For reference purposes, PG&E states that it is seeking two types of storage resources for two different applications or programs: market/bundled services and transmission/distribution reliability. For the market/bundled services program, PG&E expects to procure at least 50 MW of storage at the transmission level and some portion (amount to be determined before the solicitation) toward its distribution level target. PG&E could consider at least four different configurations of storage for procurement storage-based market/bundled services including stand-alone T&D connected storage, storage attached to existing conventional generation, storage attached to a Renewable Portfolio Standard (RPS) resource, and dual-use utility owned storage for grid optimization and market services. However, it has not provided any detailed

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[21] D.13-10-040, OP 4, at 77.

[22] D.13-10-040, OP 6, at 77.

public information regarding or expressed any preference for configurations, project sizes, or grid domain locations.

For the transmission/distribution reliability program, PG&E states it is currently conducting a "systems analysis" to identify potential locations where otherwise needed transmission or distribution investment might be deferred. "Once identified, the specifications to size, duration, and other operational requirements will be provided to the market for bid development and submission in the storage RFO."[23] PG&E maintains that this information could be released even before the launch of the storage RFO.

SCE has indicated that it plans to procure storage only for market services (either LCR or bundled services, depending on the value of the bids), with at least 16.3 MW of additional procurement in its 2014 RFO. SCE expects to meet 50 MW of its 90 MW 2014 storage target with storage currently being procured via the separate LCR solicitation authorized by the LTPP proceeding.

While the IOUs generally described the type of resources they expect to procure (in terms of types of energy products and services), details on "associated MW quantities" by SCE and PG&E are generally lacking. The IOUs did provide a breakdown of MW quantities by grid domain, but not the requested type of resource, use case, and location level information. In this proceeding, we do not require an amended Application to resolve this perceived shortcoming in compliance with D.13-10-040 because we understand that this information is still being developed through various studies or IOUs may not have a preference. Further, use cases, as developed in R.10-12-007, were

[23] PG&E Reply to Scoping Memo Questions at 17.

designed to be "illustrative" rather than overly "prescriptive," so we don't think that strict adherence to them is absolutely necessary.

At the same time, we agree with parties that more information about business requirements in RFO materials adds to developer confidence, business certainty, and more robust markets, in some instances. Detailing more product specifications is necessary in order to develop appropriate and credible proposed pricing, cost recovery authorizations, and contract conditions and terms. Given the six month time lapse that has occurred between the initial Applications and this decision, we expect that IOUs have gathered more information in this regard. Therefore, on or before the RFO launch on December 1, 2014, we require PG&E and SCE to provide an update of the type of storage resources and the associated MW quantities the IOU intend to procure, categorized by grid domains and use cases, and location (or range of locations if a single location is not known). SDG&E's Application contained sufficient information.

5.2. Will PG&E, SCE, and SDG&E proposed utility procurement plans ensure safe and reliable delivery of energy to customers?

5.2.1. D.13-10-040

Public Utilities Code Section 451 states that each public utility shall furnish and maintain just and reasonable service, instrumentalities, equipment and facilities as are necessary to "promote the safety, health, comfort and convenience" of its patrons, employees, and the public.

5.2.2. Parties' Positions

In response to a Scoping Memo question about whether PG&E, SCE, and SDG&E proposed procurement plans ensure safe and reliable delivery of energy to customers, all IOUs favorably responded with a "yes."

PG&E states "PG&E's pro-forma energy storage procurement agreement includes a standard of care that requires the seller to comply with the law and both parties to perform all generation, scheduling and transmission services in compliance with the seller to operate its facilities in accordance with Prudent Electrical Practices."[24] SCE points out that one of the important elements of Prudent Electrical Practices is safety and Commission evaluation of performance consistent with Prudent Electrical Practices provides an acceptable minimum standard. Similarly, in SCE's pro forma contract provisions, "it requires storage facility owners to operate in accordance with defined prudent electric practices."[25] SCE also believes its interconnection processes and procedures are designed to determine whether upgrades are need to growing demand for online devices and to ensure safe and reliable service. Along the same lines, "SDG&E believes that its plan will play an important role in ensuring the safe and reliable delivery of energy to customers."[26]

ORA believes that "issues related to safe and reliable service should be raised through the IOU's RFO processes and the Commission's review of the IOU's individual energy storage proposals."[27] "At that time, the Commission and stakeholders should thoroughly review the IOU's energy storage proposals to determine whether they are reasonable, cost-effective, and safe and reliable."[28] ORA believes that if the Commission requires IOUs to file Applications

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[24] PG&E Response to Scoping Memo Question at 7.

[25] SCE Response to Scoping Memo Questions at 5.

[26] SDG&E Response to Scoping Memo Questions at 2.

[27] ORA Response to Scoping Memo Questions at 3.

[28] ORA Response to Scoping Memo Questions at 3.

requesting approval of procurement plans, the Commission will have a direct responsibility to ensure that energy storage proposals are "reliable and safe for the grid and public consumption."[29]

5.2.3. Discussion

In this decision, we agree with IOUs and ORA that a multi-prong approach is necessary to ensure safe and reliable delivery of energy storage to customers in the transmission, distribution, and customer grid domains. Such a multi-prong approach includes adherence to Prudent Electrical Practices, reasonable contract terms and conditions (e.g., *Pro Forma* Agreement), and sound interconnection processes and procedures. Further, with the emergence of new storage technologies, continuous and vigilant Commission oversight, in cooperation with IOUs and other market participants, is necessary to ensure reliability and safety standards are maintained and do not erode over the long-term.

5.3. Should the utilities' cost recovery methodologies for energy storage procurement through various ratemaking mechanisms be approved?

5.3.1. D.13-10-040

D.13-10-040 requires that utilities provide a request for cost-recovery as appropriate in its Application.[30]

D.13-10-040 set procurement targets for ESPs and CCAs.

D.13-10-040 requires all customers to pay certain non-bypassable charges that may be used by IOUs to develop energy storage systems.[31] Further,

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[29] ORA Response to Scoping Memo Questions at 3.

[30] D.13-10-040, Appendix A, at 10.

[31] D.13-10-040 at 46.

customers of ESPs/CCAs will also pay for any energy storage systems procured for the IOU's transmission or distribution system as part of their distribution charges.[32] While we set the procurement target for ESPs and CCAs to procure energy storage equal to 1 percent of their 2020 annual peak load with the projects online no later than the end of 2024, we remind them that, consistent with our prior decisions, departing load customers remain responsible for any costs associated with energy storage procured on their behalf at the time they were bundled customers. These costs (and the associated load), however, shall not be counted towards meeting the CCA or ESP's 1 percent procurement target.[33]

5.3.2. Parties' Positions

Following is a high level chart that summarizes IOU positions pertaining to cost recovery organized by storage grid domains, regulatory function, ownership, cost recovery request, balancing account, and rate component.

[32] D.13-10-040 at 46.

[33] D.13-10-040 at 47-48.

Cost Recovery by Storage Grid Domain

Storage Grid Domains	Regulatory Function	Owner-ship	Cost Recovery Request	Balancing Account	Rate Component
Trans-mission-Connected	Generation / Market	Utility-Owned	General Rate Case (GRC) or Application or Tier 3 Advice Letter	Base Revenue Requirement Balancing Account (BRRBA) (for Capital; Operations & Maintenance (O&M) expense) and Energy Resource Recovery Account (ERRA) (for Market Cost / Revenue) or New System Generation Balancing Account (CAM resources)	Generation or New System Generation Rate Component (NSGRC) for CAM resources
		Third-Party Owned	Application or Tier 3 Advice Letter	ERRA	
	Trans-mission Reliability (FERC)	Utility-Owned	FERC Trans-mission Owner (TO) Rate Case	Transmission Access Charge (TAC) or other reliability services arrangements as determined by the CAISO	Trans-mission

Cost Recovery by Storage Grid Domain (Continued)

Storage Grid Domains	Regulatory Function	Owner-ship	Cost Recovery Request	Balancing Account	Rate Component
Distribution -Connected	Distribution Reliability	Utility-Owned	GRC or Application or Tier 3 Advice Letter	BRRBA (for Capital; O&M expense)	Distribution
	Generation / Market	Utility-Owned	GRC or Application or Tier 3 Advice Letter	BRRBA (for Capital; O&M expense)	Generation or NSGRC for CAM resources
		Third-Party	Application or Tier 3 Advice Letter	ERRA	
	Dual-Use (Reliability & Market)	Utility-Owned	GRC or Application or Tier 3 Advice Letter	Allocate based on usage (or other alternative TBD) BRRBA (Capital; O&M Expense) ERRA (Market Cost / Revenue)	Distribution AND Generation or NSGRC for CAM resources
Behind-the-Meter	Customer-Sited Storage	Utility-Owned, Third-Party-Owned or Customer-Owned	Utilize Program-Specific Processes	Various Program-Specific Balancing Accounts	Distribution or Public Purpose Charges

IOUs generally believe that the appropriate cost recovery mechanism that should apply to a storage project should be based on the service or regulatory

function provided by the project. PG&E contends that existing rules for cost recovery and cost allocation rules for the procurement of electric products or the addition of transmission and distribution facilities are adequate and serve as a model to follow for the procurement of energy storage resources.[34] SDG&E agrees and cautions that "[i]n order to ensure that the approval process of energy storage projects is not bogged down by the potential re-litigation of cost recovery for like projects, additional clarification may be needed to ensure the process by which the primary function of energy storage projects is to be assessed."[35] PG&E also suggests that "if an IOU seeks to procure an energy storage project that presents unique ratemaking issues, cost allocation and recovery should be addressed within the context of the IOU's request for contract approval."[36] This will help focus the Commission's attention to specific issues and may help avoid "unintended consequences."

Parties assert that cost recovery and allocation rules should be clarified especially with respect to the potential implementation of the PCIA and CAM which is alluded to but not explicitly addressed in D.13-10-04. Other parties raise other issues that need to be addressed including appropriate future cost recovery treatment for combined generation/distribution (i.e., dual-use reliability and market) and need for ongoing review of cost recovery and allocation proposals.

MCE points out that there may be confusion regarding cost recovery and its application due in part that Energy Storage (ES) technologies provide benefits to different levels of the electricity grid, and these do not necessarily align with

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[34] PG&E Response to Scoping Memo Questions at 8-9.

[35] SDG&E Response to Scoping Memo Questions at 2.

[36] PG&E Response to Scoping Memo Questions at 9.

where these ES assets are physically located. "For example, an individual ES installation located at the customer level, could provide either back-up electricity services for this customer, flexibility for any net-energy metering that the customer might participate in due to onsite renewable generation, and/or participate in CAISO energy markets through providing Ancillary Services, electricity market arbitrage, or Resource Adequacy capacity."[37] They remind parties that D.13-10-040 determines that cost recovery and allocation of ES procurement do correlate with the services or function provided by the ES assets and not the site locations.[38]

Power Charge Indifference Adjustment (PCIA)

In response to the Scoping Memo question about whether energy storage cost recovery should occur thought the PCIA[39] for above-market stranded costs, parties have very mixed responses. PG&E, SCE, and SDG&E (as indicated in their original Applications), GPI, and TURN suggest that bundled energy storage procurement contracts should be included in the PCIA portfolio to protect IOU customers from stranded costs. PG&E states that "the obligation of Direct Access (DA) providers and CCAs to procure energy storage in the amount of 1 percent of their load does not diminish the need to recover stranded costs through the PCIA."[40] SCE agrees and states that the PCIA should be applicable not only to

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[37] MCE Response to Scoping Memo Questions at 4.

[38] MCE Response to Scoping Memo Questions at 4.

[39] The PCIA is intended to ensure that customers which depart bundled service pay their share of the above-market portion of utility portfolio costs and thereby preserve bundled customer indifference to those customers' departing. The PCIA does not incorporate any balancing account adjustments and does not have a true-up mechanism.

[40] PG&E Response to Scoping Memo Questions at 10-11.

the procurement of all generation resources but also storage procurement resources.[41] IOUs argue that if PCIA treatment applies to renewable projects, then it should apply to generation related energy storage projects as well. Although energy storage is a non-generation resource, it can provide generation services (*e.g.*, capacity, resource adequacy, LCR, ancillary services).

In response to ORA and MCE claims that it is not appropriate to apply the PCIA to energy storage costs, SCE argues that "above-market storage costs incurred to transform the energy storage market are precisely the kind of costs to which PCIA should include" and departing load customer should not "escape responsibility."[42] SCE also challenges ORA's assertion that PCIA is only for IOU commitments made to resources in the past. "This is not true. The PCIA includes above market costs of all IOU bundled customers before the departing load customers choose to stop taking bundled service."[43]

SCE agrees with DACC/AReM that the Commission appropriately intends to apply PCIA stranded cost recovery for some energy storage costs. Additionally, PG&E suggests in its Application that the Commission should rule that above-market cost of energy storage can be recovered via the PCIA mechanism for the full term of a storage contract. This issue is addressed in Section 6.5 or "Contract Guidelines.") SDG&E asserts that the Commission "indifference principle" policies require that departing loads bear some responsibilities through the PCIA for above market stranded costs, including

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[41] SCE Response to Scoping Memo Questions at 5; *See* Prepared testimony at 55.

[42] SCE Reply to Scoping Memo Questions at 8.

[43] SCE Reply to Scoping Memo Questions at 8.

those associated with energy storage.[44] While TURN originally supported the concept of the CAM mechanism in R.10-12-007, it suggests now that bundled storage should be included in the PCIA mechanism.[45]

DACC/AReM object to "on behalf of procurement" by the IOUs through CAM, EPIC, and T/D rates. Even though DACC/AReM does not actively support the PCIA for recovery of ongoing energy storage costs, they suggest a more practical perspective towards the implementation of it if the Commission endorses the PCIA approach. "DACC and AReM therefore request that the Commission require the IOUs to submit a joint proposal for modifying the PCIA to specifically address an appropriate modification to the market price benchmark for energy storage resources that could be included in the PCIA calculations, and then allow parties to review and provide comments on the proposal."[46] As to the timing of this "joint proposal" to modify the PCIA, they believe that this does not need to coincide with this 2014 compliance decision. Instead, a separate follow up phase of this proceeding could potentially address this issue and apply lessons learned to future solicitations.

GPI is not clear why the phrase "above market" is included in the question about stranded costs "because AB 2514 requires that any energy storage contracts that are entered into be cost-effective and thus not 'above market.'"[47] GPI requests that the Commission clarify its position.

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[44] SDG&E Response to Scoping Memo Questions at 2.

[45] TURN Response to Scoping Memo Questions at 6.

[46] DACC/AReM Response to Scoping Memo Questions at 11.

[47] GPI Response to Scoping Memo Questions at 4.

Only ORA and MCE did not support using the PCIA for ES stranded costs in this proceeding but for different reasons. ORA claims that "the PCIA generally applies to IOU commitments to resources made in the past and is not intended to address new commitments."[48] ORA further contends that the cost of energy storage contracts would not be charged to existing DA and CCA customers, but rather future DA/CCA customers that depart utility services after the energy storage comes on line and is part of the utility's revenue requirement.

MCE is concerned about the practical and more complex aspects of implementing the PCIA, if it is approved. "If ES procurement costs are to be included within the PCIA, then the PCIA methodology will have to be substantially revised to allow for stranded cost recovery of non-generation assets."[49] A PCIA cannot be implemented unless a separate market rate benchmark is established to reflect ES procurement costs within the state."[50] MCE believes that cost recovery via the PCIA is not fair since it involves "double payment" from unbundled customers for market services oriented ES obligations. ESPs are not only responsible for their targets but must share in the burden for generation costs that are spread across all bundled customers.

Cost Allocation Mechanism (CAM)

PG&E, SCE, SDG&E, GPI, TURN, MCE state that the CAM should not be addressed in this proceeding. On a project proposal level, PG&E, is not proposing to apply CAM to storage resources it procures in its RFO. "However, consistent with Public Utilities Code 365.1(2)(A), it may be appropriate to apply

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[48] ORA Response to Scoping Memo Questions at 4.

[49] MCE Response to Scoping Memo Questions at 5.

[50] MCE Response to Scoping Memo Questions at 6.

CAM to some storage resources."[51] SCE believes that CAM is out of scope in this proceeding. If storage resources are considered for reliability purposes, then it should be considered and authorized within the context of the LTPP proceeding. Like PG&E, in terms of complying with D.13-10-040, SCE is not seeking new or separate authorization for CAM treatment.[52] SDG&E states that cost recovery through CAM is appropriate for generation providing reliability services for all retail customers.

As stated previously, in R.10-12-007, TURN argued that use of the CAM would be a better approach than the one adopted for separate targets for ESPs and CCAs. That being said, "TURN is thus not suggesting the CAM be applied to storage resources at this time. Instead, TURN is suggesting that bundled storage be included in the PCIA mechanism."[53] However, TURN argues that the costs and benefits of the CAM alternative should be reevaluated if the Commission determines its adopted approach is not providing a reasonable allocation.

