

**BEFORE THE  
PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Pursuant to  
Assembly Bill 2514 to Consider the Adoption  
of Procurement Targets for Viable and Cost-  
Effective Energy Storage Systems

R.10-12-007  
(Filed December 26, 2010)

**PACIFIC GAS AND ELECTRIC COMPANY'S (U 39 E)  
COMMENTS ON ASSIGNED COMMISSIONER'S RULING  
PROPOSING STORAGE PROCUREMENT TARGETS AND MECHANISMS  
AND NOTICING ALL-PARTY MEETING**

CHARLES R. MIDDLEKAUFF  
MARK R. HUFFMAN

Pacific Gas and Electric Company  
77 Beale Street, B30A  
San Francisco, CA 94105  
Telephone: (415) 973-3842  
Facsimile: (415) 973-0516  
E-Mail: MRH2@pge.com

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

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Pursuant to the schedule set forth in the “Assigned Commissioner’s Ruling Proposing Storage Procurement Targets and Mechanisms and Noticing All-Party Meeting” (ACR) dated June 10, 2013, Pacific Gas and Electric Company (PG&E) hereby files its comments on the ACR.

PG&E supports the California Public Utilities Commission’s (Commission) efforts generally to enable market transformation to ensure that energy storage plays its appropriate role in the California electric grid.

PG&E proposes several modifications to the ACR, in order to help ensure that PG&E’s customers’ costs to enable this transition are minimized, so that the full benefits of storage are obtained at least cost, and so that the benefits of the storage projects that are obtained are maximized.

- The energy storage procurement targets should be shifted, so that less is required in 2014 and 2016, and correspondingly more is required in 2018 and 2020.

PG&E anticipates that, consistent with its experience with the Renewables Portfolio Standard (RPS), the cost of storage projects will drop over time as storage technologies mature. Shifting the timing of the targets may allow PG&E

to procure storage at lower cost while still helping to ensure the development of a more robust storage market in 2014 than might be the case without targets.

PG&E recommends that its 2014 target be reduced from 90 MW to 50 MW, that its 2016 target be reduced from 120 to 60 MW, that its 2018 target be increased from 160 MW to 220 MW, and that its 2020 target be increased from 210 MW to 250 MW.

- The ACR's *a priori* limits on cost-effectiveness/cost containment relief from the adopted storage procurement targets should be eliminated. They are inconsistent with Assembly Bill (AB) 2514's requirement that storage projects be cost-effective. If a utility seeks cost effectiveness/cost containment relief from a storage target, the burden will be on the utility to demonstrate that the requested relief is justified. Nothing is gained by locking in, now, a percentage of storage that must be obtained regardless of the cost.
- The ACR should be modified to eliminate the requirement to use a reverse auction mechanism based on that used for the Renewables Auction Mechanism (RAM). A more general solicitation approach should be authorized. RAM is not well suited for evaluating and contracting with the wide variety of storage projects that may bid into the storage solicitations, given that the projects can be expected to be based on various technologies and be in various states of commercial readiness.
- The ACR should be modified to eliminate the requirement that when a utility presents its solicitation results to the Commission, it should include not only its own cost-effectiveness analysis for all bids received, but also include cost-

effectiveness analysis utilizing the two models that are under development as a part of this proceeding. Preparation of the additional analysis based on the models being developed in this proceeding will impose a significant administrative burden on stakeholders, but will provide no additional insight beyond that provided by the utility's own cost-effectiveness analysis.

- The ACR should be modified to maintain the confidentiality of all offer data and pricing associated with the solicitations to meet the storage targets consistent with D.06-06-066. It might inhibit parties' willingness to participate in an energy storage request for offer (RFO), and thereby adversely affect the competitiveness of the RFO results, if parties' bid data is immediately made public.
- The ACR should ensure that Commission-jurisdictional load-serving entities (LSEs) bear their share of the costs of meeting the storage targets.

PG&E also proposes several clarifications to the ACR.

