

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

Order Instituting Rulemaking to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13-10-040, D.14-10-045) and related Action Plan of the California Energy Storage Roadmap.

R.15-03-011  
(Filed March 26, 2015)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON  
ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE'S  
SCOPING MEMO AND RULING SEEKING PARTY COMMENTS**

Donald C. Liddell  
DOUGLASS & LIDDELL  
2928 2nd Avenue  
San Diego, California 92103  
Telephone: (619) 993-9096  
Facsimile: (619) 296-4662  
Email: [liddell@energyattorney.com](mailto:liddell@energyattorney.com)

Counsel for the  
**CALIFORNIA ENERGY STORAGE ALLIANCE**

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In accordance with Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance<sup>1</sup> submits these comments on *Assigned Commissioner and Administrative Law Judge’s Scoping Memo And Ruling Seeking Party Comments*, issued June 4, 2015 (“Scoping Memo”).

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<sup>1</sup> 1 Energy Systems Inc., Abengoa, Advanced Microgrid Solutions, AES Energy Storage, Aquion Energy, ARES North America, Brookfield, Chargepoint, Clean Energy Systems, CODA Energy, Consolidated Edison Development, Inc., Cumulus Energy Storage, Customized Energy Solutions, Demand Energy, Duke Energy, Dynapower Company, LLC, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, ELSYS Inc., Energy Storage Systems, Inc., Enersys, EnerVault Corporation, Enphase ENERGY, EV Grid, Flextronics, GE Energy Storage, Green Charge Networks, Greensmith Energy, Gridtential Energy, Inc., Hitachi Chemical Co., Ice Energy, IMERGY Power Systems, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Invenergy LLC, K&L Gates, LG Chem Power, Inc., LightSail Energy, Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Manatt, Phelps & Phillips, LLP, Mitsubishi Corporation (Americas), Mobile Solar, NEC Energy Solutions, Inc., NextEra Energy Resources, NRG Solar LLC, OutBack Power Technologies, Panasonic, Parker Hannifin Corporation, Powertree Services Inc., Primus Power Corporation, Princeton Power Systems, Recurrent Energy, Renewable Energy Systems Americas Inc., Rosendin Electric, S&C Electric Company, Saft America Inc., Sharp Electronics Corporation, Skylar Capital Management, SolarCity, Sony Corporation of America, Sovereign Energy, STEM, SunEdison, SunPower, Toshiba International Corporation, Trimark Associates, Inc., Tri-Technic, Wellhead Electric. The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. (<http://storagealliance.org>)

## **I. INTRODUCTION.**

CESA supports the two-phased approach to this proceeding adopted in the Scoping Memo, and plans to participate actively in the Workshop scheduled to address procurement, common evaluation protocol (“CEP”) and program measurement and valuation (M&V”) issues.<sup>2</sup> CESA’s comments seek to address the questions posed by the Commission while also identifying additional issues that can be included in Phase 2 of the scope as tracks, potentially with their own schedule.

CESA generally agrees with the effort to articulate a clear division of energy storage-related operational and policy subjects to be addressed into Phase 1 and Phase 2, and also appreciates the Commission’s intent to overlap the work required of stakeholders for the two discrete phases reflected in the schedule set forth in the Scoping Memo for addressing critical issues to be addressed in Phase 2. CESA recommends that the Commission also consider additional possible efficiency gains that may be achieved by further sub-dividing Phase 2 into several narrowly scoped “tracks” that each follow independent schedules.

In these comments, CESA responds to the specific questions posed in the Scoping Memo and also, in responding to the questions posed, highlights key aspects of each subject to be addressed by the Commission and stakeholders. In part, this approach responds to the Scoping Memo’s explicit contemplation of heightened focus in the proceeding on energy-storage related topics that can be further accelerated for early resolution:

“The assigned Commissioner may issue a revised Scoping Ruling refining Track 2 issues and setting a schedule as the proceeding progresses. The assigned Administrative Law Judges’ may make revisions or provide further direction regarding the scope and schedule of this proceeding and the manner in which issues shall be addressed, as may be necessary for full and complete development of the record.” (Scoping Memo, p. 5).