For transmission and distribution-level reliability services that ES may provide, "MCE does not believe it is appropriate or necessary to apply CAM cost recovery." In these cases, the costs should be more appropriately covered in the IOUs delivery rate components, "only if such T&D-related ES provides necessary and cost-effective reliability services relative to other reliability-providing providing market options." If market services costs are covered by CAM (such as Ancillary Services, electricity market arbitrage, and/or Resource Adequacy

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[51] PG&E Response to Scoping Memo Questions at 6.

[52] SCE Response to Scoping Memo Questions at 5-6.

[53] TURN Response to Scoping Memo Questions at 6.

capacity), then double payments would occur. This is because ESPs and CCAs are directed to procure their own targets under D.13-10-040. "Unbundled customers would thus pay first to their non-IOU LSE for any market service oriented ES assets procured under the non-IOU LSE ES procurement obligation and second to the IOU for its market service oriented ES assets with socialized costs due to CAM treatment."[54]

If CAM is implemented via this proceeding or other ones, DACC/AReM believe that DA customers should get an appropriate "credit" for this payment since they are already responsible for procurement to meet existing ESP/CCA targets. This credit, which DACC/AReM contend should also apply to procurement by the IOUs through EPIC and T/D rates, could translate to lower energy storage targets for affected ESPs or through an allocated share of the energy storage capability for the purpose of meeting the ESPs' energy storage procurement targets.[55] In addition, DACC and AReM request that the Commission require the IOUs to submit a joint proposal for modifying the existing Joint Parties' Proposal calculation adopted in D.07-09-044 to specifically address calculation of a net capacity cost for energy storage resources that parties can review and comment upon.

Combined Generation/Distribution Energy Storage ("Dual Use")

Several parties, including MCE and TURN, believe that the Commission should provide more guidance related to "hybrid" or "dual use" combined generation/distribution ES and how costs are recovered and allocated.

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[54] MCE Response to Scoping Memo Questions at 6-8.

[55] DACC/AReM Response to Scoping Memo Questions at 7.

According to PG&E, "the expected allocation of costs of a utility-owned facility between distribution functionality and its generation functionality would be based on a forecast of its use."[56] PG&E points out the recently issued FERC Order 784, which establishes new accounting and reporting requirements for energy storage. According to the Uniform System of Accounts (USOA), in those cases where energy storage costs are used to perform more than one function, entities are required to allocate the cost of the asset according to the functions performed by the assets.[57]

MCE points out that IOU procured storage can provide some level of market and reliability services. "MCE believes any ES assets providing market services should have their costs recovered through the generation rates of the LSE that procured this ES."[58] TURN recommends that distribution grid-connected storage resources be included in the distribution rate but assigned to all customers using an equal percentage of revenue allocator. "Those resources have the ability to provide generation services while simultaneously (or at different times) providing distribution services and the equal percentage of revenue is midway between the generation and distribution allocators."[59] Storage projects fit into more than one functional box. In the absence of knowing a precise allocation, this approach "strikes the right balance" according to

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[56] PG&E Prepared Testimony at 5-6; PG&E will consider only utility-owned projects for the dual-use cases.

[57] PG&E Prepared Testimony at 6-3.

[58] MCE Response to Scoping Memo Questions at 4.

[59] TURN Response to Scoping Memo Questions at 5.

TURN.[60] In its reply comments, "ORA supports TURN's proposal as long as it can be show that storage resources do have an impact on distribution planning, which is not clear at this point."[61]

Other Cost Related Issues

While DACC/AReM refer specifically to "on behalf of" procurement not specifically to the PCIA, DACC/AReM hope the Commission will adopt "the key principle" that no LSE should procure on behalf of another, and be able to impose its costs on any customers other than its own."[62] DACC/AReM observe that the lower procurement target in D.13-10-040 for the ESPs is the "credit" that their customers receive for paying for these projects through the CAM, Electric Program Investment Charge (EPIC), and Transmission/Distribution (T/D) rates. "DACC and AReM expect that these previously-approved projects comprise the totality of the CAM, EPIC or T/D non-bypassable cost recovery to be allowed by the Commission, now that the Commission has set the specific ESP procurement targets."[63]

Other parties such as Shell are concerned about the IOUs unfairly shifting "the cost of their own energy storage procurement obligation to Direct Access and CCA customers"[64] if the IOU cost allocation proposal remains unchecked. Shell warns that "if the Commission adopts the position advanced by IOUs, without imposing reasonable limitations, the IOUs will have an incentive to

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[60] TURN Reply to Scoping Memo Questions at 2.

[61] ORA Reply at 2.

[62] DACC/AReM Response to Scoping Memo Questions at 8.

[63] DACC/AReM Response to Scoping Memo Questions at 7.

[64] Shell Response to Scoping Memo Questions at 2.

classify all or most of their acquired energy storage as "transmission-connected" or "distribution-connected," in order to spread the cost of this storage to departing load customers." To counteract this incentive, Shell recommends a "but/for" test in which "the Commission should ask whether, "but for" the energy storage procurement obligation, the IOU would have acquired the storage to meet a transmission distribution reliability requirement." [65] Depending on the availability of lower cost alternatives, storage costs would be assigned to either IOUs' bundled sales customers or all customers.

Annual $500,000 IOU Oversight Budget

As PG&E points out, OP 7 of D.13-10-040 directed the IOUs to

> …collectively fund an annual budget of $500,000 from all ratepayers, to be reimbursed through the regular budget process, to allow Commission staff to oversee evaluation and analysis of the program and hire consultants for this purpose.[66]

According to D.13-10-040, the expectation is that Commission staff can begin evaluation efforts by late 2014 or early 2015. The costs of the $500,000 shall be shared by the IOUs according to their proportional share of peak load, and collectable from ratepayers starting in 2015 (such that the maximum budget available for evaluation is $500,000 per year for 6 years, or $6 million, unless modified.)[67]

PG&E requests that "the Commission should specify how responsibility for funding will be allocated between the IOUs and identify the mechanism for

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[65] Shell Response to Scoping Memo Questions at 3.

[66] D.13010-040, Appendix A, Section 3.b.

[67] D.13-10-040 at 7.

collecting these funds" and recommend "that each IOU's contribution be based specifically on its percentage of bundled peak load."[68] It also recommends that the cost be recovered through the IOUs' Energy Resource Recovery Account (ERRA).

Need for Ongoing Review and Venue to Resolve

Many parties believe that cost recovery and allocation issues may require broader scrutiny: GPI and MCE believe that the Commission should take a detailed look at the pros and cons of including storage costs in the PCIA. MCE questions whether it is appropriate to establish a PCIA related market price benchmark when the market is nascent and necessitating a legislatively driven procurement obligation to jumpstart the adoption of ES technology with the state (AB 2514 and D.13-10-040). This issue "must also be weighed by Commission and parties."[69] MCE believes revisions to the PCIA methodology and implementation would require the scrutiny of a broader group of parties and could take extensive time to deliberate. MCE is not sure whether this proceeding can address these complex issues. DACC/AReM thinks that the methodology for including costs of energy storage in the PCIA and calculating the net capacity costs for energy storage subject to CAM issue should be addressed in a subsequent phase of this proceeding. If cost allocation is not addressed in this proceeding, then ORA recommends that cost allocation of energy storage be addressed in Phase 2 of the IOU's respective general rate cases. ORA also recommends that these cost recovery and cost allocation issues could be initially

[68] PG&E Response to Proposed Decision at 14.

[69] MCE Response to Scoping Memo Questions at 5.

addressed via workshops. ORA believes it may be wise to allow for further briefing on these issues in order to produce a more informed decision.

The need for ongoing review of cost recovery and allocation issues and venue to resolve will be covered in the respective PCIA, CAM, and Combined Generation/Distribution ES discussions below.

5.3.3. Discussion

In this decision, we agree with the IOUs that the appropriate cost recovery mechanism should be based on the service or regulatory function provided by the storage projects as proposed in the IOU proposed cost recovery table in 5.3.2. On this basis, we approve the IOU proposed cost recovery for energy storage procurement through existing ratemaking mechanisms for the December 2014 solicitation cycle, with the exception of PCIA extension beyond 10 years and combined generation/distribution ES, as discussed below.

PCIA

From a policy perspective, as mentioned above, the Commission supports the concept of "cost causation" in which cost recovery would follow the existing recovery mechanism for what is determined to be the primary function of storage. The Commission also supports the "indifference principle" for PCIA which is designed to recover above market costs of otherwise stranded bundled service procured to serve utility bundled customers before they departed. The Commission also supports the principle of "equity" in which the Commission determines whether lower targets for ESPs and CCAs are properly balanced against the level of non-bypassable charges imposed on ESP/CCA customers from projects procured by the IOUs for bundled service on behalf of bundled customers or system reliability on behalf of all customers.

Broadly speaking, as illustrated below, IOUs procure resources for four different purposes, each of which currently has different cost recovery implications. It is only with respect to the last category, procurement paid for by bundled service customers, where the PCIA could be considered for above market stranded costs. Cost recovery for previously approved ES in the first three categories has been "guaranteed" and achieved through non-bypassable charges paid by all customers, including customers of ESPs and CCAs, which are recovered through utility rates, including transmission/distribution rates, EPIC funding, and in D.13-02-015, CAM.

Cost recovery in the fourth category is subject to approval by the Commission on a case-by-case basis through an Application or Tier 3 Advice Letter process. As noted in the Chart "Cost Recovery by Storage Grid Domain," in Section 5.3.2, for the 2014-2016 biennial procurement period, the "generation/market" function is subsumed within both "Transmission-Connected" and "Distribution-Connected" Grid Domains.[70]

	Regulatory Function	**Cost Recovery**	**Customer Impact**
1.	Distribution reliability rates	Distribution rates	All customers
2.	Transmission reliability	Transmission rates	All customers
3.	Local Capacity Requirements	CAM	All customers
4.	Bundled Services ("Generation/Market")	Generation charges	Bundled customers [and potential PCIA for departing load]

[70] MCE Response to Scoping Memo Questions at 4. As MCE points out, "generation/market" services could also be potentially subsumed under the "Behind the Meter" Grid Domain.

To date, while PCIA applies to customers which depart utility bundled service and recovers the departed customer's share of the above-market costs of the utility's procurement portfolio, including renewable resources (*e.g.*, Rice Solar), procured for utility bundled service customers,[71] PCIA has *not* been used to recover above-market cost of non-generation resources, like energy storage (other than pumped hydro), procured for bundled service. Therefore, it may be appropriate to clarify PCIA's Application in this instant proceeding. Further, D.13-10-044 endorsed the *concept* that "consistent with prior decisions, departing load customers remain responsible for any costs associated with energy storage procured on their behalf at the time they were bundled customers." However, D.13-10-040 did not specifically rule on the *application* of either the PCIA or CAM in Findings of Fact (FOF) or Conclusions of Law (COL). (Similarly, while the potential Application of CAM was identified as an issue in the ACR that preceded D.13-10-040, the potential Application of the PCIA was not identified in the same ACR.) Neither D.13-10-040 nor this proceeding contains a sufficient record to resolve all issues related to PCIA treatment.

Both the PCIA and CAM tools are distinct cost recovery tools. PCIA is designed to recover the above market stranded costs of *generation* resources for *bundled service* from those customers that subsequently depart IOU bundled service for other options (*e.g.*, Direct Access ESPs or Community Choice Aggregation). On the other hand, CAM is designed to recover costs of the

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[71] D.04-12-048, COLs 15-16 at 229-230. For reference, see *R.04-04-003 Order Instituting Rulemaking to Promote Policy and Program Coordination and Integration in Electric Utility Resource Planning*.

generation resources for *system reliability function*, the costs of which are recovered from *all* customers.

It should be noted that CAM was created initially to distribute costs relative to generation built for reliability purposes, although subsequent Applications of CAM have recovered cost for other policy preferred resources such as Combined Heat and Power (CHP) resources. More recently, the Commission made CAM treatment available for energy storage procured to meet LCR needs in the LTPP proceeding.

Within the context of the initial 2014-2016 biennial solicitation, it is important to note both *existing* and *proposed* storage projects that are eligible or could be eligible for PCIA treatment within the grid domains, especially the transmission and distribution grid domains where storage for market/bundled services may most likely reside. For example, the SCE 8 MW Distribution/Tehachapi Storage Project is a "hybrid" generation/reliability project. However, it has already been authorized specific cost recovery that is not subject to PCIA rate treatment because its costs are already being recovered from all customers through Distribution rates.[72] The 150 MW Rice Solar-CSP/TES Project is subject to PCIA treatment because it qualifies as an RPS project. As part of SDG&E's generation portfolio for bundled services, the 40 MW Lake Hodges pumped hydro facility is also subject to PCIA rate treatment with cost recovery through ERRA.[73] All other existing projects have been

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[72] According to SCE tariffs, this project is subject to DOE ARRA and distribution sub-account cost recovery treatment.

[73] D.04-08-028, OP 2 at 10.

classified as distribution reliability and thus not subject to PCIA because their costs are already being recovered from all customers through Distribution rates.

Proposed ES projects that could be eligible for and apply for PCIA treatment in the fourth category related to generation/market bundled services for the 2014-2016 solicitation are more difficult to forecast and will depend on a number of factors including but not limited to the type of bids received by the IOUs, storage "configuration" of newly eligible technologies that provide market services (all or in part),[74] and RFO requirements, etc. Therefore, at the early stages of the energy storage procurement, we do not know *potential* PCIA-related projects beyond those *existing* projects that have already been deemed eligible for PCIA treatment as listed above.

Further, it is difficult to predict to what extent "departing load" will be an issue in the future or result in stranded costs attributable to IOU energy storage procurement. For example, DA is maxed out under load caps as prescribed by Senate Bill (SB) 695 (Stats, 2009, Ch. 337).[75] While some customers may return to bundled service, others may depart. When customers return to bundled service and depart, they assume liability for a later vintage of PCIA that includes recently acquired procurement in the PCIA calculations. It is possible that DA load may be static for the foreseeable future. Similarly, departing load due to CCAs appears to be in a state of growth based on expansion of CCA activity in

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[74] New ES storage configurations that could be considered for PCIA treatment include but are not limited to: generation with a storage component (e.g., biogas w/ storage component, Hybrid-TES), "paired" PV and ES that have independent dispatch capability, and standalone batteries.

[75] For an update on the status of DA caps, please see reports on the Commission's website at: http://www.cpuc.ca.gov/PUC/energy/Retail+Electric+Markets+and+Finance/Electric+Markets/Direct+Access/thru2008.htm.

the County of Napa and the City of San Pablo, for examples; however further evidence is needed to discern accurate forecasts based on pending or potential CCA formation and growth.[76]

From an implementation perspective, we appreciate parties' views that it may be challenging to determine above market stranded costs are identified after contracts for storage for bundled service are signed and approved—new vintage calculated in each annual ERRA for each utility. We agree with MCE and other parties that one of the complex aspects of implementing the PCIA is related to revising the methodology for allowing stranded asset recovery of storage assets. A primary issue is that the existing market benchmark is not suited to determine the above market cost for energy storage projects. Because the energy storage program is in its nascent stages, there is insufficient data to develop appropriate market algorithms for this purpose. If PCIA treatment were implemented, the need for actual cost recovery will not occur, if at all, until at least 2017 or even later.

Still further, both intended and unintended market impacts of any new cost recovery mechanism need to be evaluated against any proposed cost recovery and allocation policy. Such issues include but are not limited to buying incentives by category (e.g., transmission, distribution, customer-side grid domains), contract terms, revenue streams, pricing levels, proposal evaluation, and overall business environment.

As parties have emphasized, the issues associated with PCIA treatment involve complex policy, cost, equity, implementation, and market impact

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[76] MCE Response to Proposed Decision at 6.

considerations against the backdrop of new and emerging technologies. Still further, storage cost recovery and allocation issues overlap with other proceedings (*e.g.,* ERRA, LTPP, RPS, EPIC, SGIP, Electric Vehicles (EV), Demand Response (DR)) so careful coordination of these issues in the context of overall energy storage program goals is necessary. Because we do not have an accurate forecast of market/bundled service proposed procurement volumes by grid domain/use case/location and associated market impacts, we conclude that it is premature to authorize immediate or "blanket" acceptance of PCIA treatment for the longer term at this time.

However, for the purpose of the first solicitation, we *authorize* the use of the PCIA mechanism to recover above-market costs associated with DA and other departing load for energy storage projects procured for bundled service, subject to Commission approval. It is not reasonable for the Commission to *approve* actual stranded cost recovery of energy storage procurement prior to there being an approved PCIA methodology for determining above market stranded cost and a sufficient showing of the existence of these stranded costs. We defer the issue of PCIA allowance for bundled service storage procured in subsequent solicitations to a future proceeding.