- The ACR should be modified to clarify that PG&E's two pilot battery projects, one 2 MW and one 4 MW, count toward PG&E's 2014 storage target.
- Consistent with the treatment of storage that Southern California Edison (SCE) procures pursuant to the Commission's recent authorization in the Long Term procurement Plan (LTPP) proceeding, the ACR should be modified to clarify that any storage procured pursuant to an authorization in an LTPP proceeding will count toward the procuring utility's storage target.
- More generally, the ACR should be modified to clarify that procurement of energy storage in any authorized procurement venue (e.g. the various RPS programs, Resource Adequacy (RA)) where energy storage would be eligible to

participate should count toward meeting the procuring utility's storage targets. In fact, in order to realize one of the stated goals of the ACR,<sup>1</sup> such procurement should be encouraged compared to the energy-storage-only procurement mechanism proposed in the ACR.

- Existing demand side management (DSM) customer-side storage programs such as Self-Generation Incentive Programs (SGIP) and Permanent Load Shifting (PLS) should count toward any customer storage target. The ACR should be modified to clarify that it is not intended to stop or duplicate the development of energy storage programs as components of DSM programs such as SGIP or Demand Response (DR) programs.
- The ACR should be modified to clarify that the Commission is not intending for third parties to own and operate storage projects that perform a utility distribution reliability function. Any such entity would be a public utility. There has been no evaluation in this proceeding of the implications of comingling ownership and responsibility of operation of the distribution system.

The following sections address these points. The final section of this pleading briefly responds to each of the 10 specific questions set forth in the ACR.

## **I. PG&E'S RECOMMENDED MODIFICATIONS TO THE ACR.**

### **A. PG&E Proposes To Reduce The 2014 And 2016 Solicitation Targets And To Increase The 2018 And 2020 Solicitation Targets By Offsetting Amounts.**

PG&E supports the Commission's efforts to enable market transformation by sending market signals for the investment and deployment of energy storage onto the grid. PG&E

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<sup>1</sup> "The hoped-for result is that when the energy storage market becomes sustainable, procurement targets for storage will no longer be needed and it will compete to provide services alongside other types of resources." (ACR, p. 3.)

proposes that California learn from its experiences with implementing the RPS. One significant cost driver for RPS resulted from accelerating the then-in-effect 20 percent target from 2017. Solar photovoltaic prices dropped from 2005 to 2013 as a result of renewables policies around the world that spurred investment, research and development, and production capabilities. However, due to the accelerated 20 percent deadline, California utilities were forced to contract for high priced renewables before those price drops had been realized.

PG&E urges the Commission to learn from such past experiences and recommends that the Commission shift about half of the targets from 2014 and 2016 to 2018 and 2020. More specifically, PG&E suggests the following PG&E storage targets: 50 MW in 2014; 60 MW in 2016; 220 MW in 2018; and 250 MW in 2020. As with other resources, storage resources should not be procured in the absence of need. Once need is determined, then these targets are the most effective way to grow the market and lower costs for customers to ensure cost-effectiveness.

Shifting the targets has the potential to save customers tens or hundreds of millions of dollars and should not adversely impact the pace of technological advance. A signal of future procurement, while preserving the overall targets proposed in the ACR, should spur investment. With this modification California can help the technologies move along the cost and learning curves and can benefit customers by procuring larger quantities once costs have decreased.

**B. The ACR's *A Priori* Limits On Cost-Effectiveness Relief Should Be Eliminated.**

Within the proposal set forth in the ACR, the Commission allows for modest off-ramps and declining amounts of off-ramps per auction cycle if storage offers are not cost-effective. However, AB 2514 requires that all storage procured be cost-effective.<sup>2</sup>

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<sup>2</sup> See, e.g., Public Utilities Code section 2835(a)(3).

Therefore, PG&E recommends the Commission allow 100 percent off-ramps to comply with AB 2514. As indicated in the ACR, the utility would have the burden to make the showing that there are inadequate cost effective proposals to enable the utility to meet its adopted storage target for a solicitation. Further, not only is it inconsistent with AB 2514, it also does not make sense, from a customer perspective, to be required to bear the cost of a specified MW of storage projects if those projects are not cost-effective.