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<sup>2</sup> See, Scoping Memo, page 16,

An example of opportunities for schedule compression is the work on the proceeding coordination matrix requested in the Scoping Memo. Updating the matrix in real time while tracking follow-on implementation efforts currently in progress at the California Independent System Operator (“CAISO”), such as the Energy Storage and Aggregated Distributed Energy Resources Stakeholder Initiative<sup>3</sup>, will be very informative to stakeholders:

“Coordination across proceedings and agencies is vital to the success of the Energy Storage Procurement Framework. The Commission will seek input to develop a list of all discrete or ongoing processes currently before other state agencies that impact the Commission’s role in the deployment of energy storage in California. Energy Division staff will develop, with party input, a matrix showing the dependencies and decisional relationships between the Commission and other agencies in regards to energy storage.” (Scoping Memo, p. 13).

## **II. COMMENTS IN RESPONSE TO TRACK 1 QUESTIONS POSED IN THE SCOPING MEMO.**

### **1. Procurement Best Practices.**

#### **a. What have we learned from the initial energy-storage specific RFO process?**

***CESA’s Response:*** A primary “lesson-learned” is that the procurement process in progress under the existing “Energy Storage Procurement Framework Program” (“Framework”) takes too much time to implement as presently structured. As of this date none of the results of the December 2014 Energy Storage Requests for Offers (“RFOs”) have been publicly announced.

This is not to say that valuable learning experience has not been gained since the Framework was approved by the Commission. Significant lessons can be gleaned from the very promising publicly announced results of Southern California Edison’s (“SCE’s”) 2013 Local

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<sup>3</sup>[http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage\\_AggregatedDistributedEnergyResources.aspx](http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_AggregatedDistributedEnergyResources.aspx)

Capacity Requirement All-Source RFO (“SCE’s LCR RFO”),<sup>4</sup> which includes proposed contracts for approximately 261 MW of energy storage. SCE’s two separate Applications for approval of the results of that solicitation have been steadily progressing toward Commission approval in parallel with the storage-specific RFOs that each have reached the stage of confidential negotiations with short-listed bidders in the same time frame.<sup>5</sup> Other preliminary, but critically important, fundamental policy lessons have been learned by the Commission and stakeholders through the pioneering process of SCE’s LCR RFO:

- Energy storage project offers are competitive with conventional (fossil fuel) offers.
- The energy storage industry is robust, with many equipment and system suppliers and project developers competing aggressively to offer bids that in aggregate far exceeded the amounts requested by SCE<sup>6</sup>, indicating the capacity to rapidly ramp up energy storage deployment in support of California’s clean energy goals.

**b. What are current best practices and current challenges associated with the energy-storage specific RFO process?**

***CESA’s Response:*** As noted in response to Question 1(a) above, the only objective point of reference that speaks directly to this question comes from SCE’s LCR RFO:<sup>7</sup>

- Current Best Practices
  - Engagement of market participants leading to a very robust market response.
  - Allowing room for innovative products.

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<sup>4</sup> [https://www.sce.com/wps/portal/home/procurement/solicitation/lcr!/ut/p/b0/04\\_Sj9CPykssy0xPLMnMz0vMAfGjzOK9PF0cDd1NjDz9nQxdDRyDPS1cXD1cDYL9zfQLsh0VAQ4EJ6E!/](https://www.sce.com/wps/portal/home/procurement/solicitation/lcr!/ut/p/b0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOK9PF0cDd1NjDz9nQxdDRyDPS1cXD1cDYL9zfQLsh0VAQ4EJ6E!/)

<sup>5</sup> *Application of Southern California Edison Company for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Western Los Angeles Basin*, A.14-11-012, filed November 21, 2014; and *Application of Southern California Edison Company for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area*, A.14-11-016, filed November 26, 2014.

<sup>6</sup> PG&E has been reported as having a comparably robust response in energy industry trade publications.

<sup>7</sup> Source: SCE’s Presentation at Workshop sponsored by the Southern California Public Power Authority (“SCPPA”), on June 17, 2015.

- Flexibility to negotiate one-off contracts.
- Specific needs defined, providing much needed clarity to bidders.
- Current Challenges
  - Market rules were not known in many cases.
  - Interconnection and possible charging constraints were not clear (which ultimately lead to unclear costs and timelines).
  - Uncertainty over charging rates.
  - Consolidate counting reporting concerns.
  - Locational effectiveness factors changed.