To establish appropriate context for resolving unique energy storage ratemaking issues, we direct the IOUs, in consultation with affected parties to propose a PCIA methodology or "Joint IOU Protocol" for determining above market stranded costs of bundled service storage when they file Applications seeking approval for contracts associated with the bundled service projects.

Given the potential concerns with PCIA mechanism touched on above, for the purpose of the first solicitation, we deny the request for extension of the

PCIA cost recovery for market/"bundled" energy storage contracts beyond 10 years.

IOUs have the *burden of proof* to demonstrate circumstances that warrant PCIA treatment for specific proposed energy storage generation/market projects procured for bundled service. The Commission may consider other venues such as workshops or Orders Instituting Rulemaking (OIRs) to help resolve outstanding issues involving PCIA treatment for subsequent solicitations or the extension of PCIA treatment to the life of the contracts terms beyond 10 years. In order to maintain momentum of the energy storage program moving forward, we acknowledge that it is prudent to address this issue through Commission review and oversight as soon as practical.

CAM

We concur with SCE and clarify that CAM authorization is out of scope of this proceeding. To the extent that CAM is being used for new resources procured to address certain reliability issues, it should be addressed in the same venue where the Commission authorizes such procurement (*i.e.*, LTPP). Therefore, SCE, PG&E, and SDG&E did not seek new CAM treatment in this proceeding with respect to storage providing reliability services.

Once more experience is gained with the market, any proposals pertaining to potential upward or downward adjustments to targets, based on actual storage related CAM or PCIA cost recovery treatment, would need to be considered in a future proceeding with a broader audience of stakeholders. Utility rate cases, even Phase 2, do not provide the appropriate venue to address such issues.

Combined Distribution/Generation Energy Storage ("Dual Use")

For the current 2014 biennial procurement period, there are no combined distribution/generation projects that could be subject to cost allocation recovery based on "dual use" as PG&E proposes. In this decision, we defer the resolution of the proposed "Dual Use" cost recovery proposal for combined generation/distribution energy storage for the initial 2014 biennial procurement period. We direct SDG&E, PG&E, and SCE to file Dual Use cost recovery methodologies for combined generation/distribution energy storage if and when they propose such projects to the Commission.

Annual $500,000 IOU Oversight Budget

D.13-10-040 directed collection of $500,000 per year for 6 years from ratepayers for the Commission's storage evaluation program, starting in 2015, on a shared basis by the IOUs in accordance to their proportional share of the peak load, but the decision did not clarify the specific type of peak or collection mechanism.

In this decision, we consider it reasonable to require the collection of $500,000 per year for 6 years from ratepayers for the Commission's storage procurement evaluation program via the ERRA, starting in 2015, on a shared basis by the IOUs in accordance to their proportional share of the *system* peak load. While bundled peak data relies on confidential data, system peak data relies on public data and is readily accessible.

6. Other Issues Before the Commission

6.1. Definition of Storage and Eligibility Rules

6.1.1. D.13-10-040

According to D.13-10-040, all energy sources as defined by Pub. Util. Code § 2835 (a),[77] except for pumped storage resources over 50 MW, are eligible to bid into energy storage solicitations. As D.13-10-040 states, "This definition is intended to embrace a mix of ownership models and contribute to a diverse portfolio that can encourage competition, innovation, partnerships, and affordability."[78]

6.1.2. Parties' Positions

In response to a Scoping Memo Question about whether the definition of storage and/or related eligibility rules need to be clarified, most parties responded with a resounding "yes " but offered a wide array of suggestions to accomplish this. Because twenty-seven parties responded to Scoping Memo questions related to eligibility, it is not possible to provide an exhaustive

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[77] According to Section 2835(a), an "Energy Storage system" means commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereby dispatching energy…

AND:

> An "energy storage system" shall do one or more of the following:
>
> (A) Use mechanical, chemical, or thermal processes to store energy that was generated at one time for use at a later time.
>
> (B) Store thermal energy for direct use for heating or cooling at a later time in a manner that avoids the need to use electricity at that later time.

Use mechanical, chemical, or thermal processed to store energy generated from mechanical processes that would otherwise be wasted for delivery at a later time.

[78] D.13-10-040 at 51.

summary of comments. For this reason, we focus on primary outstanding issues to be addressed and illustrative positions of parties that may provide a suitable foundation upon which to make an informed decision in this proceeding.

Based on various criteria discussed at an Energy Division workshop on June 2, 2014, a number of advocates support a "broad" interpretation of Pub. Util. Code § 2835 (a) while others support a "narrow" interpretation. Obviously, depending on whether one subscribes to either point of view impact what technologies are ultimately eligible in any energy storage program moving forward.

For purposes of discussing comments on the eligibility issue in this section of the decision, the following is a rough description of "broad" versus "narrow" interpretation of Public Utilities Code Section 2835(a) that were advanced by parties as a basis of their responses to a Scoping Memo question regarding eligibility:

Output Energy "Generated" (at one time)

Broad	Output can be any form of energy via any process
Intermediate	Output can be any form of energy via-man made means
Narrow	Output is electricity via man-made means

Store energy for later "use" or "delivery"

Broad	Energy is used for any useful activity or function
Narrow	Energy is used to affect the state of the grid: (directly or indirectly)/increase/decrease supply or load

At least seven parties including PG&E, SCE, SDG&E, CHBC, General Motors, NRDC, SBUA, and Shell, specifically support some degree of broad

interpretation of the definition of storage and eligibility rules. However, SCE states that "it is clear that many parties, including SCE, do not support the broadest or the narrowest definition identified in the staff paper."[79] At the same time, SCE states that the Commission should be more "inclusive" of storage technologies in the early stages of the energy storage program. SDG&E supports a broad definition and states that "establishing an overly narrow definition of energy storage systems could obstruct the Commission's goals of achieving market transformation as envisioned in AB 2514 and the Energy Storage Decision."[80] Similarly, Shell adopts a similar posture and said the Commission should not limit the projects. Limiting project definitions "would increase the cost of compliance and would discourage the development of new and innovative technologies to store and re-deliver energy."[81]

Focusing on a broader range of specific technologies, CHBC embraces a more expansive view of eligibility be adopted when it recommends that the term "for use at a later time" should be interpreted to mean use either on the electricity grid, the natural gas grid, for transportation fuels, or other energy uses.[82] SBUA agrees with broader definitions and argues that the Commission should change the definition of energy storage to include hydrogen generation by electrolysis of water.[83] NRDC argues that the statutory definition is broad so this means that the Commission has authority to allow controlled charging [V1G]

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[79] SCE Response to Scoping Memo Question at 8.

[80] SDG&E Reply to Scoping Memo Questions at 3.

[81] Shell Response to Scoping Memo Questions at 4.

[82] CHBC Response to Scoping Memo Questions at 2.

[83] SBUA Response to Scoping Memo Questions at 6.

to count towards the Storage targets.[84] General Motors believes that V1G or "smart charging" should not solely focus on a "single, networked charging station" but rather a "combination of hardware deployment (*e.g.*, charging, utility, vehicle) and dynamic load management, especially at the local distribution level."[85]

Several parties, including CESA, Sierra Club, Clean Coalition, TURN, and ORA, suggest that the Commission should provide clarifications regarding energy storage definitions and eligibility and specifically support a narrower interpretation.

CESA suggests a "cautious approach by the Commission to clarification of definitions and resulting eligibility rules."[86] To determine whether a particular energy storage technology or use of it complies with this definition and is eligible to be counted toward the storage procurement targets, CESA recommends that the following tests as a functional expression of Section 2835(a)(4) be applied to a proposed energy storage system, beyond those already provided in parts (1), (2), and (3) of Section 2835(a):

> (Function 1) Absorb energy generated at one time via a generation process involving energy conversion using man-made means, and
>
> (Function 2) Store the absorbed energy: (a) by means of a mechanical, chemical, or thermal, or thermal process, and (b) by means of an asset procured, built, or maintained primarily for: (i) Function 1 above during a certain period of time, and (ii) Function 3 below in a later period of time, and

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[84] NRDC Response to Scoping Memo Questions at 2.

[85] General Motors Response to Scoping Memo Questions at 2.

[86] CESA Response to Scoping Memo Questions at 7.

> (Function 3) Discharge the stored energy to affect the state of the grid by: (a) directly supplying energy to the grid or (b) directly or indirectly reducing load on the grid.[87]

TURN suggests that the storage asset must have the ability to discharge its stored energy (that is, essentially Function 3 above) "independently" of the operation of any paired generator.[88] Thus, TURN believes that hybrid-TES should not count for energy storage because it does not accomplish this particular function involving independent operation.[89]

Sierra Club advocates a narrower definition of storage and argues that biogas, CSP-TES, and V1G should not be eligible storage technologies. However, Sierra Club observes that while PG&E's Rice Solar Project (a type of CSP-TES) does not follow within its preferred narrower definitions, the Commission could "grandfather" this project but exclude other CSP-TES projects in upcoming storage solicitations.

Clean Coalition is concerned that one or more technologies, such as pumped hydro may dominate procurement contracts "to the detriment of emerging technologies that offer greater value in the long run."[90] Therefore, it believes that "it may be appropriate to limit any single technology to 65% of procurement, any two technologies to 85%, and any three to 95% of procurement."[91] Clean Coalition believes progress has been made to better understand outstanding eligibility issues but suggests that further refinement of

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[87] CESA Response to Scoping Memo Questions at 7.

[88] TURN Reply to Scoping Memo Questions at 7.

[89] TURN Reply to Scoping Memo Questions at 7-8.

[90] Clean Coalition Response to Scoping Memo Questions at 4.

[91] Clean Coalition Response to Scoping Memo Questions at 5.

eligibility rules may be needed to achieve greater clarify. It believes that EV charging control and pricing incentives are properly categorized as DR/Load Modification, not storage procurement. However, it believes that CSP-TES is consistent with a qualified definition.

ORA recommends a narrower definition of storage.[92] Based on the statutory definition, it argues that biogas and V1G should not qualify. Further, if the Commission wants to encourage the development and deployment of new storage technologies, and too many technologies are deemed "eligible," then new storage technologies would not have a chance to develop. Finally, ORA is concerned that if a broader definition is adopted, then resources like diesel generators could also qualify.

DACC/AReM do not take a position regarding a broader or narrower interpretation. It argues that there is no basis for determining such interpretations of statutory language in this proceeding. "Specifically, the Commission interpreted AB 2514 and has implemented the statute in D.13-10-040."[93] If the Commission wants to clarify rules, it should do so for the IOUs alone.

Many parties commented on the eligibility of specific technologies. Some parties focused their discussion on the eligibility of dairy biogas, which PG&E specifically proposes as a suitable project in its Application. Other parties requested clarification about whether other technologies should be eligible

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[92] ORA Response to Scoping Memo Questions at 7-8.

[93] DACC/AReM Response to Scoping Memo Questions at 13.

including V1G (*e.g.*, GM, ChargePoint, EDF); CSP-TES (e.g., SCE, BrightSource, Solar Reserve); Biogas with Storage (*e.g.*, AECA); and Hybrid TES (*e.g.*, Calpine).

In the context of these discussions, some parties explored the extent of the Commission's authority or discretion to: 1) limit the eligibility discussion in this proceeding to dairy biogas "case" only and defer consideration of the definition of energy storage systems and other controversial technologies to another quasi-legislative proceeding (*e.g.*, CESA); 2) limit or exclude particular technologies even if one would theoretically argue that the statutory definition of energy storage could accommodate that technology (*e.g.*, TURN); and/ or 3) consider procurement limits for one or more technologies in the interest of achieving "technologically balanced" procurement (*e.g.*, Clean Coalition).

Eligibility of Specific Technologies

Biogas and Solar Thermal

In advocating for inclusion of CSP-TES (such as solar thermal with molten salt storage), BrightSource argues that "Subsection (D) of 2835 proves that 'energy generation' cannot be limited to electricity as a general rule for the entire statute.[94] BrightSource further points out that the Legislature allows the word "generate" to refer to something other than "electrical generation."

PG&E indicates that it currently has under contract three dairy biogas projects totaling 2.52 MW connected at the distribution level.[95] Therefore, PG&E does not propose to procure the equivalent MWs through the 2014 solicitation. However, PG&E requests the Commission to determine that electric generation

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[94] BrightSource Response to Scoping Memo Questions at 6.

[95] PG&E's Testimony at 2-8.

using biogas technology is eligible to be counted toward the procurement target on the basis that such technology complies with Section 2835(a).[96] It alleges that "using the mechanical process of compression and displacement on the natural gas pipeline system, the biogas is stored for later use instead of wasted."[97]

Many parties object to PG&E's proposal to include dairy biogas in its 2014 energy storage portfolio. CESA suggests that "logical analysis" leads to the conclusion that the application and use of biogas should not be deemed eligible.[98] Sierra Club warns that a broad definition of energy storage that includes biogas is analogous to "putting fossil fuels in a storage tank [that] could also count towards the mandate."[99] More specifically, it states that "[b]iomethane digesters are a one-way conversion of methane into electricity and simply produce electricity from a fuel."[100]

AECA carefully draws a distinction between dairy biogas project with a storage component (where "chemical energy in the form of biogas is then stored in a mechanical system,"[101] such as a "flexible bladder system, which expands and contracts with volume"[102]) and a project without a storage component. AECA asserts that to the best of its knowledge, "the three projects PG&E cites in fact do not currently store energy from renewable biogas in a suitable manner for

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[96] PG&E's Testimony at 2-8.

[97] PG&E Response to Scoping Memo Questions at 6.

[98] CESA Response to Scoping Memo Questions, Footnote 8 at 7.

[99] Sierra Club Response to Scoping Memo Questions at 3.

[100] Sierra Club Response to Scoping Memo Questions at 3.

[101] AECA's Reply to Scoping Memo Questions at 6.

[102] AECA's Reply to Scoping Memo Questions at 8.

dispatch by the utility."[103] PG&E explains that "storage of the resulting biogas" is in the form of "the natural gas pipeline system."[104] TURN is concerned that "biogas is stored fuel, not electricity,"[105] and "including it in the new storage program would create a slippery slope to perverse outcomes."[106] TURN believes that "the Commission should absolutely avoid adopting policies that explicitly invite the inclusion of fossil fuels in the energy storage definition."[107] ORA agrees.

GPI observes that the generation of dairy biogas "involves a technological (artificial) transformation rather than an entirely natural transformation."[108] When the generated biogas is coupled with a suitable storage component, this situation is similar to solar thermal with molten salt, where the solar energy is transformed into thermal energy through a man-made mechanism and then stored as thermal energy via the salt medium.

V1G

Managed charging of EVs, often referred to as V1G, involves controlling the rate of charging the EV battery in response to signals from the grid system but the stored energy is then later used *only* for off-grid purposes, such as powering the vehicle for transportation. Parties have offered opposing opinions on whether V1G should be considered energy storage under Section 2835 and

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[103] AECA Reply to Scoping Memo Questions at 3.

[104] PG&E Reply to Scoping Memo Questions at 6.

[105] TURN Response to Scoping Memo Questions at 3.

[106] TURN Response to Scoping Memo Questions at 3-4.

[107] TURN Response to Scoping Memo Questions at 4.

[108] GPI Reply to Scoping Memo Questions at 10.

eligible for targets. The debate has focused on the issue of should the discharge of the EV battery for an off-grid purpose only be regarded as consistent with the intended interpretation of "use" and "dispatching" in the statutory language references to "store energy…for use at a later time" (Section 2835(a)(4)(A)) or "dispatching the energy" (Section 2835(a)(1).

ChargePoint believes "it is clear that the managed use of EV charging – regardless of whether or not the energy stored in an EV battery is used for purposes other than transportation – qualifies as an 'energy storage system'"[109] and that "By definition, when an EV battery is charged for later use (to power a car or for other uses) it is "storing" and "thereafter dispatching" the energy."[110] Sierra Club argues that "without the ability to discharge energy to the grid, it [V1G] does not provide full storage functionality"[111] and that "V1G may be appropriate for demand response or transportation fuels program, but it should not qualify to meet any of the energy storage mandate."[112] Clean Coalition asserts that "EVs may be properly categorized as storage devices only with the addition of capabilities to discharge stored energy to the grid, and only to the extent that an appropriate Capacity Factor is applied."[113] EDF claims that "V1G represents load shifting, and, as such, meets even the narrowest proposed definition of storage."[114]

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[109] ChargePoint Reply to Scoping Memo Questions at 3.

[110] ChargePoint Reply to Scoping Memo Questions at 3.

[111] Sierra Club Reply to Scoping Memo Questions at 3.

[112] Sierra Club Reply to Scoping Memo Questions at 3.

[113] Clean Coalition Reply to Scoping Memo Questions at 5.

[114] EDF Reply to Scoping Memo Questions at 6.