**C. RAM Is Not The Appropriate Procurement Method; The ACR Should Be Modified To Require Utilities to Procure Energy Storage Systems Through A More General Competitive Solicitation.**

The ACR proposes that utilities procure third-party owned energy storage to meet the procurement targets by holding a reverse auction, similar to the Commission's RAM. The RAM process is currently used for a portion of the California utilities' procurement to meet RPS targets. RAM requires projects to be between 3 to 20 MW, offers a non-negotiable Power Purchase Agreement (PPA), and requires projects to achieve commercial operations within 24 months (with one six-month extension for regulatory delays).

The RAM RFO process would not be a good vehicle to use to enable the utilities to meet the energy storage targets established by the ACR. The RAM process was not introduced for use in the RPS context until 2011, which was nearly eight years following PG&E's first RPS solicitation in 2003. In the early RPS years, both the utilities and market participants successfully persuaded the Commission that a non-modifiable contract would not benefit either the purchasers or sellers of renewable energy given the novelty and variety of many of the concepts under consideration at the time for generating electricity using renewable sources of power. A comparison of any of the utilities' pro forma RPS contracts from 2003 or 2004 to the present will show a vastly different template contract that incorporates nearly a decade of compromise and education by the affected participants.



PG&E urges the Commission to take the same approach here that was taken early on in the RPS and that continues to be used in the annual RPS competitive solicitation process, the approach of allowing a negotiable energy storage purchase agreement to be developed by the utilities with feedback from the market participants during the negotiation process that will naturally occur during an RFO.

The RPS RAM process involves a non-negotiable PPA and a very formulaic project selection process based on project cost. This process is ill-suited to storage at this time because the storage projects are not “commodity” products. They are likely to have different operating characteristics and represent different value propositions. To be effective, the selection process is likely to require consideration of more dimensions than project cost, and the utilities are likely to need more flexibility in the PPA to accommodate the expected variety of storage proposals.

From PG&E’s energy storage request for information (RFI), PG&E learned that there are many different technologies with different attributes at varying stages of commercial readiness. These differences will likely result in significant differences in project costs, benefits and contract terms. As a result, an evaluation and contracting process that focuses only on offer price with MW size limitations, which would be the case if the RAM RFO process were used, could severely limit participation and eligibility. For example, PG&E has experienced an increasing number of RPS projects offering energy storage co-located with the resource. It would be difficult to fit these types of storage projects into a RAM RFO framework.

Simply put, the energy storage procurement process is not suited currently to a RAM-like process. It would not allow the utilities to compare across a wide variety of storage proposals and technologies, each of which might have unique features and distinguishing characteristics,

and use of a standardized contract would not enable the parties' sufficient flexibility to address all proposals and technologies that might be put before them.

Therefore, PG&E recommends that the ACR be modified to eliminate the requirement that the RAM RFO framework be used, and to allow the utilities to use a more general competitive solicitation framework to obtain projects to meet their respective energy storage targets.

**D. The Utilities' Cost-Effectiveness Models Are Sufficient For Evaluation Of Energy Storage Offers Submitted In Any Solicitation; The Utilities Should Not Be Required To Perform Additional Analysis Using The EPRI and DNV KEMA Cost-Effectiveness Models**

The ACR requires each utility to present the results of any energy storage solicitation based on a cost-effectiveness analysis using not only its own model but also the models being developed by the Electric Power Research Institute (EPRI) and DNV KEMA in this proceeding. This proposed requirement is redundant, costly and inefficient. The ACR should be modified to eliminate it.

The ACR already would require each utility to develop a methodology for evaluating the cost-effectiveness of energy storage offers submitted in proposed solicitations. This would include a methodology for a least-cost, best-fit analysis of bids that draws on the use case framework developed in this proceeding, and a proposed methodology for evaluating cost-effectiveness for energy storage bids that may be offered at the transmission, distribution, and customer levels, based on an articulated method of comparing energy storage to other resources. There is nothing to be gained from adding a requirement that the EPRI and DNV KEMA models be utilized, as well. Requiring PG&E or the other utilities to conduct additional evaluations using the EPRI and DNV KEMA models is duplicative, and would impose significant administrative costs on the utilities.