California’s experience with utility procurement of energy storage to date clearly demonstrates that this proceeding’s focus on lessons learned and best procurement practices is by no means premature. CESA is encouraged by the Commission’s recognition of this widely recognized fact, as evidenced by the early scheduling of the Workshop mentioned above. SCE’s findings also reveal that potential uncertainties with a storage resource are also deemed perhaps more novel than uncertainties with “traditional” resources, potentially to the detriment of energy storage resources competing in an all-source RFO. For instance, every resource has fuel price uncertainty, yet energy storage “charging rate” uncertainty was explicitly noted by SCE as a unique fuel uncertainty. Additionally, market, regulatory and/or rule changes can occur and effect all resource types, *e.g.* environmental regulations, or FERC directives on Ancillary Services designs, so the Commission should be mindful that uncertainties for energy storage are viewed appropriately, *i.e.*, as uncertainties similar to those of other resources. The ability for the Commission to establish counting rules and contract structures that can ensure reliability *and* insulate utilities from risks, if so desired, are likely sufficient to address many procurement “risks” noted as applicable to energy storage solutions. Finally, CESA encourages the utilities to clearly identify the needs and rules prior to future solicitations as clearly as possible to ensure



that bidders are not carrying excessive regulatory and cost risk as further elaborated in CESA's response to question 1c.

**c. What changes, if any, should be made to the energy storage-specific RFO process in advance of the second biennial RFOs?**

***CESA's Response:*** RFO structure is of utmost importance when seeking to procure the most cost-effective energy storage. Before issuing future storage-specific RFOs, CESA believes certain measures should be implemented in order to achieve the most robust and informed process. CESA recommends that the utilities release *pro forma* contracts and related forms, and allow stakeholder feedback as far in advance of the next energy storage RFO as possible. This step would help ensure the *pro forma* contracts have included meaningful input from energy storage experts, and therefore include realistic and financeable commercial terms and conditions.

Other process changes should include the following examples:

- 1) Aggregated customer-sited energy storage, including thermal energy storage, should be explicitly allowed to compete in all-source RFOs.
- 2) In allowing aggregated energy storage to compete, RFOs should not require that the bidder have all proposed sites to be aggregated identified ahead of time.
  - a. RFOs should allow bids to indicate where the specific customer sites to be aggregated will be identified after the contract is awarded.
  - b. RFOs should not require the bidder to start the interconnection process prior to bidding because the customer-sited aggregator will not have sites to interconnect yet.
  - c. RFOs should not prevent, but rather encourage, multi-use applications of both customer-side and utility-side of the meter distribution grid-connected energy storage. For example, if an aggregated group of energy storage facilities wins a

contract for Resource Adequacy (“RA”), the contract should not prevent individual aggregated units from participating in demand charge savings programs for customers.

- 3) Utilities should provide clear guidance regarding timelines, interconnection standards, and exact performance needs the RFO is seeking to address.
- 4) Utilities should be encouraged to utilize low-cost ways to install energy storage without regard to ultimate ownership structure.

**d. How does energy storage RFO specific issues apply to other RFO processes and vice versa?**

*CESA’s Response:* Three primary lessons can be applied between energy storage-specific RFOs and other RFOs. First, when a specific use case is sought, utilities should more fully develop the procurement process/use cases for a competitive solicitation prior to launching an RFO. Clear definition of the types of products utilities would like to procure up front will assist potential bidders with the information they need to adequately assess and present their capability to bid in the solicitation process. While it is normal to have specific bilateral discussions as part of the procurement process, a clear road map should be developed as part of the initial solicitation guidelines.

Second, particular attention should be paid to scenarios where higher amounts of energy storage would be beneficial, yet firm MW-based caps prevent that energy storage from being procured. Incorporating the various value streams of energy storage into computer modeling of bids and matching them to needs in the utilities’ system may point to potential benefit of a higher procurement of energy storage than originally envisioned in the RFO. If energy storage meets or exceeds a certain cost/benefit ratio under these circumstances and satisfies an identified need, it

should be procured regardless of the original amount of capacity sought or expected under previously determined arbitrary MW caps.

Third, the learning gained through SCE's LCR RFO process has value, and shows a need to resolve the issues that led to a limit of in-front-of-the-meter energy storage to 100 MW rather than the larger quantities (500-900) that the computer modeling suggested. External business issues such debt equivalence or uncertain market values need to be addressed at the outset to ensure a level playing field for energy storage in future RFOs.