Hybrid Thermal Generation with Thermal Energy Storage

TURN argues hybrid-TES should not count as energy storage because it "has no ability to provide energy to the grid independently, and thus cannot provide energy 'dispatch' benefits, as contemplated" in Section 2835.[115]

Calpine asserts that "Hybrid conventional/storage meets all of the above [statutory] requirements. It involves using grid power or electricity produced by an associated gas-fired power plant to cooled water."[116] According to Calpine, the cooled water is later used in chillers to increase the output of the plant and thus the "cooled water does 'directly' enable the combustion turbines to generate more energy than they otherwise would."[117]

6.1.3. Discussion

Based on feedback from parties, there is consensus that the definitions and eligibility rules should be clarified. However, we agree with SCE and ORA that there is *no* consensus regarding whether a broader or narrower interpretation should be adopted. In this decision, we acknowledge the timely efforts of ED staff to stimulate discussion at the June 2, 2014 workshop regarding how language should be interpreted as it applies to many different uses and applications in the energy storage industry. At a minimum, these ongoing discussions help support the development of a common set of assumptions and definition of terms that will help shape the direction of the energy storage program.

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[115] TURN Reply to Scoping Memo Questions at 7-8.

[116] Calpine Reply to Scoping Memo Questions at 3.

[117] Calpine Reply to Scoping Memo Questions at 4.

We agree with CESA that eligibility rules that apply to IOUs and all LSEs must be clear and logical and be derived from the intent of the AB 2514, plain language of the words used in the statute, and be interpreted in such a way that clear guidance is understood and can be easily applied.

As a general matter regarding discretion to determine eligibility for the storage procurement program, we agree with TURN that the Commission has the discretion to limit or exclude a particular technology, "even if one could theoretically argue that the statutory definition of energy storage could accommodate"[118] that technology. For example, D.13-10-040 limits the size of pumped storage projects that are eligible to participate in the Storage Framework.[119]

Given the complexity of some of the storage use cases and Applications, we concur with CESA on taking a cautious approach to clarifying the definition and resulting eligibility rules. Further, we agree with DACC/AReM that this first "compliance" proceeding may not provide the appropriate venue to resolve all of these issues. Therefore, in this decision, we limit our discussion to resolve issues pertaining to the initial 2014 solicitation under the storage procurement program. While we may make some preliminary determinations for this proceeding alone, we defer a broader framework discussion regarding storage definition and eligibility to a future quasi-legislative proceeding.

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[118] TURN Reply to Scoping Memo Questions at 3.

[119] D.13-10-040 at 36.

As this Commission gains experience through actual procurement of energy storage resources, it will gain needed knowledge to be able to evaluate options that are successful not only in the short-term but long-term as well.

We have already stated that we do not intend to revisit policy determinations in D.13-10-040 because the focus of this Decision is "compliance" and not "policy making." However, these issues raised confusion regarding thee interpretation of the energy storage definition provided in Section 2835(a) and the eligibility of specific storage technologies to be counted against the storage procurement targets, it is appropriate to provide additional clarity and guidance in this decision.

As suggested by SCE,[120] the technologies needing eligibility clarification in the pending proceeding are dairy biogas, V1G (managed charging), solar thermal paired with molten salt (i.e., CSP-TES), and hybrid thermal generation paired with thermal energy storage (i.e., Hybrid-TES). Additional clarification will help developers of these technologies to decide whether they could participate in the upcoming RFOs. We will next consider the eligibility of these technologies one at a time for the purpose of the upcoming 2014 solicitation.

Biogas and Solar Thermal

D.13-10-040 found that the Rice Solar project contracted by PG&E, a solar thermal generation project paired with molten salt storage, is eligible to be counted toward the IOU's procurement storage target.[121] Noting BrightSource's

[120] SCE Reply to Scoping Memo Questions at 10.

[121] D.13-10-040 at 28 and 32.

reasoning, we find CSP-TES to be eligible for the purpose of the upcoming 2014 solicitation.

Similarly, when the generated biogas is coupled with a suitable storage component, this situation appears similar to solar thermal with molten salt. In the latter case as BrightSource explains, the solar energy is transformed into thermal energy through a man-made mechanism and then stored as thermal energy via the salt medium. In the biogas case with a storage component, as AECA explains, dairy waste, agricultural, or food waste is transformed into chemical energy (biogas) through a man-made mechanism and then stored as chemical energy in a mechanical system.

In this decision, we conclude that a qualifying storage component included with a dairy, agricultural, or food waste biogas project, as described by AECA and GPI, is eligible to be counted toward the targets. However, we find that the "natural gas pipeline" does not qualify as the storage component of a biogas project. If PG&E is unable to identify a suitable storage component in the contracted biogas projects, then PG&E cannot claim credit for these projects against the targets.

Hybrid Thermal Generation with Thermal Energy Storage

Regarding Hybrid-TES, we are persuaded by Calpine's explanation. Furthermore, when storage is paired with a generator in order to enhance that generator, independent dispatchability is desirable but not required for eligibility, and we reject TURN's proposed criteria that the storage asset must have the ability to discharge the stored energy independently of the operation of the of any paired generator. We find that TES paired with a thermal generator to enhance the output of that generator is eligible to be counted toward the targets.

It is important to clarify that in the case of above specific technologies (CSP-TES, biogas with storage, hybrid-TES), only the qualifying storage component paired, co-located, or integrated with an *existing* generator is eligible to bid into the storage solicitation. In other words, the storage solicitations are not an opportunity to bid in *new* generators paired, co-located or integrated with storage. Storage coupled with new generation can of course be bid into solicitations authorized by the Commission in other proceedings for procurement of new generation resources. To the extent an IOU contracts with such a project in those solicitations, the storage component of that project can be counted toward the targets.

V1G

With respect to the eligibility of V1G (managed or controlled charging), we understand that electric vehicles (EVs) have an important role to play in advancing the policy objectives noted in D.13-10-040 and that the IOUs, the industry, and the Commission actively exploring how best to leverage the storage capacity embedded in EVs in support of the grid. (We expect to address the development of this technology in R.13-11-007). However, at this time, we will not include controlled charging as a storage Application in the first solicitation, and we prefer that the first procurement cycle focus on developing the nascent market for bi-directional storage technologies. We also find that D.13-10-040 already refers to V2G (two-way charging energy from and discharging to the grid) as being eligible for the storage procurement program.[122], [123], [124], [125] Although D.13-10-040 also references "Electric Vehicle

[122] D.13-10-040, Appendix A at 5.

Charging" use case in a table illustrating the different roles and applications that could be supported by energy storage, we agree with TURN that "the mere listing of [a use case] in Table 1 in D.13-10-040 as a "Use-Case Example" is not dispositive of the broader issue of whether the Commission should now determine that [use case] should qualify for the upcoming storage solicitation.[126] On the matter of EDF's claim regarding the equivalency of V1G and storage-based load shifting, we reject it as we regard storage-based "load shifting" to mean that the energy discharged by a storage asset is used to offset other existing load on-site at the expense of increasing the load at an earlier time through the charge cycle of the storage asset; in other words, it does not mean modification or shifting of the charging load of the storage asset itself.

We will continue to monitor the implementation of managed charging applications and intend to explore their potential role in providing grid services including whether it is appropriate to include controlled charging applications in the storage procurement program.

6.2. Consistent Evaluation Protocol (CEP)

6.2.1. D.13-10-040

D.13-10-040 allows each IOU to propose its own proprietary methodology to evaluate the costs and benefits of bids. However, the IOUs shall assess the full range of benefits and costs identified in the use case framework and the Electric Power Research (EPRI) and DNV KEMA Energy & Sustainability reports

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[123] *See* Conclusion of Law #35 in D.13.10.-040 at 75.

[124] D.13-10-040 at 28.

[125] D.13-10-040 at 32.

[126] TURN Reply to Scoping Memo Questions at 6.

submitted in R.10-12-007.[127] While D.13-10-040 allows different proprietary evaluation protocols by utility for bid selection, D.13-10-040 directed the IOUs to jointly develop a CEP, facilitated by ED, for benchmarking and general reporting purposes.

A proposed methodology for an analysis that evaluates bids on cost and fit in a solicitation must also draw on:

> An evaluation protocol consistent across the IOUs that includes a consistent set of assumptions and methods for valuing storage benefits, such as market services and avoided costs, and estimating project costs that allow adjustments for utility specific factors (such as location, portfolio, cost of capital, etc.) and utility-specific modeling tools based outputs affecting valuation as appropriate to provide a consistent basis for comparison across utilities, bids, and use cases. The consistent evaluation protocol shall be developed by the IOUs through joint consultation between the IOUs and the Commission Staff prior to the filing of the application and referenced in that application.[128]

Energy Division conducted a public workshop on March 14, 2014 and June 2, 2014 to discuss CEP with stakeholders.

6.2.2. Parties' Position

IOUs strongly urge that the CEP does not need to be augmented at this time. According to PG&E, those who want changes to the CEP misunderstand the purpose of CEP as stated in D.13-10-040 above. "Contrary to the assertions and/or assumptions of some parties, the CEP is not the tool that the utilities will use to evaluate the storage RFO bids they receive."[129] Consistent with policy

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[127] D.13-10-040 at 63.

[128] D.13-10-040, Appendix A at 9.

[129] PG&E Reply to Scoping Memo Questions at 13.

direction in D.13-10-040, PG&E emphasizes that the CEP is to be used for benchmarking and general reporting purposes and IOUs may propose their own methodologies to evaluate the costs and benefits of bids.[130] (For example, PG&E propose a "Portfolio Adjusted Value" (PAV) approach which reflects the value of a project in the context of the overall portfolio. SDG&E and SCE propose more standardized "Least Cost Best Fit Criteria" (LCBF) methodologies.) SCE concurs and indicates that "SCE's proprietary valuation methodology is comprehensive and appropriate." SDG&E also concurs and indicates that "the quantification of benefits is adequately addressed."[131]

IOUs respond to the specific suggestions of parties and either reject them outright or indicate that this proceeding is not the correct venue to address. For example, PG&E points out that Sierra Club's proposal to "estimate the [greenhouse gas] GHG profile of some of other generation resources, and developing an hourly dispatch model of the heat rate of the system'[132] require a substantial amount of system modeling, and in the end only an approximation of the GHG effect of a storage device, assuming all else is equal to the grid."[133] PG&E states that there isn't sufficient justification to add this to the CEP at this time.

PG&E rejects Sierra Club's request to quantify four qualitative aspects of the CEP including wind resource integration, photovoltaic resource integration, supply firming, and peak shaving. It claims that "it is not clear how this would

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[130] PG&E Reply to Scoping Memo Questions at 13

[131] SDG&E Reply to Scoping Memo Questions at 4.

[132] Sierra Club Response to Scoping Memo Questions at 7.

[133] PG&E Reply to Scoping Memo Questions at 13.

be done at this time" and there is no basis to adopt this approach right now.[134] PG&E questions the Joint LDES Parties' "unsubstantiated assertions regarding the relative energy values attributable to short and longer duration storage devices" and alleges that the "Joint Parties' fears are unfounded."[135] PG&E indicates that different projects may have different durations and CEP takes this into account. PG&E challenges Joint LDES Parties' assertion that CEP cannot value "concurrent energy benefits." PG&E states that "the challenge is more to ensure that such concurrent benefits are not double counted."[136] A resource might be able to provide energy and ancillary services, for example, but it cannot provide both simultaneously with the same megawatt of capacity. In response to EDF and CESA requests that IOUs provide a more in-depth discussion of how quantitative and qualitative valuations will take GHG reduction potential into account, PG&E claims that this will not add any value to the RFO process.[137]

PG&E also questions EDF's request to consider water and pollutions (water, toxic, or solid waste) associated with the full lifecycle of storage technologies and alternative. According to PG&E, "EDF provides no suggestion as to how to do this. No formulaic approach to evaluation of these considerations should be imposed on the utilities at this time."[138] PG&E doesn't directly dismiss these because it will aim to evaluate potential impacts on water and other environmental concerns as part of its qualitative analysis. Similarly,

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[134] PG&E Reply to Scoping Memo Questions at 14.

[135] PG&E Reply to Scoping Memo Questions at 14.

[136] PG&E Reply to Scoping Memo Questions at 14.

[137] PG&E Reply to Scoping Memo Questions at 15.

[138] PG&E Reply to Scoping Memo Questions at 16.

PG&E notes that CESA, Clean Coalition, and Sierra Club desire valuation protocols that will capture storage's environmental benefits like GHG reduction, and water use, etc. However, like PG&E, SCE indicates that it will incorporate these benefits in its valuation to the extent possible and will include them in its qualitative assessment if it can't capture it in "hard-to-quantify" value streams.[139]

In response to Sierra Club's suggestion to use PG&E's PAV, SCE rejects this idea: "First, many of the assumptions used to create SCE's price forecasts already embed the PAV benefits. Second, moving to a PAV approach would be a significant deviation from SCE's proposed and would require many changes."[140] SDG&E agrees with SCE and states "SDG&E's proprietary protocol captures some of the attributes of the [PG&E's] PAV methodology as part of the inputs to be used to conduct our quantitative analysis already.[141]

Many other parties caution IOUs about other factors that have been overlooked or not properly taken into account in CEP protocols. Sierra Club suggests that "CEP should quantify more qualitative attributes related to GHG reduction and renewables integration."[142] Calpine warns that benefits should be realized and not double counted. "For example, the value of reduced renewable curtailments associated with energy storage may already be captured in the IOU's valuation of the energy storage resource to the extent that the energy prices used in those valuations reflect the cost of curtailing renewables."[143]

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[139] SCE Reply to Scoping Memo Questions at 13.

[140] SDG&E Reply to Scoping Memo Questions at 4.

[141] SDG&E Reply to Scoping Memo Questions at 4.

[142] Sierra Club Response to Scoping Memo Questions at 7.

[143] Calpine Reply to Scoping Memo Questions at 7.

Clean Coalition opines that SCE should more appropriately value avoided transmission (like PG&E) and apply average savings to estimate avoided transmission value. "The value of voltage support services provided by Energy Storage smart inverters should be recognized."[144]

GPI urges parties to "draw on" CEP to evaluate bids. It wants to ensure that the Commission is "proactive" and use a strong CEP to evaluate and select bids.[145] Joint LDES Parties agree and argue that "otherwise the evaluation will be completely opaque and discretionary on the part of the IOUs."[146]

ORA supports the IOU position that CEP does not need to be further augmented at this time. "CEP should be used for informational-only purposes and should not be used in the procurement decision making process."[147] If CEP protocols prove to be robust and successful, they can be utilized in future evaluations of energy storage offers.

6.2.3. Discussion

We acknowledge that D.13-10-040 gives IOUs wide latitude to use proprietary protocols for actual project selection and collaborate with ED to establish the CEP, while ensuring that the protocols "draw on" the range of cost and benefits identified in the OIR/studies. In this decision, we find the IOUs essentially comply with the Decision; however, we direct the IOUs to implement two minor adjustments to the CEP.

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[144] Clean Coalition Response to Scoping Memo Questions at 11.

[145] GPI Response to Scoping Memo Questions at 14.

[146] Joint LDES Parties Response to Scoping Memo Questions at 8 referencing GPI Response at 2-3, 13-14.

[147] ORA Response to Scoping Memo Questions at 9.

While there may be merit to some of the points that parties raise, such as more explicitly evaluating how the IOU's storage procurement impacts the environment, the best venue to accomplish any needed changes to the CEP is via the 2016 evaluation and/or upcoming storage rulemaking. These programmatic evaluations would provide excellent opportunities to study and address the "ignored" costs/benefits at the portfolio and project level. In these program evaluations, the Commission could evaluate how the IOU's aggregate storage procurement impacts the environment and achieves the Commission goals for renewable integration and GHG reduction. As SCE observes, "such a review would allow the Commission and interested parties to observe the environmental effects of storage without unnecessarily burdening the utilities with explicit environmental reporting on all of the bids they receive."[148]

However, during the interim period, it is not premature for the IOUs to begin consideration of, or have ongoing discussion regarding quantitative factors to account for GHG impacts, impacts of energy storage duration, and cost of aggregation of multiple energy storage projects, etc. Preliminary review of these and other newly proposed specific quantitative factors doesn't necessarily demonstrate a commitment to their eventual use in the CEP. Key issues to resolve include: 1) to what extent are GHG impacts already captured in forward energy prices (or not); 2) appropriate valuation of both CAISO/RA duration requirements and distribution reliability duration requirements unique to each IOU; and 3) to what extent is the cost of aggregation, depending on how it is defined, an incremental cost to the IOUs (as opposed to being a cost to the

[148] SCE Reply to Scoping Memo Questions at 13.

aggregator, in which case it would be captured in the bid price offered by the aggregator to the IOUs.) Any proposed changes to the CEP should be coordinated through Energy Division and in consultation with the Independent Evaluator. Such an early review could help lay a better foundation upon which to more extensively evaluate a suite of proposed quantitative factors in the 2016 Evaluation and/or to be determined ES OIR proceeding.