PG&E developed a cost-effectiveness model for its recently completed RFI for energy storage. That model evaluated the received information based on each project's costs compared to market revenues over the term of the project. Thus, PG&E already has the necessary model to perform a technology-neutral evaluation of the attributes that can be provided by both storage and non-storage energy resources.

Further, the ACR and existing procurement protocols require utilities to contract with an independent evaluator to assess the competitiveness and integrity of the auctions. These independent evaluators would also assess the methodologies, assumptions, and results for evaluations on offers received by utilities for procurement. Also, the Procurement Review Group (PRG) of each utility meets on a regular basis to review utility procurement. The PRG includes non-market participants that have access to all of the details to PG&E's procurement protocols, evaluation, and results. The existence of both of these checks on the utilities' evaluation of the storage bids ensures oversight into utility procurement practices, and demonstrates that use of EPRI and DNV KEMA models is redundant and not necessary.

**E. Consistent With D.06-06-066, Bid Information Should Be Kept Confidential For Three Years**

With respect to the treatment of information received from participants in energy storage RFOs, the ACR states that all data related to all bids, both successful and unsuccessful, in each auction should be considered non-confidential, except for cost data. The cost data of successful bids would be confidential for one year following Commission approval of a storage power/services purchase agreement.

PG&E recommends that the ACR be modified in this regard. It is standard practice in PG&E's RFOs to maintain the confidentiality of all offer data and pricing. It might adversely affect parties' willingness to participate in an energy storage RFO, and thereby negatively affect

the competitiveness of the RFO results to customers' detriment, if parties knew that their bid data would immediately be made public.

Therefore, PG&E recommends that the ACR be modified so that it does not deviate from the confidentiality provisions adopted by the Commission in D.06-06-066, which adopted rules governing the treatment of confidential documents, information and data submitted to the Commission in formal proceedings. Among other things, it provides that the terms, conditions and pricing of bids submitted in utility RFOs will be afforded confidential treatment for three years.

## **II. PG&E'S RECOMMENDED CLARIFICATIONS TO THE ACR.**

### **A. The Commission Should Count PG&E's Sodium-Sulfur Battery Projects Toward PG&E's Storage Targets**

The ACR should be clarified to state that both of PG&E's current battery pilot projects should be counted toward procurement targets once they have transitioned into operations.

PG&E completed the installation of the Vaca-Dixon Battery Project, a 2 MW/7-hour storage sodium-sulfur battery, in the third quarter of 2012 and the Yerba Buena Battery Project, a 4 MW/7-hour storage sodium-sulfur battery, in the second quarter of 2013. These projects will allow California to demonstrate providing reliability support for the distribution function, and providing ancillary services to the California Independent System Operator (CAISO) markets.

Under PG&E's contract with the California Energy Commission (CEC) and EPRI, the pilot projects will follow a test plan to fulfill EPRI's requirements, as well as a number of tests to inform the industry and the CAISO regarding market participation. After the pilot phase is complete, these battery projects will be available to commercial operations and be integrated with the grid. Once the projects complete the pilot phase testing, consistent with treatment the

ACR affords to other utility projects, PG&E's sodium-sulfur battery projects should count toward PG&E's energy storage procurement targets.

**B. Any Storage Procured Pursuant To An Authorization In An LTPP Proceeding Should Count Toward The Procuring Utility's Storage Targets**

The ACR indicates that the energy storage portion of any generation resources procured consistent with the Commission's recent authorization within the LTPP proceeding to meet local reliability needs in the Western LA basin will count toward SCE's procurement targets.

Procurement in response to future LTPP proceedings should be treated consistent with this approach. Therefore, the ACR should be modified to clarify that the energy storage portion of any generation resource procured consistent with the Commission's authorization within an LTPP proceeding to meet an identified local or system reliability need will count toward the procuring utility's storage procurement target.