Additionally, although technologies which were excluded from the Commission's storage mandate, including large (greater than 50 MW) pumped hydro storage ("PHS") may again presumably be ineligible to participate in the 2016 storage-specific RFOs, the RFOs will nonetheless be relevant to future procurement efforts for such technologies. The Commission and the utilities should keep in mind the broader implications of the energy storage RFOs, and take care to develop metrics and evaluation processes that can apply to excluded technologies, especially PHS, down the road, so that wheel need not be reinvented should the utilities accept the Commission's standing invitation to procure such resources through the long-term procurement ("LTPP") process.

## **2. Refinement of the Consistent Evaluation Protocol.**

- a. What refinements are necessary to the CEP to ensure it conforms to the Commission's adopted energy storage guiding principles set forth in Section 2.2, above?**

*CESA's Response:* First, the CEP should be revised to consider the value of an energy storage resource's ability to "ramp." The ramping capability of energy storage leverages the much larger dynamic range offered by most fossil fuel technologies (typically two times the

nameplate capacity). It has already been recognized in the LTPP proceeding<sup>8</sup> that ramping will be an important attribute going forward in addressing California’s clean energy goals. But the current CEP ignores this value because a market product has not yet been fully implemented.<sup>9</sup> However, the Commission could and should establish a method for valuing ramping as a placeholder that the utilities should be required to include in the CEP (and in their proprietary evaluation protocol as well) until there is a market mechanism in place to sufficiently monetize the ramping attribute of energy storage. Precedent exists for this proactive approach, since the Commission proactively assigned a value to greenhouse gas (“GHG”) emissions before there was a market basis, requiring utilities to include it in various cost-effectiveness protocols.

Second, the CEP for a distribution grid reliability-targeted energy storage project, such as for distribution deferral or power quality, is not yet clearly understood or transparent. For such energy storage projects, the Commission should require the utilities to consider the potential value (in both the CEP and in utility proprietary evaluation protocols) of utilizing the energy storage resource in the CAISO’s wholesale markets during the time periods that the energy storage assets are not being used for distribution grid reliability, even though cost allocation and cost recovery rules for such ‘dual use’ cases have yet to be definitively established.

Third, the Commission should revise the CEP (and require the utilities to update their proprietary protocols appropriately) to include some consideration for the “optionality” value that is associated with energy storage resources in the procurement process. The optionality value of a resource can potentially be quantified using real-options or other option theory evaluations. Option values are real, as discussed in workshops held in R.10-12-007, and an effort should be made to refine the concept in this proceeding. To illustrate this concept, energy

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<sup>8</sup> *Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans*, R.13-12-010, filed December 19, 2013.

<sup>9</sup> See, <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleRampingProduct.aspx>

storage resources provide optionality via their shorter lead-time to commercial online dates as compared to more traditional, longer lead-time resources. Shorter lead times allow decision makers to leverage up-to-date information and accordingly adjust procurement/implementation rather than procuring resources for an online date far into the future where grid requirements are less well known.

Fourth, streamlining and defining policies and processes to increase certainty in the procurement process is needed, particularly for bulk applications such as compressed air energy storage (“CAES”), PHS and aggregated behind-the-meter energy storage.

CESA supports stakeholder review and greater transparency in both all-source and energy storage-specific procurement evaluations. As mentioned above (at footnote number 4) there are key proceedings at the CAISO that seek to address stakeholder concerns associated with energy storage and distributed resources participation in the CAISO’s wholesale markets.<sup>10</sup> However, many subjects, such as interconnection and timelines for the above technologies will remain within the jurisdiction of the Commission and will need to be addressed there. While CESA is not recommending the inclusion of PHS technology in the Commission-approved energy storage procurement target at this time, some consideration should be made concerning the unique challenges facing very large-scale bulk storage (such as PHS).

### **3. Flexibility of Energy Storage Targets Between Grid Domains.**

#### **a. Should the Commission modify the Energy Storage Procurement Framework to allow shifting of MWs into and out of the Customer grid domain?**

*CESA’s Response:* CESA believes the Energy Storage Framework established in D.13-10-040 can be improved by clarifying treatment of customer-sited energy storage for purposes of meeting the utility’s targets for the transmission or distribution domains. Customer-sited energy

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<sup>10</sup> See also, <http://www.caiso.com/informed/Pages/StakeholderProcesses/ExpandingMetering-TelemetryOptions.aspx>

storage has demonstrated tremendous success not only via the Self Generation Incentive Program, (SGIP”) but also appears likely in SCE’s LCR procurement. As a result, customer-sited energy storage should explicitly be allowed to participate and compete in all energy storage procurements, although they have not been allowed to uniformly do so to date. For example, if a utility seeks to procure distribution-connected energy storage for deferral of a substation upgrade, customer-sited energy storage should be evaluated head-to-head against utility-owned energy storage at the substation as a potentially lower cost alternative.