Based on Sierra Club's suggestion, one interim step towards the development of more sophisticated evaluation criteria would be to apply some type of weight to the various qualitative factors listed in the CEP (which are currently marked as "yes" or "no") and to provide a better indication of how well a storage project meets the specified policy goals. D.13-10-040 concluded that the IOUs should confer with ED Staff to establish the CEP for benchmarking and general reporting purposes. In this regard, we direct the IOUs to work with ED Staff to incorporate a weighting method within the CEP.

With respect to Joint LDES Parties' concern about "concurrent benefits," we agree with PG&E that CEP accommodates them, although the current draft of CEP may not be entirely clear on this point. To avoid confusion, we direct the IOUs to work with ED to revise the CEP description to clarify evaluation of concurrent benefits.

6.3. Procurement/RFO/Operational Requirements

6.3.1. D.13-10-040

D.13-10-040 requires each IOU Application to include the following:[149]

[149] D.13-10-040, Appendix A at 8-9.

- A detailed description of how the IOU intends to procure resources specifying the structure of any RFO or alternative procurement processes and related timelines;
- Operational requirements, to be applied either to all projects or separately with respect to transmission, distribution, and customer-sited storage. The requirements shall include, at a minimum:
  - Grid optimization services specific to the operational needs of the load-serving entity, such as any service intended to contribute to reliability needs, or defer transmission and distribution upgrade investments;
  - Attributes or services intended to integrate renewable energy;
  - Greenhouse gas emissions-reducing attributes, such as permanent load shifting away from greenhouse gas emitting fossil generation or reduction of demand for peak electrical generation using fossil fuels;

6.3.2. Parties' Position

Generally speaking, all of the IOUs said that the procurement/RFO requirements do not need to be augmented at this time.[150] SCE said that "the Commission has already provided direction on how and when the IOUs should procure storage according to D.13-10-040. "Rather than providing any prescriptive RFO requirements the Commission should allow the IOUs to develop their RFO requirements as they learn more about storage procurement

[150] PG&E Response to Scoping Memo Questions at 16; SCE Response to Scoping Memo Questions at 10; SDG&E Response to Scoping Memo Questions at 5.

and as their unique system needs change."[151] Therefore, these requirements should not be debated. In its response, ORA agrees with this position.[152]

Several parties including GPI and Calpine, raise relatively minor issues that suggest procurement/RFO requirements should be augmented. CESA raises issues pertaining to location requirements, minimum and maximum offer size, minimum discharge duration, contract execution, site control, and bid deposit.[153]

In response to GPI's suggestions, PG&E provided a rebuttal. First, GPI claims that the reservation of rights in PG&E's RFO solicitation is "too broad." In response to this claim, PG&E disagrees and said, "PG&E reserves its rights to take action that, in its judgment, are needed to comply with laws and regulations or to respond to market events."[154] PG&E further argues that reservation rights are not a new provision because similar language is also contained in PG&E's RPS, CHP, RAM and other RFO protocols.[155] Along these lines, PG&E assures GPI that its reservation of rights does not undermine the Commission's oversight of the energy storage RFO and any related activities in the conduct of its RFO.[156]

Second, GPI requests that that language in the RFO solicitation protocol strongly encouraging projects to submit interconnection requests prior to offer submittal be modified. In response to this claim, PG&E also disagrees. "While

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[151] SCE Reply to Scoping Memo Questions at 14.

[152] ORA Response to Scoping Memo Questions at 9.

[153] CESA Response to Scoping Memo Questions at 10.

[154] GPI Response to Scoping Memo Questions at 16.

[155] GPI Response to Scoping Memo Questions at 16.

[156] GPI Reply to Scoping Memo Questions at 17.

PG&E does not require submission of interconnection requests by that time, all else being equal the more certainty there is with long lead time aspects of project development such as the interconnection process, the better."[157] PG&E opines that progress towards obtaining interconnection required for its proposed products "will be taken into account" during the evaluation process.[158]

Third, GPI claims "that PG&E did not identify locations where energy storage might be an alternate for transmission or distribution investment, identifying them at 'TBD.'"[159] PG&E does not dispute GPI's claim regarding location and states that "PG&E is currently conducting a system analysis to identify potential locations where otherwise needed transmission or distribution investment might be deferred by an energy storage project."[160] According to PG&E, once they identify locations prior to the launch of the storage RFO, they plan to issue "specifications to size, duration, and other operational requirements to the market for bid development and submission in the storage RFO."[161]

Calpine suggests that PG&E should move certain restrictions on eligibility of hybrid-TES related generation. PG&E disagrees and states that "eligibility criteria for hybrid resources should be set such that the underlying generation component fills a Commission-directed or portfolio need."[162]

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[157] PG&E Reply to Scoping Memo Questions at 17.

[158] PG&E Reply to Scoping Memo Questions at 17.

[159] GPI Reply to Scoping Memo Questions at 17.

[160] PG&E Reply to Scoping Memo Questions at 17.

[161] PG&E Reply to Scoping Memo Questions at 17.

[162] PG&E Reply to Scoping Memo Questions at 18.

6.3.3. Discussion

Several parties, including GPI, CESA, and Calpine, offer some constructive suggestions to enhance RFO requirements. Some of these, such as site control, interconnection requirements, and eligibility criteria for hybrid resources are discussed in other sections of this decision. At this time, we do not think that it is wise or prudent to mandate overly prescriptive RFO requirements in the startup stages of the energy storage program. Each IOU has unique requirements which are subject to change based on changing needs and experience. In the first biennial 2014, we expect much focus on challenging issues such as contract duration, useful life, location, technology risk, and resource diversification, etc. In this decision, we encourage IOUs to embrace RFO best practices as they pertain to the development of RFO requirements and adapt them as they learn more about energy storage procurement markets.

6.4. Biennial Target Deferment Standards

6.4.1. D.13-10-040

D.13-10-040 allows utilities to defer up to 80 percent of their targets to a later deferment period if the utilities can demonstrate that they have not received bids that are economically or operationally viable, or have not received sufficient bids to meet their procurement targets. [163] To request Commission approval for deferment, the IOU shall file a Tier 3 Advice Letter within three months after receipt of bids in response to the RFO. If the request is granted, the procurement target for the next solicitation shall be increased to include the deferred amount.[164]

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[163] D.13-10-040 at 42-43.

[164] D.13-10-040, Appendix A at 10.

6.4.2. Parties' Position

In its Application, PG&E urges the Commission to allow the utilities to request deferment concurrent with the filing of RFO contracts for approval which "PG&E proposes should occur 12 months after the RFO offers have been shortlisted."[165] "It is only at this stage of the process that the utility will be certain that it must seek deferment."[166] PG&E argues that prior to this time, a utility still may be working with a project proponent to reach agreement on various project specifications including economics and operational requirements.[167] Both SCE and SDG&E agree with PG&E's point of view. SCE argues that the Commission should ensure that the deferment tool it established is useful. "In order to make the tool effective, the Commission must extend the deadline for filing for deferment to allow the IOUs time to complete comprehensive valuation and negotiation before submitting such a request."[168] If IOUs are required to file for deferment within three months of the receipt of offers then SCE argues "it will only have initial offers that have not yet been fully negotiated or comprehensively evaluated."[169] Similarly, SDG&E suggests "[t]he longer period will allow further analysis of bids received and in making a case for deferment.[170]

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[165] PG&E Application at 19.

[166] PG&E Reply to Scoping Memo Questions at 17.

[167] PG&E Reply to Scoping Memo Questions at 19.

[168] SCE Response to Scoping Memo Questions at 11.

[169] SCE's Response to Scoping Memo Questions at 11.

[170] SDG&E Response to Scoping Memo Questions at 5.

Both PG&E and SCE agree that this small window for requesting deferment would "incentivize the IOUs to rush negotiation and valuation at the expense of a thorough RFO process."[171] TURN supports the extended deadline to request deferment and observes that an IOU "bargaining position will be enhanced to the benefit of ratepayers if they can [submit] a request for deferment at the same time they submit winning projects for approval."[172] If the deadline for requiring deferment of storage targets is extended, then ORA urges that the "extra time provided should not impact the targets set for the energy storage procurement in later biennial phases."[173]

GPI is the only party that opposes the IOU recommendation and favors a shorter timeline. "By staying with the shorter deadline, policymakers, advocates and developers will have more visibility into the potential for procurement in the next cycle, and the state of the current storage market, than under a scenario where IOUs have twelve months to make the same determination."[174] PG&E disagrees and argues that GPI's comments do not appreciate the two-step nature of the RFO process. The first step is the development of the shortlist; and the second step is negotiation with those on the shortlist to reach agreement on mutually agreeable projects. PG&E complains that "GPI's proposal would force the utilities to make their decisions on whether to request deferment based primarily, if not solely, on the bidders' initial offers."[175] More time is needed to

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[171] SCE Response to Scoping Memo Questions at 11.

[172] TURN Response to Scoping Memo Questions at 13.

[173] ORA Response to Scoping Memo Questions at 10.

[174] GPI Reply to Scoping Memo Questions at 9.

[175] PG&E Reply to Scoping Memo Questions at 20.

work together to develop mutually agreeable viable storage projects before a utility requests a deferment.

6.4.3. Discussion

PG&E, SCE, and SDG&E make persuasive arguments that the deadline to request deferral should be longer than three months after receipt of initial offers. In this decision, we extend the deadline to request deferments to no later than one year from the date of the solicitation coinciding with the IOU filing seeking Commission approval of contracts of winning bids. Early offers may not provide enough information to make a decision to defer volumes. It is only after the development of a short list and further negotiations that an IOU will know what the final offers looks like and what adjustments need to be made moving forward. A shorter deadline sounds attractive, but may not be realistic as the program is in a startup mode and more time may be needed to evaluate needed deferments moving forward.

While we extend the time line for the IOUs in this first 2014 biennial solicitation, we may shorten timeline deadlines to defer in subsequent biennial solicitations as we gain more experience and acquire more knowledge about energy storage markets.

6.5. Contract Guidelines

6.5.1. D.13-10-040

D.13-10-040 requires each utility Application to include the following:[176]

- Proposed storage equipment/power/services purchase agreements for successful bids involving third party-owned or –aggregated projects

[176] D.13-10-040, Appendix at 9.

D.13-10-040 does not encourage utilities to negotiate bilateral contracts or "one offs" with counterparties to procure energy storage systems outside of an RFO process involving third-party storage systems. However, bilateral contracts for energy storage that are approved in other Commission proceedings may be counted towards meeting the IOU's procurement targets provided they meet specific requirements.[177]

6.5.2. Standardization

6.5.2.1. D.13-10-040

D.13-10-040 does not require the IOUs to develop standard contracts at this time.[178]

6.5.2.2. Parties' Position

Parties have different opinions regarding whether the *Pro Forma* Energy Storage Agreement proposed by the IOUs adequately addresses contract issues or whether it should provide more standardized or specific detail.

PG&E, SCE, SDG&E, CESA, Brookfield, Solar Reserve, and ORA concur that the Pro Forma Energy Storage is adequate for negotiation purposes at the present time. PG&E states, "Yes, PG&E's pro-forma Energy Storage Agreement adequately addresses contract issues by setting forth terms of an energy storage contract for negotiation by a third-party seller and a public utility buyer."[179] PG&E points out that the terms provided in its Application are not binding but rather serve as "starting points" in negotiations for storage services. "PG&E is open to discussing specific terms during negotiations desired by shortlisted RFO

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[177] D.13-10-040 at 56.

[178] D.13-10-040 at 55.

[179] PG&E Response to Scoping Memo Questions at 11.

participants to make its storage project more viable and effective while providing cost-effective storage service to PG&E's customers."[180]

SCE similarly opines "pro forma agreements are just sample contracts, the terms of which are entirely negotiable on a deal-by-deal basis." [181] SCE argues that its proposed contracting procedures and pro forma agreements for storage are very similar to ones they use to solicit other energy products. It emphasizes that the Commission should not prescribe the details of an agreement that should be negotiated.[182] According to SDG&E, "SDG&E believes that its Pro Forma agreement adequately addresses contract issues and that there is no need to standardize contractual terms in the energy storage agreements across utilities at this time."[183]

In some cases, SCE believes that bilateral contracts should be allowed. It opines that some contracts may not be able to use the RFO process to be awarded a contract. It states that "federal governmental agencies, for example, may not be able to participate for a variety of reasons including indemnification issues, terms of agreements, and governing law."[184] Further, SCE states that it would like to use bilateral contracts if it cannot find enough "economically viable bids" or if it observes a need for "market mitigation."[185]

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[180] PG&E Response to Scoping Memo Questions at 11.

[181] SCE Reply to Protests at 8-9.

[182] SCE Response to Scoping Memo Questions at 6.

[183] SDG&E Response to Scoping Memo Questions at 2.

[184] SCE Testimony at 48.

[185] SCE Testimony at 48.

CESA points out that transaction costs for all parties can be reduced through standardized pro forma but questions whether that is "reasonable or possible" in the early stages of the startup of energy storage program. "As a minimum, multiple 'start of discussion contract forms' as proposed by SCE, are necessary for this evolving technology."[186] Similarly, ORA states that the concept of standardization seems reasonable but points out that any Pro Forma Energy Storage Agreement is subject to many "substantial changes" before and after it is provided to counterparties. While ORA is sympathetic to flexible contract forms, it requests the opportunity to review and provide comments before documents are finalized.[187]

In contrast, both Clean Coalition and GPI strongly argue that the *Pro Forma* Agreement is not adequate and should be standardized across utilities. Clean Coalition points out other Commission proceedings where parties have supported harmonized contracts across utilities in an effort to simplify procurement process and reduce transaction costs for parties: Distribution System Interconnection Agreements (R.11-09-011), procurement contracts for the Renewable Market Adjusting Tariff (R.08-08-009), and the RAM (R.11-05-005).[188] GPI "urge[s] the Commission to work with the IOUs to make the PG&E pro forma the common basis for *pro formas* for all three IOUs."[189]

Other parties urge the IOUs to use other procurement mechanisms to promote storage. Calpine believes that the IOUs "could consider tolling

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[186] CESA Response to Scoping Memo Questions at 4.

[187] ORA Response to Scoping Memo Questions at 4.

[188] Clean Coalition Reply to Scoping Memo Questions at 3-4.

[189] GPI Response to Scoping Memo Questions at 5.

agreements for the entire hybrid conventional/storage resource, even if they do not already own or control the underlying conventional component."[190] Such arrangements could enhance "least-cost/best-fit" means of satisfying storage procurement mandates. Calpine also urges the IOUs to use Resource Adequacy-only (RA-only) contracts to procure only the storage portions of hybrid conventional/storage resources. Calpine believes that "cost- effective" hybrid conventional/storage resources should be eligible to bid into the IOUs' energy storage procurement solicitations.[191]

6.5.2.3. Discussion

In this decision, we concur with IOUs, CESA, and ORA that, in the nascent stages of the energy storage industry, it is important to retain flexibility and adjust *Pro Forma* Energy Agreements to accommodate unique attributes and functions that cross the spectrum of wholesale and retail markets and transmission and distribution grid services. While the concept of standardization is appealing and practical in some markets—such as the RAM-type solicitation in renewable markets which seeks to obtain the lowest cost for ratepayers—that approach may not be able to properly accommodate more complex projects due to the variety of functions and markets served. In D. 13-10-040, we supported a structured RFO process that would enable utilities to tailor a "targeted" request or RFO to reflect specific resource needs and criteria. We agreed with PG&E's position that utilities should not use a RAM-like mechanism and be allowed to negotiate PPA terms individually with

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[190] Calpine Response to Scoping Memo Questions at 6.

[191] Calpine Response to Scoping Memo Questions at 6.

counterparties based upon each project's specific attributes. Consistent with guidance provided in D.13-10-040, we do not require IOUs to develop standard contracts at this time.[192] For the time being, we allow illustrative "starting points" that can be used as a basis to negotiate favorable terms for both buyers and sellers. Through such an iterative or "give and take" process, business lessons can be learned and applied to future biennial cycles. As the market matures, and technologies and use cases are further defined, we can revisit if and when a more streamlined contract form is appropriate.

Similarly, consistent with guidance provided by D.13-10-040, bilateral storage contracts from other proceedings may count toward 2014 procurement targets. However, if there is a unique and beneficial opportunity and "special circumstances" that cannot be met through the RFO process in this proceeding, but it can be met through a bilateral contract, then the respective IOU must state its case to the Commission for approval in the appropriate Application or Advice Letter.

6.5.3. Contract Term

6.5.3.1. D.13-10-040

Following each solicitation, the IOUs shall negotiate signed contracts within one year of the solicitation, contingent upon Commission approval.[193]

IOUs have proposed the following contract terms:

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[192] D.13-10-040 at 55.

[193] D.13-10-040, Appendix A, at 11.