**C. The ACR Should Be Modified To Clarify That Procurement Of Energy Storage In Any Authorized Procurement Venue (E.G. The Various RPS Programs, Resource Adequacy) Where Energy Storage Would Be Eligible To Participate Should Count Toward Meeting The Procuring Utility's Targets**

Cost effective energy storage that is procured in an existing procurement venue should be eligible to count toward meeting the procuring utility's targets. In fact, because there are so many programs and avenues where energy storage can participate, as costs come down and investments are made, PG&E would hope that the storage targets would not need to be fulfilled with "storage-only" solicitations. In that respect the storage-only solicitations should be viewed as a "residual" procurement mechanism to the extent that existing programs are not being used to fulfill the targets. This will better align any procurement of energy storage with meeting the needs of the system as they are identified.

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**D. Existing DSM Customer-Side Storage Programs Should Count Toward Any Customer Storage Target, These Programs Should Continue Storage Target, These Programs Should continue to Be Pursued By The Commission, And customer-Side Storage Goals Should Be Achieved Through Existing DSM Programs To The Extent Possible**

Existing DSM programs such as SGIP and PLS should continue to count toward any customer storage target. In addition, any new storage programs proposed in these proceedings or other venues, such as demand response (DR) or the Distributed Generation/California Solar Initiative (DG/CSI), should be counted toward any customer-side storage target adopted in this proceeding.

There are several open proceedings such as the 2015-2017 DR application, the DG/CSI OIR (where SGIP resides), and the Alternative Fuel Vehicle (AFV) OIR that currently serve as effective proceedings to set, achieve, and measure the cost-effectiveness of customer-side storage programs. Customer-side storage uses and market readiness are widely varied, and therefore the development of programs and evaluation based on specific customer uses will be critical. The commission should take steps to ensure oversight on all of the proceedings that touch customer-side storage to ensure alignment and prevent duplication. The Commission should continue to take advantage of the significant levels of expertise that reside within these existing DSM proceedings.

The ACR should clarify that the customer-side storage targets it is setting are not intended to stop, slow down, or inhibit in any way the development of energy storage programs within DSM proceedings (for example SGIP or DR programs). PG&E is concerned that there would be a significant risk to reaching customer storage targets if SGIP or PLS funding is not continued. PG&E anticipates that for the foreseeable future the primary means of meeting the customer-side storage targets adopted the ACR will be via the existing DSM proceeding.

**E. Utilities Should Own Facilities Providing Distribution Reliability Functions – And Such Facilities Should count Toward Meeting The Storage Targets**

The ACR should be modified to clarify that the Commission is not intending for third parties to own and operate storage projects that perform utility distribution reliability functions. Public utilities code 399.2(a)(2) requires that a utility to be responsible for owning and operating the distribution grid.<sup>3</sup> There has been no evaluation in this proceeding of the implications of comingling ownership and responsibility of operation of the distribution system.

**III. RESPONSES TO THE 10 SPECIFIC QUESTIONS SET FORTH IN THE ACR.**

***a. Please comment on this proposal overall, with emphasis on the proposed procurement targets and design.***

As discussed above, PG&E supports the overall proposal to establish storage procurement targets for each utility. On order to minimize costs while maximizing benefits, PG&E recommends lowering the targets proposed in the ACR for 2014 and 2016, and increasing the targets proposed for 2018 and 2020 by an offsetting amount. PG&E also proposes that the ACR be modified to eliminate the requirement that a RAM-like reverse auction mechanism be used to solicit storage proposals.

In addition, the ACR's *a priori* limit on the cost-effectiveness/cost containment off ramp should be eliminated. The Commission should not require the utilities to present duplicative cost-effectiveness analysis based on the EPRI and DNV KEMA models, and the Commission should apply the principles of D.06-06-066 to determine the confidentiality treatment for bid data obtained in the solicitations conducted by utilities to meet their respective storage targets.

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<sup>3</sup> “In furtherance of this policy, it is the intent of the Legislature that each electrical corporation shall continue to be responsible for operating its own electric distribution grid including, but not limited to, owning, controlling, operating, managing, maintaining, planning, engineering, designing, and constructing its own electric distribution grid, emergency response and restoration, service connections, service turnons and turnoffs, and service inquiries relating to the operation of its electric distribution grid, subject to the commission's authority.” (California Public Utilities Code section 399.2(a)(2).)