**b. If so, what parameters should the Commission adopt to govern the shifting of MWs into and out of the Customer grid domain?**

*CESA’s Response:* If customer-domain systems are selected in RFOs, those winning energy storage projects should count toward the utility’s procurement targets even if the utility has already fulfilled its customer-domain target amount. However, procurement requirements should not be shifted away from customer-sited to transmission and distribution domain requirements because one transmission project could effectively fulfill the entire customer-domain target.

**c. What are the cost allocation implications of shifting into and out of the Customer grid domain?**

*CESA’s Response:* Allowing shifting of MW, as detailed in CESA’s responses to the previous two questions, for energy storage projects that win in fair competition with projects in the other domains should not have any negative cost allocation implications for rate payers. Customer-domain energy storage projects are more likely to take advantage of multiple revenue streams, which means that the costs of providing a distribution level service (such as substation upgrade deferral) could be less than an energy storage project dedicated only to that service. Further discussion of cost-allocation of this potential energy storage application and of dual-use storage applications as early as possible in this proceeding will be beneficial.

#### 4. Eligibility (Phase 1).

- a. **What, if any, new (not previously considered) storage technologies should the Commission consider to be eligible for energy storage solicitations on a going-forward basis?**

*CESA's Response:* As a general principle, the Commission should consider clarifications that could result in more technologies fitting within the statutory definition of energy storage systems. By the same token, resource technologies that already fit within known resource categories (other than energy storage) should not be considered for inclusion in energy storage-specific procurement.

#### 5. Safety Standards.

- a. **What utility safety standards and certifications are applicable to energy storage devices connected to the distribution grid, located at utility substations, or collocated with power generation facilities?**

*CESA's Response:* Energy storage is, of course, required to meet all applicable permitting, fire prevention, and interconnection requirements that are already developed and applicable in practice today. Depending on the technology type, numerous standards and certifications are applicable to energy storage systems. These safety standards can broadly be separated into six categories: components, entire assembly, installation, commissioning and operations and maintenance, incident response and first responder safety, and transport. The Pacific Northwest National Laboratory compiled and published a comprehensive list of these types of standards in 2014.<sup>11</sup>

In order to enter into an interconnection agreement, energy storage devices are required to meet all applicable standards required by the Commission-approved Rule 21 interconnection

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<sup>11</sup> DR Conover, September 2014. *Inventory of Safety-related Codes and Standards for Energy Storage Systems*. Pacific Northwest National Laboratory.  
[http://energy.gov/sites/prod/files/2014/10/f18/Inventory%20of%20Safety-Related%20Codes%20and%20Standards%20for%20Energy%20Storage%20Systems%20September%202014\\_1.pdf](http://energy.gov/sites/prod/files/2014/10/f18/Inventory%20of%20Safety-Related%20Codes%20and%20Standards%20for%20Energy%20Storage%20Systems%20September%202014_1.pdf)

process, including UL certification standards.<sup>12</sup> Eligible energy storage devices must continue to meet the technical and safety standards required for interconnection under Rule 21 to ensure safety during parallel operation with utility distribution systems. This includes evaluation under the same technical interconnection standards currently applied to generating facilities not paired with energy storage. The Commission, in its Rule 21 rulemaking proceeding, R.11-09-011, is engaging in a comprehensive process to balance the potential for advanced capabilities of energy storage with the continuing need to ensure safety for utility personnel and customers, and reliability of the distribution network.

**b. How should safety standards be effectively monitored and communicated with the Commission and the public?**

*CESA's Response:* A number of ongoing safety initiatives, including EPRI's Energy Storage Integration Council ("ESIC") and a new DOE-led Energy Storage Safety Working Group, are addressing energy storage codes, standards and regulations ("CSR"). Participating in these working groups, and staying abreast of the CSR products and documents that they produce, will assist the Commission in monitoring the development of safety standards.