Detail	SCE	SDG&E	PG&E
Contract Term	No minimum or maximum duration of contract	5-20 years	ESA: 10 years Amendment to Existing Tolling Agreement with PG&E; lesser of 10 years or remaining term of existing agreement RPS PPA: 20 years RA Confirm: 10 years

6.5.3.2. Parties' Position

Many parties, including PG&E, SCE, Brookfield, Solar Reserve and SBUA make a strong case that a 10-year contract limit is a barrier towards effective and timely financing of proposed projects. Further, many parties raised this issue not only in the context of "contract standardization" but also in the context of cost recovery of purported "stranded assets" within the PCIA framework, which they believe should be applied towards storage generation resources. Still further, some parties consider these issues to be interdependent of each other while other parties claim that these issues should be considered separately. (*See* background discussion of the "PCIA" issue in Section 5.3.)

PG&E proposes that PCIA cost recovery for the energy storage contracts procured not be limited to 10 years and should be extended consistent with the approach for RPS contracts.[194] PG&E warns that a ten year contract term may not provide sufficient long-term revenue streams to support the financing of new storage development projects, and observes that the ten-year term may be shorter than the useful life of a storage facility. "Under these and other potential

[194] PG&E Reply to Scoping Memo Questions at 8.

business cases, a ten-year maximum contract term for RFO participants may disadvantage some projects in the CPUC-sponsored energy storage RFOs."[195] SCE concurs with PG&E and states, "Limiting the term for above-market PCIA to ten years creates a disincentive for the IOUs to enter into storage contracts with terms longer than ten years."[196] PG&E also forewarns that it would not procure energy storage contracts greater than 10 years if it were not granted authority to include those contracts in the PCIA.[197]

SCE points to laws and regulations to support its position that there should be no 10-year contract limitations. Accordingly, it argues that "some language in D.04-12-048, if taken out of context, could arguably impose a 10-year limitation on recovery of costs of not only existing fossil fueled resources, but also to non- RPS resources."[198] However, when the Commission approved PCIA treatment for life of the renewable contracts 2004, the Commission had not even considered energy storage and the appropriate length of cost recovery from departing load customers. Therefore, one could also argue that D.04-12-048 could also well be interpreted to mean that the PCIA should apply for the life of the storage contract. SCE also refers to "Public Utility Code § 365.1(c)(2) enacted through Senate Bill 695, which eliminated the 10-year limitation for cost recovery of capacity costs of new generation resources needed to meet a system or local area reliability needs."[199]

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[195] PG&E Response to Scoping Memo Questions at 12.

[196] SCE Response to Scoping Memo Questions at 5.

[197] PG&E Response to Scoping Memo Questions at 12.

[198] SCE Reply to Scoping Memo Questions at 6.

[199] SCE Reply to Scoping Memo Questions at 7.

Industry leaders such as CESA argue that that there should be no constraint on the duration of contracts offered in upcoming RFOs. "The optimum price/value proposition for ratepayers is unlikely to be the same for every project; constraints can only lead to suboptimal results and should be avoided where possible."[200] Brookfield and Solar Reserve agree with PG&E and SCE that the 10-year contract limit creates a bias against storage technologies with useful lives longer than 10 years that aim to compete in the storage procurement RFOs.[201] Brookfield believes that limiting the term of the contract does not meet the requirements of D.13-10-040 which supports a "technology-neutral" procurement process. Brookfield also claims that "the 10-year limit would likely result in higher prices for ratepayers who could otherwise benefit from pricing that reflects amortization of capital over a term that matches the useful life of the storage project."[202]

Both Solar Reserve and SBUA point out that many technologies have longer "life cycles" that should be acknowledged in the energy storage procurement bidding process. Solar Reserve cites the example of CSP with storage technology that typically has a design life of 30 years, due in part to the fact that molten salt does not degrade from repeated use. It argues that "a cost that is spread over many years will have a lower present-value than the same cost spread over a few years."[203] Similarly, SBUA recommends a longer contract

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[200] CESA Response to Scoping Memo Questions at 4.

[201] Brookfield Response to Scoping Memo Questions at 3; Solar Reserve Reply to Scoping Memo Questions at 3.

[202] Brookfield Response to Scoping Memo Questions at 3.

[203] Solar Reserve Reply to Scoping Memo Questions at 3.

period such as a 15-year or 20-year contract limit. A shorter 10-year contract limit "may create unnecessary uncertainty for implementation of certain energy storage technologies."[204]

Within the context of the PCIA framework, MCE and DACC/AReM strongly object to extending a contract beyond 10 years. MCE recommends that the Commission not address this issue within this proceeding unless the remainder of energy storage technical cost recovery within the PCIA are simultaneously addressed. [205]

DACC/AReM urge the Commission to "maintain the current policy of allowing stranded cost recovery for the lesser of ten years or the life of the contract."[206] This is in contrast to PG&E's request that it be allowed to recover stranded costs associated with an energy storage project for the term of the contract, even if it exceeds ten years. DACC/AReM allege that this is an "unwarranted breech of Commission stranded cost policy" and believes that retail choice customers should not be expected to continue to pay stranded costs associated with energy storage investments for any longer than ten years.[207]

DACC/AReM object to PG&E's plan to limit contracts to 10 years if the PCIA is limited to the equivalent length of time. DACC/AReM believe that "the cost recovery (or not) from DA customers is independent of the reasonableness (or not) of any particular contract, and should not be used as an excuse to limit

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[204] SBUA Response to Scoping Memo Questions at 4.

[205] MCE Reply to Scoping Memo Questions at 7.

[206] DACC/AReM Response to Scoping Memo Questions at 11.

[207] DACC/AReM Response to Scoping Memo Questions at 11.

storage contracts to ten years."[208] In their view, the Commission should not expand the PCIA [if applied] to beyond ten years because an IOU "threatens to ignore or diminish" contracts if the Commission does not grant its request for an exemption to the 10-year rule.[209]

6.5.3.3. Discussion

Most parties present persuasive arguments to support long-term contracts that extend beyond 10 years. Only MCE and DACC/AReM did not agree; however their discussion assumed that storage would receive PCIA treatment. As CESA mentions, not all projects have the same price/value proposition and limited contract terms could result in suboptimal results and should be avoided. Based on the particular technology and life cycle of the project, longer terms can favorably impact project financing, support consistent revenue streams, eliminate technology bias, and create a more level playing field for competition. A "balanced" portfolio approach would suggest that an IOU should promote a mix of technologies and contract terms based on an IOU's particular needs and requirements and strategy to diversify risk. Therefore, in this decision, consistent with SCE's request, we do not mandate either a minimum or maximum contract term.

Without approval of a PCIA methodology for storage, it is reasonable to deny a proposed exemption to the 10-year rule for PCIA stranded cost recovery. If IOUs seek authorization for a long-term contract for storage based generation services for bundled customers, IOUs can submit an Application or Tier 3 Advice

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[208] DACC/AReM Reply to Scoping Memo Questions at 11.

[209] DACC/AReM Reply to Scoping Memo Questions at 11.

letter (as appropriate to the applicable proceeding) to the Commission for pre-approval of long-term contract according to D.04-12-048, at OP 14.[210]

We also reject the IOUs proposal to limit or ignore potential long-term storage contracts if the exemption to the proposed 10-year rule is not approved. For the first solicitation, PCIA for energy storage cost recovery does not need to be beyond the first ten years of the energy storage contracts. In subsequent solicitations, when we have more knowledge about the energy storage market (and if we have a Commission approved Joint IOU PCIA Protocol), we may choose to revisit this issue.

6.5.4. Deadlines to Execute and Submit Contracts

6.5.4.1. D.13-10-040

D.13-10-040 requires the IOUs to execute and submit the energy storage contracts from the biennial December RFO for Commission approval, and to report on RFO results, no later than one year after the Energy Storage RFO is issued.

IOUs offer the following timeline:

Event	SCE	SDG&E	PG&E
Advice Letter or Application Filing	December 30, 2015 (Per D.13-10-040 shortlist is due April 1, 2015 and RFO results are due December 30, 2015)	Not specified	12 months after shortlist (Proposed PG&E shortlist is June 30, 2015)

[210] California Public Utilities Commission AB 57, AB 380 and SB 1078 Procurement Policy Manual at 4.4.

6.5.4.2. Parties' Position

PG&E argues that "the deadline for an IOU to execute and submit contracts from the 2014 Storage RFO should be changed to one year from the IOU's finalization of its shortlist."[211] PG&E claims that current mandated procedure, if left unchanged, would require PG&E to execute all of its energy storage contracts within 8 months of receiving offers in response to the RFO. PG&E believes that this time is too short and that they need more time to handle a new competitive solicitation for the first time which includes many elements including solicitation, evaluation, shortlisting and negotiation process. Each of these functions requires PG&E to learn more about the "operational characteristics of particular storage technologies, incorporating new considerations in its evaluation methodology, and negotiating new terms necessary to ensure that storage capabilities are fully operationalized in accordance with PG&E's system needs."[212] All of this fact-finding is required to identify or "shortlist" the most promising offers.

SDG&E, Brookfield, and Clean Coalition agree with PG&E's rationale. SDG&E believes "a longer deadline would potentially allow a more successful process in terms of getting contracts signed and projects built."[213] Clean Coalition believes that lack of experience with storage procurement may warrant additional time but "recommend that any extension of time be limited to the first

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[211] PG&E Response to Scoping Memo Questions at 13.

[212] PG&E Response to Scoping Memo Questions at 13.

[213] SDG&E Response to Scoping Memo Questions at 3.

RFO, and that separate Application be required for either utility to demonstrate future need to extended time to complete subsequent RFOs."[214]

CESA, Joint LDES Parties, and GPI do not agree with the IOU perspective. CESA observes that "delay increases certainty and risk" and believes that the Commission should speed up implementation of the proposed procurement plans.[215] LDES Joint Parties take an even stronger stance by encouraging the Commission to reject the requested extension and instead escalate the deadline to June 1, 2015 for execution and submission of contracts.[216] GPI opines that one year is more than enough time to negotiate final contracts and submit them to the Commission for approval. But, it "would prefer to see this period reduced to six months, which seems more than enough time for such negotiations."[217]

TURN does not see a need at this time to extend the schedule for executing and submitting contracts. However, it is sympathetic to the need for an extension due to "legitimate needs" and believes that the Commission should not deny reasonable requests for extensions if and when they occur. [218]

6.5.4.3. Discussion

In this decision, as discussed in Section 6.3 "Procurement/RFO/Operational Requirements," we are sympathetic to the complexity of the "two-step" RFO process which requires the development of a short list of bids and then further negotiations to make a final selection of

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[214] Clean Coalition Reply to Scoping Memo Questions at 4.

[215] CESA Response to Scoping Memo Questions at 4.

[216] Joint LDES Parties Response to Scoping Memo Questions at 5.

[217] GPI Response to Scoping Memo Questions at 6.

[218] TURN Response to Scoping Memo Questions at 7.

winning bids and execute contracts. However, in this decision, we do agree with TURN that there is no need to extend the existing D.13-10-040 established schedule for executing and submitting contracts. If IOUs need an extension due to "legitimate needs," then the Commission can consider the requests as the needs arise.

In this decision, we acknowledge that SDG&E issued an all source RFO on September 5, 2014. SDG&E's proposed timing, contained in the September 5, 2014 material, for contract submittal of winning bids exceeds the one year default date.[219] In this decision, we choose not to extend the default one year deadline for submission of contracts for the storage projects selected in the first solicitation. Depending on the circumstances at the time, SDG&E may consider requesting an extension of this deadline at a later time.

6.6. Pre-Bidding Interconnection Requirements

6.6.1. D.13-10-040

D.13-10-040 states that interconnection processes are out of the scope of this proceeding.[220]

IOUs propose the following interconnection requirements:

Detail	SCE	SDG&E	PG&E
Interconnection Requirements	Interconnection Study required by final offer submission	Flexible network upgrade cost estimate may be included as a cap in the contract; must request Full	Interconnection application required by contract execution.

[219] SDG&E Response to Proposed Decision, Appendix at A-1.

[220] D.13-10-040 at 57.

		Capacity Deliverability Status (FCDS)	

6.6.2. Parties' Position

PG&E, SCE, SDG&E all believe that it is not necessary or productive to have uniform pre-offer interconnection requirements for all of the IOUs. PG&E points out that it may be appropriate for utilities to have different standards regarding seller involvement in the interconnection process at the time of offer submission. For example, if a generator is involved in the CAISO interconnection process, it may have a vested interest in achieving interconnection due to a shorter window of time required by the utilities to select sellers. In other cases, strict interconnection requirements may not be necessary due to longer procurement windows.[221] In this case, overly strict pre-offer requirements could discourage potential participants and eliminate otherwise viable candidates from consideration.

SCE agrees with PG&E's assessment and states that "the IOUs often have different RFO procedures and requirements to accommodate their unique systems and needs."[222] SCE also points out that IOUs have "different levels of experience" with energy procurement storage programs. "Unlike PG&E and SDG&E, SCE has conducted a storage solicitation – SCE's LCR RFO."[223] Through this solicitation SCE has gained more knowledge about the storage procurement process and believes stricter interconnection requirements, such as a completed

[221] PG&E Response to Scoping Memo Questions at 14.

[222] PG&E Response to Scoping Memo Questions at 6.

[223] SCE Response to Scoping Memo Questions at 6.

interconnection study, is very important. Completed interconnections studies by the time of final offers may enable access to more detailed cost information. SDG&E also agrees that pre-bidding interconnection requirements do not have to be consistent across utilities at this time and encourages flexible requirements during the first solicitation.[224]

CESA, Brookfield, Clean Coalition, GPI, and SBUA argue that interconnection requirements should be consistent across utilities and support PG&E's approach, which provides for an interconnection application completed by contract execution, rather than by solicitation offer. According to CESA, "CESA supports PG&E's approach that allows maximum time for a project to get through the lengthy, and frequently excessive, requirements of the current interconnection process.[225] Brookfield agrees and claims that SCE's approach to require bidder to have Phase 1 interconnection studies completed by the time of final offer is "overly restrictive and subjects bidders to unfair risks in order to submit an initial proposal to the Energy Storage RFO."[226] For similar reasons, Clean Coalition also favors PG&E's approach, but prefers that "the focus be placed on completing an Interconnection Agreement within a specified period following the offer of a contract, and conforming to subsequent financial milestones."[227] GPI urges the Commission to adopt PG&E's approach: "We support this approach because interconnection is often a very high bar to clear, in terms of expenses and time, and various deadlines in the interconnection process

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[224] SDG&E Response to Scoping Memo Questions at 3.

[225] CESA Response to Scoping Memo Questions at 5.

[226] Brookfield Response to Scoping Memo Questions at 4-5.

[227] Clean Coalition Response to Scoping Memo Questions at 4.

require that a project moves ahead in the interconnection process or be kicked out of the queue."[228] GPI suggests further, "If the Commission feels that SCE is warranted in requiring a Phase 1 study or its equivalent prior to a bid, GPI strongly urges the Commission to create a 3 MW cutoff for this requirement." It believes that anything less than this amount should not require a Phase 1 study.[229]

ORA recommends consistent pre-bidding interconnection requirements across utilities, but does not specifically recommend PG&E's approach. "Consistency across the IOUs will promote predictability and transparency in the interconnection process, conforming to the goals of the Rule 21 Rulemaking proceeding, 'to ensure that the interconnection process is timely, non-discriminatory, cost-effective, and transparent.'"[230] It points out that the Commission Rule 21 proceeding still needs to review IOU's interconnection tariffs to accommodate new technologies, such as energy storage.

6.6.3. Discussion

In this decision, we agree with the IOUs that the timing is not right, nor is it necessary or prudent, to enforce uniform interconnection requirements across the utilities for bidding in the nascent stages of the energy storage industry. Each utility has unique system needs and requirements and different RFO requirements and procedures to address. The interconnection process is a complex process with many factors to consider including project size, length of

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[228] GPI Response to Scoping Memo Questions at 6.

[229] GPI Response to Scoping Memo Questions at 7.

[230] ORA Response to Scoping Memo Questions at 5.

procurement cycle, financial hurdles, timing of key milestones to complete a project, and relationship with other stakeholder proceedings, etc. Second, we agree with SCE that each utility has a different level of knowledge and expertise that may warrant a different approach in different circumstances—at least in the short-term. Third, much more work is needed to reconcile FERC/CAISO approaches under FERC jurisdiction versus Rule 21 Commission approaches under state jurisdiction. Ongoing proceedings are expected to address any outstanding issues within the coming year.