***b. Comment on whether any of the projects proposed to count toward the procurement targets be excluded, or any additional projects included, and on what basis.***

PG&E believes that all storage projects should be included to count towards procurement targets, including pumped hydro. The current ACR proposal indicates that all third-party owned energy storage resources as defined by law, except for pumped hydrological resources, would be eligible. But if targets for procuring energy storage are set, AB 2514 requires utilities to procure viable and cost-effective energy storage systems, which would include pumped hydro. Thus, this exclusion is not in compliance with the statutes of AB 2514.

As discussed above, PG&E's sodium-sulfur battery projects should count toward PG&E's storage targets. Further, any storage procured pursuant to an authorization in an LTPP proceeding should count toward the procuring utility's storage targets. Also, the ACR should be modified to clarify that it is not intended to stop the development of energy storage programs as components of the SGIP or as demand response programs, and that any new storage programs authorized in other proceedings, such as the DR and distributed generation/California Solar Initiative proceedings, should be counted towards the storage targets as well.

***c. Comment on how actual operational deployment should be defined for PIER- and EPIC-funded projects potentially eligible to count toward a utility's procurement target.***

No comment.

***d. Comment on how any utility's procurement that exceeds a target in one year should be addressed and considered for future procurement targets.***

Procurement that exceeds a target in one year should count for meeting the utility's target in a subsequent year. Further, a utility should not be foreclosed from proposing to the Commission that it be allowed to exceed its overall adopted target if the utility believes that that course would be in customers' best interests.



- e. Comment on whether and to what extent utilities should be permitted flexibility in procuring among the use-case “buckets” (transmission, distribution, and customer-sited) of energy storage within one auction, and whether a minimum amount in each “bucket” must be targeted.***

The utilities should attempt to obtain the designated amount in each use-case bucket. The cost-effectiveness/cost containment off-ramps in the ACR provide the appropriate vehicle for a utility to inform the Commission if the utility believes it cannot or should not meet the established target for one or more use-case buckets for a particular solicitation.

- f. Comment on the appropriate “off ramps” for relief from procuring up to each target and what metrics should be used to evaluate the appropriateness of the off ramps.***

AB 2514 requires that all procurement of energy storage systems by an LSE or local publicly owned electric utility shall be cost effective. Off-ramps that are limited to less than 100 percent would not be appropriate, and would conflict with AB 2514. In addition to cost-effectiveness, the Commission should allow for off-ramps to participation if solicitations from energy storage are not robust, if the responses do not meet identified needs set out in the solicitation protocols, or there is suspicion of market manipulation.

- g. Comment on how this proposal may be coordinated with Renewable Portfolio Standard procurement plans, as set out in Public Utilities Code section 2837.***

AB 2514 added section 2837 to the California Public Utilities Code, which requires that utilities' RPS procurement plans incorporate any energy storage targets and policies that are adopted by the Commission as a result of its implementation of AB 2514. The statute includes a deadline of October 1, 2013 for adoption of any appropriate energy storage targets, and the Commission has initiated this proceeding to implement AB 2514. PG&E will incorporate the

final decision(s) here into its RPS Plan in the first RPS planning cycle following issuance of each such decision.

Currently, PG&E's least cost, best fit evaluation methodology used to evaluate RPS proposals takes into account additional value offered by RPS-eligible generation facilities that incorporate storage.

- h. Comment on the options presented for ESPs and CCAs to either a) be required to procure an equivalent amount of storage projects commensurate with the load they serve or b) have their customers assessed the costs of the IOU procurement of energy storage projects through a cost allocation mechanism.***

While either of these options might be workable, PG&E recommends that electric service providers (ESPs) and community choice aggregators (CCAs) be required to procure energy storage projects commensurate with their load share just as they must meet their own RPS amounts. This recommendation is based on the history of the CCAs and ESPs opposition to the use of the Cost Allocation Mechanism (CAM) for allocating costs.<sup>4</sup> Based on this opposition, the ESPs and CCAs should be required to procure their share of the storage targets directly.

In addition to procuring their share of the storage targets, ESPs and CCAs should be required to cover their share of the Commission's administrative costs as well.