Communicating safety standards to the public is more challenging. The DOE Global Energy Storage Database<sup>13</sup> is developing a CSR platform that will act as an up-to-date information hub for CSR. This resource will be publicly available, searchable, and free, but it is still under development and a timeline for initial publishing is yet to be determined.

Alternatively or in addition to utilizing the DOE Global Energy Storage Database for public distribution of CSR information, the Commission could explore producing an energy

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<sup>12</sup> In addition to all applicable current requirements, UL is developing a standard (UL 9540) to provide an overarching standard that covers the entire energy storage device.<sup>12</sup> This standard is largely a compilation of other codes and standards, including UL 1973, UL 1741, IEEE 1547, CSA FC1, National Fire protection Association ("NFPA") 70, NFPA 2, and ASME B31 among others. The NFPA is also considering creating an energy storage standard that covers each aspect of the system.

<sup>13</sup> See, [www.energystorageexchange.org](http://www.energystorageexchange.org)



storage permitting and safety guidebook and checklist, similar to the Solar Permitting Guidebook<sup>14</sup> developed by the Governor’s Office of Planning and Research, that would seek to educate installers, AHJs and first responders on relevant CSR. EPRI’s ESIC will soon release a Guide to Safety in Utility Integration of Energy Storage Systems that would be an ideal starting document to build such a guidebook from.

**6. Energy Storage Target Tracking for CCAs and ESPs.**

- a. For Self-Generation Incentive Program funded projects deployed within a CCA or ESP’s service territory, which entity, the IOU or the CCA/ESP, should receive credit for the project toward their respective energy storage procurement target?**

*CESA’s Response:* CESA supports having Self Generation Incentive Program (“SGIP”) or individual end-user energy storage projects count towards the energy storage obligation of the Load Serving Entity (“LSE”) that serves that customer. Counting a Direct Access (“DA”) or Community Choice Aggregation (“CCA”) customer’s energy storage project as a credit to the local utility would be a disincentive to developing the energy storage project operating under DA or CCA contracts. The Commission’s policies should incentivize all customers to develop on-site energy storage projects and all LSEs, not just utilities, to aid in these efforts.

- b. Which entity, the CCA/ESP or the IOU (or a combination thereof) should receive credit for energy storage projects that are voluntarily deployed within the service territory of a CCA/ESP?**

*CESA’s Response:* See response to question 6(a), above.

**7. Cost Recovery.**

- a. In D.14-10-046, the Commission approved the PCIA to recover above-market costs associated with departing load for energy storage projects for the 2014 solicitation. Should the Commission approve extension of the PCIA to future solicitations? On what basis?**

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<sup>14</sup> See, *Solar Permitting Guidebook* <http://opr.ca.gov/docs/California>

***CESA's Response:*** CESA's view is that Power Charge Indifference Adjustment ("PCIA") issues should be addressed in the context of the Joint IOU Protocol for the very recently published Power Charge Indifference Adjustment Protocol published jointly by the investor owned utilities.<sup>15</sup>

**b. Can the Commission sufficiently address any proposed changes to the PCIA cost recovery mechanism in this proceeding prior to approval of the Joint IOU Protocol?**

***CESA's Response:*** No. See CESA's response to Question 7(a), above.

**8. Coordination Across Proceedings/Agencies.**

**a. Although not a Track 1 issue, time permitting, the Commission would appreciate any initial input from parties on the following:**

- i. Development of a list of all proceedings (including rulemakings and applications) currently before the Commission (or considered on an ongoing basis) that address or impact the development of energy storage in California.
- ii. Development of a list of all discrete or ongoing processes currently before other state agencies that impact the Commission's role in the deployment of energy storage in California.

***CESA Response:*** As discussed above, CESA agrees with the spirit of the recommendation in the Scoping Memo that there may be a need for "bridging" action between tracks.<sup>16</sup> The topic of mapping "dependencies and decisional relationships between the Commission and other agencies in regards to energy storage" fits well in this role because it can better inform topics and scope regarding Phase 2 issues. Since this proceeding is an "umbrella" for energy storage-related issues, an exercise like the one described here can help ensure that issues "without a home" or orphan issues from other Commission dockets are addressed in a

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<sup>15</sup> *Joint IOU Protocol for the Power Charge Indifference Adjustment ("PCIA") in Compliance with Decision ("D. "). 14-10-045, Ordering Paragraph 1.3, July 1, 2015.*