Pertaining to this first solicitation cycle, we agree with the IOUs that it is counterproductive at this time in the solicitation to adopt uniform interconnection standards across utilities. However, for the purposes of providing needed direction and guidance in this initial solicitation, we will grant latitude to the IOUs in individually setting their offer interconnection requirements and allow both 1) PG&E's more flexible approach which requires an interconnection application by the date of contract execution rather than by date of solicitation offer; and 2) SCE's more prescriptive approach for bidders to have Phase 1 Interconnection Studies completed by the time of their final offer, instead of by the time of contract execution. We will monitor progress of this first biennial procurement program, companion proceedings which are addressing barriers to interconnection and solutions to address and drawing lessons learned for eventual application to this storage procurement program. Over time, with the benefit of more experience in the storage markets, there may likely be more incentives to standardize interconnection requirements that benefit buyers and sellers, and the industry at large.

6.7. Customer-Side Storage

6.7.1. D.13-10-040

D.13-10-040 states that customer-side storage targets may be fulfilled through existing proceedings, such as the 2015 demand response application, distributed generation/California Solar Initiative rulemaking, and alternative-fueled vehicle rulemaking.[231] All of these proceedings have their own standards that are being used to develop and implement programs. Utility-owned or utility-contracted energy storage projects behind the meter may warrant more serious consideration by the Commission in future procurement periods.

6.7.2. Parties' Position

In the short-term, PG&E, SCE, and SDG&E concur that it is reasonable to focus on existing customer-side energy storage programs, including SGIP and PLS, and not pursue other programs at this time. PG&E also notes that there are several activities underway that will support and promote the customer-side storage market, including: 1) the CPUC's recent decision to exempt qualifying customer-side NEM-eligible generators paired with storage installations from interconnection costs; 2) legislative approval to extend and/or expand SGIP; and 3) the CPUC's decision to allocate bridge-funding for the PLS program.[232]

SCE reminds parties that it is also soliciting customer-side storage through its Emerging Markets & Technology (EM&T) program and its 2014 Storage RFO. "Through the EM&T program, SCE has already incentivized projects such as the Discovery Science Center battery and the Home Battery Pilot, and will continue

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[231] D.13-10-040 at 58.

[232] PG&E Response to Scoping Memo Questions at 15.

to pursue other customer-side storage projects."[233] SCE states that it may procure additional customer-side storage to count towards its future targets if cost-competitive customer-side storage offers are presented.[234] SDG&E claims that "customer-side storage will mature as a market as benefits become more evident and as they exceed costs."[235] SDG&E does not believe customer-side storage should be subsidized unless there is a statutory mandate that requires otherwise.

ORA agrees that existing programs should suffice for now. It refers to both SCE and SDG&E storage procurement plans which demonstrate that SCE's existing forecasts for customer-side storage meet and exceed its customer side procurement targets for the 2014 and 2016 procurement cycles and SDG&E's existing forecasts meet and exceed its 2014 target, respectively.[236]

Other parties have other ideas about advancing customer-side storage beyond SGIP and PLS programs. NRDC believes that the Commission should reconsider its policy that prohibits shifting from the customer-side to other domains. "If V1G or other customer-side solutions are show to be more cost-effective than storage in the distribution or transmission 'domains,' but over-procurement in the customer-side domain does not overall reduce the overall compliance burden, it could inflate costs for the body of utility customers."[237] It also believes that the current prohibition "could artificially limit

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[233] SCE Response to Scoping Memo Questions at 7.

[234] SCE Response to Scoping Memo Questions at 7.

[235] SDG&E Response to Scoping Memo Questions at 3.

[236] ORA Response to Scoping Memo Questions at 5.

[237] NRDC Response to Scoping Memo Questions at 4.

the number of PEV customers who are able to receive compensation for value they provide to the grid."[238] Both GPI[239] and SCE agree with the eliminations of the prohibition. SCE states that increased shifting between grid domains could allow for more competition at reduced costs.[240]

CESA strongly recommends that the Commission direct the IOUs to continue proposing new on-site pilot energy storage incentive programs to allow additional field testing, alternative ownership structures, and methods of contracting on both sides of the customer's meter. [241] Both CESA and EDF believe that carefully designed tariffs on the customer-side of the meter are needed to provide sufficient incentives to thrive, maximum grid benefits, and product value. GPI believes that including V2G (two-way EV charging and discharging) in the definition of storage in this proceeding will provide a needed market impetus for bringing V2G to market.[242] SBUA believes that the interests of small business customers providing storage should be treated in an "equivalent manner" to customers using solar generation or other renewable generation under 1 MW.[243]

6.7.3. Discussion

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[238] NRDC Response to Scoping Memo Questions at 4.

[239] GPI Reply to Scoping Memo Questions at 10.

[240] SCE Reply to Scoping Memo Questions at 16. (Note this position differs from its original position in the SCE Response to Scoping Memo Questions.)

[241] CESA Response to Scoping Memo Questions at 5.

[242] GPI Response to Scoping Memo Questions at 7-8.

[243] SBUA Response to Scoping Memo Questions at 5.

Based on positive results of SGIP and PLS and continuation of these programs in the short-term and recent extensions to the program, we conclude there is no need to pursue additional strategies to promote customer-sited storage at this time. Recently, the state approved SB 861 that authorized an extension of SGIP to 2020 with a funding level of $83 million per year (energy storage and other distributed energy resources are eligible to receive the SGIP incentive). And the CPUC, in D.14-05-025, authorized an extension to the PLS program for 2015 and 2016 and allocated an additional $21.3 million for this purpose. For the initial biennial storage procurement business cycle, utilities have provided attainable and meaningful targets on the customer side of the meter. When ED staff conducts an evaluation of the Energy Storage Procurement and Design Program no later than 2016[244] and submits it to the Commission, they should recommend whether additional alternatives suggested by parties should be actively pursued. Further, the Commission needs to ensure there is coordination of policy objectives between the Alternative Fuel Vehicle proceeding R.13-10-017 and this proceeding.

6.8. Project Approval Process

6.8.1. D.13-10-040

D.13-10-040 states that following each solicitation, the IOUs shall negotiate contracts within one year of the solicitation, subject to Commission approval. As directed by the Commission, each IOU shall file an Application or Tier 3 Advice Letter setting out the contracts for the winning bids for Commission approval.

[244] D.13-10-040, OP 6 at 77.

The filing shall be submitted no later than one year from the date of the solicitation.[245]

IOUs request the following timing for the Tier 3 Advice Letter setting out contracts for the winning bids for Commission approval:

Event	SCE	SDG&E	PG&E
Advice Letter or Application Filing	December 30, 2015	Not specified	12 months after shortlist (or June 30, 2016?)

6.8.2. Parties' Positions

All three IOUs argue for the use of Tier 3 Advice Letters to approve storage contracts and compare the Commission's upcoming review and approval of utility storage contract and renewable of renewable storage contracts. According to PG&E, "The Energy Storage Procurement process will be markedly similar to the RPS and CHP procurement processes, in which the IOUs submit contracts for counting against their RPS goals and CHP [Combined Heat and Power] Targets, respectively, for Commission approval by advice letter." [246] Similarly, SCE states, "Tier 3 Advice Letters will allow for a more timely approval process than would Applications, allowing storage projects to come online at an earlier date. The precedent the Commission has set for approving RPS contracts via Tier 3 Advice Letters has been effective.[247] SDG&E also refers to the RPS solicitation process as a model to follow and claims that the Tier 3

[245] D.13-10-040, Appendix A at 11-12.

[246] PG&E Response to Scoping Memo Questions at 19.

[247] SCE Response to Scoping Memo Questions at 8.

Advice Letter approval process would be more efficient than an application process. "If a particular Advice Letter is controversial, it can be rejected by Energy Division with an order to file an Application in place."[248] Both CESA and Brookfield also support use of the Tier 3 Advice Letter to approve contracts.

PG&E believes that some exceptions to the Tier 3 Advice Letter process should be authorized. For example, PG&E believes it should be authorized to submit proposed contracts for utility-owned energy storage for Commission approval by Application instead of Advice Letter.[249] In this case, PG&E would ask for PG&E Commission approval consistent with the process use to obtain Commission approval of PG&E-owned solar photovoltaic projects.[250]

In contrast to IOU view, the Sierra Club, TURN and ORA call for the use of the Application rather than Tier 3 Advice Letter to approve IOU projects from the 2014 solicitations. Sierra Club believes that the Application process is more appropriate because various legal, factual, and policy issues have not been fully resolved and will undoubtedly emerge from energy storage procurement program which is new for both the Commission and IOUs.[251] TURN agrees with Sierra Club and states that the Advice Letter Process would provide "insufficient review and transparency" and would risk delegating to staff the resolution of issues that should more properly be handled through a more formal Commission proceeding.[252] TURN points out many of the perceived deficiencies of the

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[248] SDG&E Response to Scoping Memo Questions at 4.

[249] PG&E Response to Scoping Memo Questions at 20.

[250] PG&E Response to Scoping Memo Questions at 20 referencing A.09-02-019/D.10-04-052.

[251] Sierra Club Reply to Scoping Memo Questions at 7.

[252] TURN Response to Scoping Memo Questions at 9.

Advice Letter Process including its emphasis on a quick review of non-controversial or more routine matters, lack of opportunity to conduct meaningful discovery, and lack of ability to publicly view stakeholder protests in response to Advice Letters on the Commission website.[253] In response to IOU responses, TURN argues that the RPS example is not the best model to follow when it argues that the early RPS efforts were a struggle and provide justification against relying on the advice letter process to review contracts.[254]

Both TURN and ORA agree that the Application process may be more appropriate to use in the early stages of the storage procurement program. As ORA states, "As the energy storage procurement process matures, it may be reasonable to consider energy storage projects by either an Application or Tier 3 Advice Letter depending on project characteristics."[255]

6.8.3. Discussion

In this compliance decision for the 2014-2016 Storage Procurement Program, we agree with Sierra Club, TURN, and ORA that the application process is the far superior process to use for approval of contracts for initial storage procurement projects. The application process is a far more transparent process that allows more review, discovery, and needed time to review proposals via a robust stakeholder process with many varied interests. In the early stages of this program, we are still making adjustments and/or clarifications to policy, legal, and factual aspects of the program that should be dealt with at the

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[253] TURN Response to Scoping Memo Questions at 10-11.

[254] TURN Reply to Scoping Memo Questions at 6.

[255] ORA Response to Scoping Memo Questions at 6.

Commissioner level rather than staff level. Once compliance filings become more routine, then it may be appropriate to use the Advice Letter process depending on project characteristics. Consistent with D.13-10-040, we direct SDG&E, PG&E, and SCE to file an Application seeking Commission approval of the contracts for the winning bids selected from the 2014 solicitation to be submitted no later than one year from December 1, 2014.

7. Categorization and Need for Hearing

On March 13, 2014, Resolution ALJ-176-3332 preliminarily determined that this proceeding was ratesetting and that hearings would be necessary. In the Scoping Memo, the assigned Commissioner asked that parties to request evidentiary hearings by June 19, 2014. Given that no hearings were held in the current proceeding, we change our preliminary Scoping Memo determination regarding hearings, to no hearings necessary.

8. Comments on Proposed Decision

The proposed decision of the ALJ in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on October 2, 2014 by AECA, BrightSource, CESA, CFC, DACC/AReM, General Motors, Graphite Energy Storage Partners (Graphite Energy), Independent Energy Producers (IEP), Joint LDES Parties, Large Scale Solar Association (LSA), MCE, NRDC, ORA, PG&E, SCE, SDG&E Shell, Western Power Trading Forum (WPTF), and TURN. Reply comments were filed on October 7, 2014 by AECA, Calpine, DACC/AReM, Joint LDES Parties, MCE, NRDC, ORA, PG&E, SCE, SDG&E, Sierra Club, and TURN.

The decision has been revised, as necessary, in response to comments. Among others, and in addition to some technical modifications, we made the following clarifications and substantive revisions:

1. Notes SDG&E's additional all-source storage solicitation to meet local capacity requirements on September 5, 2014 but does not change when signed contracts for the winning bids are due within one year of the December 1, 2014 energy storage solicitation;
2. Clarifies that storage solicitations are not an opportunity to bid in new generation resources associated with proposed storage, regardless of type of resources;
3. Specifies that SDG&E has already provided sufficient information in its February 28, 2014 Application regarding an explanation of the type of resources and the associated MW quantities the IOUs intend to procure categorized by grid domains and use cases, and location. Therefore, only PG&E and SCE are required to update this information on December 1, 2014 when bid solicitation materials and requirements are due;

In the area of cost allocation and recovery:

4. Requires that cost allocation and recovery for "dual usage" storage should be presented when there is an actual project on which to apply ratemaking methodology;
5. Observes that it is not clear whether departing load from IOU "bundled" service will result in the stranding of costs attributable to IOU energy storage procurement;
6. Emphasizes that without Commission approval of a PCIA methodology for storage, it is reasonable to deny a proposed exemption to the 10-year rule for PCIA cost recovery;
7. Requires SDG&E, PG&E, and SCE to consult the affected ESP and CCA and potentially other interested parties before filing the Joint IOU Protocol; and

8. Directs SDG&E, PG&E, and SCE to collect $500,000 per year for six years from ratepayers for Commission's storage procurement evaluation program via the IOU's ERRA, starting in 2015, on a shared basis by IOUs in accordance to their proportional share of the *system* peak load.

9. Assignment of Proceeding

Commissioner Carla J. Peterman is the assigned Commissioner and Colette E. Kersten is the assigned ALJ in this proceeding.

Findings of Fact

1. In compliance with Assembly Bill (AB) 2514 (Stats. 2010, ch. 469), the Commission issued D.13-10-040 or energy "Storage Decision" on October 21, 2014.

2. D.13-10-040 set procurement targets for 2014 to 2020, adopted the Energy Storage Procurement Framework and Design Program, and directed SDG&E, PG&E, and SCE (collectively as the Investor Owned Utilities (IOUs)) to file four biennial storage procurement Applications starting in March 2014.

3. Procurement targets for the initial 2014-2016 procurement period are allocated to each of the IOUs and are organized by "grid domain" (points of interconnection): transmission-connected, distribution-connected, and customer-side applications.

4. Procurement targets for the initial 2014-2016 period include 20 MWs for SDG&E, 90 MWs for PG&E, and 90 MWs for SCE.

5. The Energy Storage Procurement Framework and Design Program accepts energy storage projects that are either installed or under contract.

6. In addition to procurement targets tables with adjustments and proposed types of storage to be procured, including quantities and operational requirements, D.13-10-040 required IOUs to provide proposed procurement

details, including PPAs, bid evaluation protocols, request for cost-recovery authorizations, and to report on storage procurement to date.

7. In compliance with D.13-10-040, SDG&E, PG&E, and SCE filed Applications (Storage Applications) asking the Commission to approve 2014-2016 energy storage procurement plans, associated procurement methodologies, evaluation protocols, and cost recovery mechanisms.

8. A public workshop was held on June 2, 2014 to discuss outstanding issues that parties raised at the PHC and in comments including issues associated with storage definition and eligibility, IOU procurement, RFO requirements, IOU evaluation protocols, and related matters.

9. The focus of the decision is "compliance" rather than "policy making."

10. Because the Energy Storage Program is a new program some clarifications and adjustments may be needed to ensure the energy storage program successfully meets its program objectives in a changing business environment.

11. Overall, SDG&E and SCE correctly identify and calculate its 2014 adjusted targets.

12. AB 2514 and Pub. Util. Code § 2835(a) identifies what constitutes an eligible "energy storage system."

13. Both "broad" and "narrow" interpretations exist to define what constitutes an eligible energy storage system.

14. PG&E correctly identifies and calculates its 2014 adjusted target with the exception of the inclusion of 2.52 MWs of biogas (does not include an eligible storage component), which does not comply with the Commission's interpretation of AB 2514 and Section 2835(a).

15. D.13-10-040 determined that EVs have an important role in advancing energy storage policy objectives; D.13-10-040 has ruled that V2G is eligible to participate in the energy storage program.

16. The CEP does not include weighting of qualitative bid evaluation factors and possibly may not include quantitative factors to account for GHG impacts, impacts of energy storage duration, and costs of aggregation of multiple energy storage projects.

17. The CEP does not clearly describe evaluation of concurrent benefits of energy storage such as GHG benefits.

18. When PG&E and SCE filed Applications on February 28, 2014, they did not provide sufficient information regarding an explanation of the type of storage resources and the associated MW quantities the IOUs intend to procure, categorized by grid domains and use cases, and location. SDG&E's application contained sufficient information.

19. In preparation for the planned December 1, 2014 IOU solicitation, PG&E and SCE are gathering more information pertaining to more defined RFO requirements that may aid developer confidence and business certainty.

20. A multi-pronged approach is necessary to ensure safe and reliable delivery of energy storage to customers in the transmission, distribution, generation, and customer grid domains; such a multi-pronged approach adheres to Prudent Electric Practices, reasonable contract terms and conditions (*e.g.*, Pro Forma Agreement), and sound interconnection procedures.

21. The appropriate cost recovery mechanism that generally applies to an energy storage project is based on the service or regulatory function provided by the project.