- i. Comment on how the preliminary results of the cost-effectiveness models should be applied to the question of setting procurement targets.***

PG&E supports with Commissioner Peterman's indication at the recent all party meeting that the Commission will not make factual findings related to storage and has not endorsed any one cost-effectiveness model. PG&E also agrees with the statement by the Energy Division's

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<sup>4</sup> In Track 1 of the 2012 Long Term Procurement Plan proceeding, the Alliance for Retail Energy Markets (AReM), the Direct Access Customer Coalition (DACC) and the Marin Energy Authority (MEA) filed testimony stating their reasons for opposing use of CAM. (AReM/DACC/MEA testimony (June 26, 2012) p. 3.)

Aloke Gupta that the Commission has not endorsed a particular model or supports the accuracy of the information presented in reports summarizing findings from those reports.<sup>5</sup> Based on these communications, it would not be appropriate to use the results of the cost-effectiveness models to set procurement targets or inform policy decisions.

The EPRI and DNV KEMA models provide illustrative examples of the categories of benefits and costs in the valuation of energy storage projects. Specifically, as it relates to Energy Storage Valuation Tool (ESVT), a model developed by Energy and Environmental Economics (E3) and EPRI, many of the input assumptions may not be accurate and do not have a broad consensus of stakeholders participating in this proceeding. Two examples for where PG&E does not agree with the input assumptions for the ESVT are:

1. The prices for regulation up and regulation down could be overestimated. The input assumptions used 2011 prices and escalated by a set percentage to reach 2020. The regulation prices in 2011 were between 40 percent to 60 percent higher than average of 2009, 2010, and 2012 prices. PG&E has yet to see evidence that the increases in regulation requirements and the adoption of “pay for performance” regulation in the CAISO markets will substantially increase the compensation received by resources.
2. The price for a fully installed energy storage project could be highly optimistic to determine the cost/benefit ratio associated with the project. Future commercial solicitations will provide improved estimates for the costs.

Specifically for customer-side storage, the Commission has traditionally used the Standard Practice Manual (SPM) to evaluate demand side programs. The SPM is comprised of

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<sup>5</sup> “Storage R10-12-007: DNV KEMA's Storage Cost-Effectiveness Report Now Available / Request for Ruling.” (June 21, 2013, e-mail to Energy Storage OIR service list.)

four cost-effectiveness tests. Each takes a different perspective: participant; nonparticipant; total resource; and utility. The general consideration for storage cost-effectiveness would be to examine what choices would alternatively be made. As EPRI explained in its discussion of its cost-effectiveness analysis, the appropriate perspective is the total resource cost test, which examines the costs and benefits to all ratepayers of a storage choice when compared to the costs and benefits of the alternative.

Unfortunately, when DNV KEMA examined the customer-side storage “use case,” it chose to examine that storage option from the perspective of the customer who installs storage. This is the participant cost test, which is not the appropriate test to determine whether customer sited energy storage is cost-effective.

The Commission should establish the modified storage procurement targets as recommended by PG&E. The Commission should apply the cost-effectiveness/cost containment off ramps as necessary, if that need is demonstrated by one or more utilities. No further application of the preliminary results of the cost-effectiveness models is required or appropriate at this time.

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- j. Based on the preliminary results, should the utilities set a cost cap for offers to be submitted in the 2014 auction? If yes, what should the cap be and how should the auction be structured to incorporate the cap?*

No cost cap should be set for offers to be submitted in the 2014 solicitations. If a utility determines that it is necessary to apply the cost-effectiveness/cost containment off ramps to the bids it receives, the utility should present that case to the Commission.

Respectfully submitted,

By:           /s/ Mark R. Huffman            
**MARK R. HUFFMAN**

CHARLES R. MIDDLEKAUFF  
MARK R. HUFFMAN  
Pacific Gas and Electric Company  
77 Beale Street, B30A  
San Francisco, CA 94105  
Telephone: (415) 973-3842  
Facsimile: (415) 973-0516  
E-Mail: MRH2@pge.com

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

Dated: July 3, 2013