<sup>16</sup> "The preliminary scope of Track 2 of this proceeding is set forth below. The Assigned Commissioner may issue an updated scoping memo prior to commencement of Track 2 to modify the scope or the assigned ALJ will issue a ruling providing clarification on the scope and setting a Track 2 schedule." (Scoping Memo, p. 10).

timely manner. To that end, CESA believes that the Commission should not only map issues but *also* provide guidance, when appropriate, to participants in other open Commission dockets, especially those issues that are solely within the Commission’s jurisdiction.<sup>17</sup> Finally, a list of issues that are outstanding and not being dealt with elsewhere should be considered in Phase 2 or in a proceeding shortly following Phase 2.

**Ongoing Processes that Involve Multiple Agencies** - CESA firmly believes that energy storage can play a foundational role in California’s energy resource mix. The unique attributes of the resource presents many opportunities; however, to fully unlock those opportunities, new ways of thinking must be injected into processes that have remained static over many years. CESA is confident that new, more holistic approaches will not only enhance the value proposition energy storage offers to ratepayers, but will also yield a more optimized and fair evaluation of all energy resources. Realizing this vision starts with conducting system-wide modeling, determining high priority energy storage applications, and identifying gaps in technology/market transformation. How these three topics relate to state proceedings other than those at the Commission is discussed below:

**System-wide modeling** - The current sequential or serial approach to system planning, starting with California Energy Commission (“CEC”) computer modeling of load, then the Commission using that load to model new generation to support the load, followed by the CAISO and utility modeling transmission and distribution requirements to support the forecasted generation and load will not result in an optimal outcome, because it fundamentally ignores the potential of energy storage to shape and influence each step. Energy storage can serve as load, and also be used as a transmission or distribution asset. The current sequential process takes

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<sup>17</sup> See, *Relevant CPUC, Energy Commission and ISO Proceedings and Initiatives: California Energy Storage Roadmap Companion Document*, December 2014

many years, and very clearly will not result in a GHG emission reduction or cost optimized solutions. The only way to properly evaluate the system efficiency benefits of grid assets is to conduct full-system portfolio modeling over the time frame of the GHG emission reduction and goals established by the renewables portfolio standard (“RPS”).

Considering and optimizing for specific outcomes using alternative portfolios of resources, including energy storage, is necessary to achieving California’s reliability, GHG emission reduction and RPS goals in the most cost-effective way. The results of such modeling efforts should guide the Commission, the CEC, and the CAISO’s integrated planning efforts, and the results should inform the specific targets in this proceeding as well as other related proceedings at the Commission.

**Determining high priority energy storage applications** - The modular, and flexible nature of energy storage coupled with widespread innovation is resulting in creative new ways of realizing energy storage benefits under various business models. For example, as may soon be demonstrated in SCE’s LCR RFO, local capacity from energy storage was delivered from behind the meter. This required an innovative new contracting mechanism, not only between SCE and the contracted bidders, but also between the bidders and their host customers. An energy storage project of this kind has the potential to affect, or be affected by other Commission programs on the customer side of the meter. Another key example is how energy storage might be affected by the outcomes of the Commission’s Distributed Resources Plans proceeding.<sup>18</sup> This proceeding should identify and prioritize key applications for energy storage – and for those priority applications, it should also explore the complex interaction of other Commission policies, including the fundamental impact of retail rate design. Another clear example is SCE’s LCR

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<sup>18</sup> *Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769, R.14-08-013*, filed August 14, 2014.

RFO – where it became obvious that the Commission and the CAISO’s RA rules require refinement and study with respect to the RA benefits that can be provided by energy storage.