22. The Application of CAM is outside the scope of this proceeding; to the extent it is being used to address LCR reliability issues, it is being considered within the context of LTPP.

23. The PCIA (Power Charge Indifference Adjustment) is intended to ensure that customers which depart utility bundled service pay their fair share of utility portfolio costs for resources committed prior to their notice to the utility that they intend to depart utility bundled service; and thereby preserve customer indifference.

24. D.13-10-040 did not make any specific ruling about the Application of PCIA cost recovery as it applies to energy storage "market/generation" bundled services. Neither D.13-10-040 nor this proceeding contain a sufficient record to resolve all issues related to PCIA treatment.

25. To date, while PCIA has been used to recover above-market costs of generation resources, including renewable generation (*e.g.* Rice Solar), procured for customers while they were bundled service customers, PCIA has not been used to recover above-market cost of non-generation resources, like energy storage (other than pumped hydro).

26. Within the context of the initial 2014-2016 biennial solicitation, it is important to note both existing and proposed storage projects that are eligible or could be eligible for PCIA treatment within the grid domains, especially the transmission and distribution domains where market/bundled services may most likely reside.

27. Proposed projects related to generation/market "bundled" services for the 2014-2016 solicitation (that could be eligible for and apply for PCIA treatment) are more difficult to forecast and depend on multiple factors (*e.g.*, storage

configuration of newly eligible technologies that provide market services (all or in part)), many of which are not yet known.

28. Cost recovery of bundled service storage projects is subject to approval by the Commission on a case-by-case basis through an Application or Tier 3 Advice Letter process as appropriate to the applicable proceeding.

29. In the early stages of the energy storage program, we do not know the potential PCIA-related projects beyond those existing projects that have already been deemed eligible for PCIA treatment.

30. Implementing actual PCIA cost recovery may be challenging because a benchmark to quantify above market storage costs has not yet been developed.

31. Predicting the extent to which "departing load" will be an issue in the future may be difficult; for example, DA is maxed out under load caps as prescribed by Senate Bill (SB) 695 (Stats, 2009, Ch. 337). Departing load due to CCAs appears to be in a state of growth; however, further evidence is needed to substantiate this.

32. It is not clear whether load departing from IOU "bundled" service will result in stranded costs attributable to IOU energy storage procurement.

33. Potential implementation of PCIA for generation and non-generation in future energy storage solicitations involves complex policy, equity, cost, implementation, and market impact considerations against the backdrop of new and emerging technologies.

34. Proposals pertaining to potential upward or downward adjustments to the ESP's and CCA's targets, based on actual cost recovery for IOU's procurement to meet those targets, will be considered in future energy storage proceedings.

35. Storage cost recovery and allocation issues overlap with other proceedings (*e.g.*, ERRA, LTPP, RPS, EPIC, SGIP, EV, DR).

36. If PCIA treatment were implemented, the need for actual cost recovery will not occur, if at all, until at least 2017 or even later.

37. Energy storage cost recovery and allocation issues require ongoing and broader scrutiny and detailed consideration regarding pros and cons of various approaches that apply to various levels of the grid domain.

38. D.13-10-040 directs IOUs to use CEP for benchmarking and reporting purposes and gives IOUs latitude to use proprietary methodologies to evaluate the costs and benefits for bid selection.

39. D.13-10-040 gives IOUs flexibility to adapt RFO requirements according to unique requirements subject to changing needs and experiences.

40. Bilateral contracts do not provide the same level of transparency as the RFO process but may be necessary under certain conditions.

41. There is no previous procurement cycle from which IOUs could have deferred procurement, so there are no IOU proposed deferments so far.

42. IOUs need more time to evaluate the need for and request deferment following the receipt of initial offers, development of shortlist, and negotiation of final offers.

43. IOUs can implement energy storage short-term, medium-term, and long-term contracts consistent with Commission rules and procedures through this proceeding and other companion proceedings.

44. As to interconnection requirements, each IOU has a different level of knowledge and expertise that may warrant a different approach in different circumstances.

45. Much more work is needed to reconcile FERC/CAISO approach to storage interconnection versus Rule 21.

46. SB 861 authorizes an extension of SGIP to 2020 with a funding level of $83 million per year.

47. D.14-05-025 authorizes an extension to the PLS program for 2015 and 2016 and allocates an additional $21.3 million for this purpose.

48. Energy Division will conduct an evaluation of the program in 2016 that will consider additional customer-sited storage alternatives.

49. For the initial biennial 2014-2016 procurement period, the Application Process to seek Commission approval of contracts for winning bids provides a far more transparent process that allows more review, discovery, and needed time to review proposals via a robust stakeholder process.

50. SDG&E issued an all source RFO on September 5, 2014 pursuant to the Commission's authorization in the LTPP proceeding.

51. D.13-10-40 directed collection of $500,000 per year for 6 years from ratepayers for Commission's storage procurement evaluation program, starting in 2015, on a shared basis by the IOUs in accordance to their proportional share of the peak load, but the decision did not clarify the specific type of peak or collection mechanism.

52. While bundled peak data relies on confidential data, system peak data relies on public data and is readily accessible.

Conclusions of Law

1. We should change our preliminary Scoping Memo determination regarding hearings to no hearings necessary.

2. It is reasonable to exclude PG&E's proposed 2.5 MW of dairy biogas (without a suitable storage component), since it does not comply with the Commission's interpretation of AB 2514 and Section 2835(a) regarding what constitutes an "energy storage system."

3. With the exclusion of PG&E's proposed 2.5 MW of biogas, it is reasonable to approve energy storage procurement for SDG&E at 16 MW, PG&E at 80.5 MW and SCE at 16.3 as defined by grid domain.

4. Because the energy storage program is new, continuous and vigilant Commission oversight, in cooperation with IOUs and participants, is necessary to ensure reliability and safety standards are maintained and do not erode over the long-term.

5. Because D.13-10-040 approved the Rice Solar Project approved by PG&E, a solar thermal generation project paired with molten salt storage, it is reasonable to include a dairy, agricultural or food waste biogas project with a suitable storage component.

6. The Commission has broad authority to interpret either broad or narrow interpretations of AB 2514 and PUC Code Section 2835(a) and limit or restrict eligible technologies; therefore, it is reasonable for the Commission to clarify eligible technologies for this instant proceeding.

7. It is reasonable to allow V2G, but not V1G, as an eligible technology for this procurement period because the Commission expects to review the market development and the role of V1G in other proceedings.

8. Following the solar thermal generation project paired with molten salt storage example, it is reasonable to include Hybrid-TES as an eligible technology because independent dispatchability is desirable but not necessarily required for eligibility.

9. It is reasonable to conclude that only the qualifying storage component paired, co-located, or integrated with an existing generator is eligible to bid into the storage solicitation.

10. The mere listing of an example "use case" in Table 1 in D.13-10-040 is not dispositive of the broader issue of whether the Commission should determine what use case that should qualify for an upcoming solicitation.

11. Given the complexity of some of the storage use cases and technologies, it is reasonable to take a cautious approach to clarifying the definition and resulting eligibility rules over the long-term.

12. While we may make some preliminary determinations for this proceeding, it is reasonable to defer a broader framework discussion regarding storage definition and eligibility to a future quasi-legislative proceeding.

13. Any exception the Commission makes to D.13-10-040, especially as they relate to programmatic details, shall in no way establish a precedent for any future energy storage related rulemaking or compliance decision.

14. It is reasonable to require the IOUs to include weighting of qualitative bid evaluation factors in CEP and to begin consideration of quantitative factors to account for GHG impacts, impacts of energy storage project duration, and costs of aggregation of multiple energy storage projects, etc. Preliminary review of these and other newly proposed specific quantitative factors doesn't necessarily demonstrate a commitment to their eventual use in CEP.

15. It is reasonable to require the IOUs to modify the CEP to clearly describe evaluation of concurrent benefits of energy storage.

16. It is reasonable to ask PG&E and SCE to further refine RFO requirements by providing a breakdown of MW quantities by type of resource, grid domain, use case, and location in December 1, 2014 solicitation requirements and bid materials.

17. It is reasonable to approve SDG&E, PG&E, and SDG&E proposed cost recovery methodologies for energy storage procurement through various existing ratemaking mechanisms.

18. To the extent that CAM is being used for new storage resources procured to address reliability issues, it should be addressed in the same venue where the Commission authorizes such procurement (*e.g.,* LTPP).

19. To ensure that energy storage systems procured are viable and cost effective, ongoing Commission review of existing and newly proposed energy storage cost recovery mechanisms should occur.

20. It is reasonable to evaluate both intended and unintended market impacts of any new cost recovery mechanism against any proposed cost recovery and allocation policy.

21. Based on insufficient information, it is premature to authorize blanket PCIA treatment for the longer term at this time.

22. For the purpose of the first 2014-2016 solicitation, it is reasonable to authorize the use of the PCIA mechanism to recover potential above-market stranded costs associated with departing load for market/bundled service energy storage projects.

23. It is not reasonable for the Commission to approve actual stranded cost recovery of energy storage bundled service procurement via the PCIA mechanism prior to there being an approved methodology to determine stranded costs and a sufficient showing of the existence of these stranded costs.

24. It is reasonable to direct SDG&E, PG&E, and SCE to file an Application (including a proposed "Joint IOU Protocol" for PCIA methodology to determine above market stranded cost of bundled service storage) requesting Commission

approval of the proposed PCIA methodology along with signed contracts for the winning bids within one year of the December 1, 2014 solicitation.

25. To assure a more productive development process and to improve the filed product, it is reasonable to require the IOUs to consult with the affected ESP and CCA and potentially other interested parties before filing the Joint IOU Protocol.

26. For the purpose of future solicitations, the Commission should defer the issue of PCIA allowance for bundled service storage procured in subsequent solicitations to a workshop or future OIR proceeding.

27. It is reasonable to require the IOUs to include a proposal for cost recovery of "Dual Use" (combined generation/distribution) storage projects, if, and when, the IOU is seeking approval of a contract for a "dual use" energy storage system.

28. For the purpose of the first solicitation, and given outstanding issues with allocation and the PCIA mechanism, it is reasonable to defer resolution of the proposed "Dual Use" cost recovery method for combined generation/distribution energy storage.

29. Without approval of a PCIA methodology for storage, it is reasonable to deny a proposed exemption to the 10-year rule for PCIA stranded cost recovery.

30. It is reasonable to reject the IOUs proposal to limit or ignore potential long-term contracts if the exemption to the proposed 10-year rule is not approved.

31. It is reasonable that IOUs have the *burden of proof* to demonstrate circumstances that warrant PCIA treatment for specific proposed energy storage procured for bundled service.

32. The Commission should consider other venues such as workshops or OIRs to help resolve outstanding issues involving PCIA treatment for subsequent

solicitations or the extension of PCIA treatment to the life of the contract beyond 10 years.

33. The IOUs should continue to confer with Energy Division to establish and make needed adjustments to consistent evaluation protocols for benchmarking and information purposes prior to the filing of an application or initiating a solicitation.

34. It is reasonable that the IOUs confer with the Independent Evaluator if they have an interest in incorporating market research and adjusting their CEP for benchmarking and reporting purposes and proprietary methodologies for evaluating the costs and benefits of bids.

35. It is reasonable to authorize an extension of the deadline to request biennial target deferment from three months from when SDG&E, PG&E, and SCE receive offers to no later than one year from the date of the first solicitation.

36. In the nascent stages of the energy storage program, it is reasonable to not be overly prescriptive with RFO requirements; over time, IOUs should embrace RFO "best practices" and adapt them through a continuous learning process.

37. Only in "special circumstances" should the IOUs consider the use of bilateral contracts to further energy storage program objectives.

38. It is reasonable to design and implement a "balanced" portfolio approach in which IOUs should promote a mix of technologies and contract terms based on an IOU's particular needs and requirements and strategy to diversity risk.

39. Based on continuation of SGIP and PLS programs, additional strategies to promote customer-sited storage do not need to be pursued at this time.

40. To promote transparency and more robust stakeholder process, it is reasonable to require IOUs to submit an Application rather than Tier 3 Advice

Letter seeking approval of contracts for winning bids to be submitted no later than one year from the date of the first solicitation on December 1, 2014.

41. SDG&E's September 5, 2014 RFO supplements the proposed Energy Storage RFO for transmission level and distribution level Local Capacity Requirement.

42. It is reasonable to require the collection of $500,000 per year for 6 years from ratepayers for Commission's storage procurement evaluation program via the IOUs' ERRA, starting in 2015, on a shared basis by the IOUs in accordance to their proportional share of the *system* peak load.

O R D E R

IT IS ORDERED that:

1. The proposed San Diego Gas and Electric (SDG&E), Pacific Gas and Electric Company (PG&E), and Southern California (SCE) February 28, 2014 Energy Storage Procurement Framework and Program Applications for the 2014-2016 biennial procurement period are approved with modifications as follows:

    1) SDG&E is authorized 16 Megawatts (MW)); SCE is authorized 16.3 MW or more; and PG&E is authorized 80.5 MW;
    2) "Eligible" technologies *include* V2G electric vehicle (EV) technologies, eligible storage component of biogas, eligible storage component of solar thermal (CSP-TES), hybrid thermal generation (Hybrid-TES) but *exclude* V1G, and biogas (without eligible storage component);
    3) PCIA (Power Charge Indifference Adjustment) mechanism to recover above-market costs associated with departing load for market/"bundled" energy storage services procured via the 2014 solicitation is authorized; and SDG&E, SCE, and PG&E are

directed to submit for Commission review and approval a "Joint Investor Owned Utility (IOU) Protocol" proposal for a PCIA methodology to determine potential above market stranded cost of bundled service storage (procured in the 2014-2016 solicitation);

4) Request for extension of the PCIA mechanism for market/"bundled" energy storage contracts beyond 10 years is denied;

5) Resolution of "Dual Use" cost recovery proposal for combined generation/distribution energy storage is deferred;

6) SDG&E, PG&E, and SCE, in consultation with other affected parties, shall file an Application (including "Joint IOU Protocol") requesting Commission approval of proposed PCIA methodology to determine above market stranded cost of bundled service storage along with signed contracts for the winning bids within one year of the December 1, 2014 energy storage solicitation;

7) SDG&E, PG&E, and SCE must file their respective "Dual Use" cost recovery methodology for combined generation/distribution storage projects if and when they propose such projects to the Commission for approval;

8) SDG&E, PG&E, and SCE's proposed Consistent Evaluation Protocol (CEP) with two adjustments (including weighting of qualitative factors of CEP and revised CEP definition to clarify evaluation of concurrent benefits) for reporting and benchmarking purposes, and proprietary evaluation protocols for bid selection are adopted, and each utility must implement such adjustments in their upcoming December 1, 2014 solicitation requirements and bid materials;

9) SCE and PG&E must provide a more detailed explanation of the type of storage resources and the associated MW quantities the IOU intends to procure, categorized by grid domains, use cases, and locations in their upcoming December 1, 2014 solicitation requirements and bid materials; and

10) The dates for SDG&E, SCE, and PG&E to request biennial target deferment is extended from three months from when SDG&E,

PG&E, and SCE receive offers to no later than one year from the date of the first solicitation.

2. San Diego Gas & Electric Company, Pacific Gas and Electric Company, and Southern California Edison Company shall together collect $500,000 per year for 6 years from ratepayers for Commission's storage procurement evaluation program via the IOUs' Energy Resource Recovery Account, starting in 2015, on a shared basis by the IOUs in accordance to their proportional share of the *system* peak load.

3. Application 14-02-006 et al. is closed.

These orders are effective today.

Dated _____, at San Francisco, California.

Attachment A

Summary of Existing Storage Deployment (90.43 MW)

2014 Biennial Energy Storage Procurement Program

IOU	Domain	Project	MW	Total
PG&E				9.5
	Distribution	Vaca-Dixon Substation	4	
	Distribution	San Jose Customer R&D site	2	
	Customer	Self- Generation Incentive Program	3.5	
SCE	Distribution	Tehachapi Storage	8	30.12
	Distribution	Irvine Smart Grid-Community Energy Storage	.03	
	Distribution	Irvine Smart Grid-Containerized Energy Storage	2.00	
	Customer	Irvine Smart Grid-Residential ES Unit	0.06	
	Distribution	Large Storage Test	2	
	Distribution	Discovery Museum	0.1	
	Distribution	Catalina Island	1	
	Distribution	V2G-LA AFB	0.65	
	Customer	Self-Generation Incentive Program	10.9	
	Customer	Permanent Load Shifting	5.3	
	Customer	Home Battery Pilot	0.08	
SDG&E	Transmission	Lake Hodges Pumped Hydro	40	50.81
	Distribution	Borrego Springs Microgrid	0.57	

	Distribution	**Reliability Projects (GRC)**	**5.58**	
	Customer	**Self-Generation Incentive Program**	**3.66**	
	Customer	**Permanent Load Shifting**	**1.0**	
Total				**90.43**

(End of Attachment A)