The Commission should carefully watch and keep track of these proceedings (as well as the interconnection standards developed as part of Rule 21 notably considering the lack of clarity regarding the interconnection of distributed energy currently taking place at the CAISO). CESA recognizes that some aspects of this subject have been identified in the Storage Roadmap<sup>19</sup> and the Energy Storage Distributed Energy Resources stakeholder process, but also urges the Commission to go a step further – specifically, to have this proceeding provide the governance and leadership necessary to harmonize and clarify the role of energy storage in various related proceedings for high priority energy storage applications, and to coordinate with other jurisdictions such as the CAISO and the CEC. For example, while CESA fully supports the CAISO’s initiative as part of the Expanded Metering & Telemetry Options Phase 2, Distributed Energy Resources Provider or “DERP” proposal, the final Draft Final Proposal requires a DERP to operate its resource(s) pursuant to relevant provisions of the CAISO tariff and CAISO operating procedures, which would require a Wholesale Distribution Access Tariff (“WDAT”) interconnection process in all cases in order to participate. As proposed, CESA believes this will significantly hamper the success of behind-the-meter participation in the CAISO’s wholesale markets. Currently, behind-the meter resources generally enter into a Commission jurisdictional interconnection agreement under Rule 21 for various Commission-jurisdictional programs instead of an interconnection agreement governed by WDAT tariff regime. It is somewhat unclear as to the details how behind-the-meter resources should best interconnect in order to participate as part of a DERP’s aggregation under the current rules. In order to achieve success

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<sup>19</sup> *Advancing and Maximizing the Value of Energy Storage Technology: A California Roadmap*, December 2014.

with this proposal, the CPUC should collaborate with the CAISO to clarify the interconnection standards and develop clear guidelines that will ultimately govern the aggregated resources of DERPs.

Generally, clarity concerning the interaction of various related policies and programs, and greater specificity for program metrics and goals will certainly help accelerate the success of both behind-the-meter and in-front-of-the-meter market transformation.

**Identifying gaps in technology/market transformation** - More should be done to ensure market transformation objectives are consistently being pursued in the various California policy venues, consistent with the goals of R.10-12-007. While many energy storage systems are mature and commercially proven, they still face significant interconnection, regulatory, and policy barriers. As stated above, tariff treatment for energy storage charging, unclear interconnection requirements for DER aggregation, and uncertain interconnection treatment for non-export energy storage systems are all still gaps that need to be addressed.

In addition, new energy storage technologies are rapidly developing. This is a good thing for California's economy and will be important in achieving the aggressive longer term clean energy goals being set by the state. It is an imperative that the Commission encourage similar innovation and the market introduction of new energy storage technologies. There is no doubt that it is in the state's and ratepayers' interest to ensure that these new technologies have a reasonable, accelerated pathway to be catalyzed into deployment.

CESA is concerned that there are still significant barriers faced by emerging energy storage technologies and recommends examining creative options for encouraging utilities to aid in the commercialization process by testing and verifying emerging energy storage technologies. The economic benefits could yield dividends to the state and ensure California is fully taking advantage of its leadership position in energy storage. In support of advancing market

transformation, the Commission should provide guidance in this proceeding to other proceedings that impact the deployment of energy storage, as discussed below.

- Emerging energy storage technologies in the larger market of utility applications should receive support for research and development for pilot projects. While there is some EPIC funding available, it is not sufficient both in scope and size to catalyze the broad range of promising energy storage technologies now coming to fruition. In practice, utilities appear to be setting a high bar, or avoiding forward looking approaches – perhaps because existing policies are perceived to discourage risk taking, preventing emerging technologies from being considered, even for pilots or R&D projects. For example, utility pilot requirements that necessitate a potential technology contender be already proven at scale at a single site creates a Catch-22 situation and seems contrary to the intent of exploring new solutions. This proceeding is the only effective venue to provide guidance on how best to utilize EPIC funds for energy storage pilots.
- This proceeding should provide proactive policy guidance to other proceedings to explore new policies/programs that can help emerging technologies gain validation and much needed development capital.
- This proceeding should also explore the creation of metrics to guide both new and current programs. Clear goals and quantifiable objectives can help gauge the success of behind-the-meter and in-front-of-meter market transformation efforts.
- In addition to program metrics, improved coordination is needed in the various proceedings that encourage efficient market transformation of energy storage technology. Examples include:

- SGIP – is a key proceeding that is the primary means for meeting the customer-sited target.
- Demand Response – a key proceeding that will enable new programs to encourage effective use of dispatchable storage as supply side DR.
- CESA recommends a comprehensive review of other current market transformation efforts to ensure funds are being spent appropriately.

### III. CONCLUSION.

CESA looks forward to working with the Commission and the parties to ensure this proceeding accomplishes the goals established by the California legislature and the Commission.

Respectfully submitted,



Donald C. Liddell  
DOUGLASS & LIDDELL  
Email: [liddell@energyattorney.com](mailto:liddell@energyattorney.com)

Counsel for the  
**CALIFORNIA ENERGY STORAGE ALLIANCE**

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