

## Stakeholder Comments Template

Submitted by	Company	Date Submitted
Office of Ratepayer Advocates	California Public Utilities Commission	October 27, 2014

Please use this template to provide your comments on the presentation and discussion from the California Energy Storage Roadmap workshop held on October 13, 2014.

Submit comments to [EnergyStorage@caiso.com](mailto:EnergyStorage@caiso.com)

[Comments are due October 27, 2014 by 5:00pm](#)

Presentation materials and background information discussed during the October 13, 2014 workshop may be found at:

<http://www.caiso.com/informed/Pages/CleanGrid/EnergyStorageRoadmap.aspx>

**Please provide your comments regarding each of the actions listed below that were discussed during the workshop. In particular, please direct your comments towards refinements needed to each action and any additional actions that may not have been identified or discussed. Also, please provide feedback on the priority of the proposed actions.**

### **Actions and venues to address barriers**

#### ***a. Actions to advance revenue opportunities***

- i. Defining and communicating grid needs will clarify gaps in existing markets and help identify new products**

Action <sup>1</sup>	Venue(s)
Describe and clarify operational needs at the transmission level, and the operating characteristics required of storage and other resources, connected at either the distribution or transmission level, in order to meet these needs.	CAISO
Describe and clarify operational needs at the distribution level, and the operating characteristics required of storage and other resources connected at the distribution level in order to meet these needs.	CPUC
Facilitate clarification by IOUs of operational constraints that would limit the ability to accommodate storage on the distribution system and behind the customer meter.	CPUC

**Comments:**

Current and estimated locational (i.e. constrained and non-constrained) and temporal (i.e. time of day, seasonal) grid needs should be identified within investor owned utility (IOU) Distributed Resources Plan (DRP) proposals. Elements of these proposals are currently being developed and vetted in the CPUC’s DRP Order Instituting Rulemaking (R) 14-08-013. The CPUC and CAISO should also consider calls for a “Master Planning” approach, in which all factors affecting, involved in and affected by energy storage are addressed over both short- and long-terms.

Defining the operational characteristics of energy storage devices will permit the categorization of energy storage projects as either operating or capital leases. This distinction is essential for determining energy project impact on IOU debt positions and the subsequent impact on ratepayers

**ii. Clarify existing wholesale market product opportunities for storage**

Action	Venue(s)
Clarify existing energy and AS market products and requirements for energy storage to participate in the ISO market	CAISO

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<sup>1</sup> WDAT and Rule 21 are addressed under section 2.C.i

Clarify roles of storage in an evolving RA framework	CPUC
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**Comments:**

ORA supports the above action items to clarify the role of energy storage in the AS market and RA framework. The following are ORA's initial views based on the workshop discussions:

- The main focus should be placed on simplification of these areas.
- Potential need for market products<sup>2</sup> should be projected several years into the future, and the estimated value of each product to meet each identified need must be communicated to the energy storage providers. This information would help the storage providers to plan their activities ahead of time.
- Potential for energy storage to provide these products simultaneously should be explored. Otherwise, any tradeoff between market products, such as RA and load management, should be identified.
- Energy storage resources should be treated similarly to other generation resources, with consideration given to energy storage advantages (i.e. fast response time and ramp up and down capabilities), as well as disadvantages (i.e. limited energy discharge capabilities).
- The RA proceeding should be where RA value of energy storage is ultimately determined. However, the Roadmap<sup>3</sup> information should be used in the RA proceeding.
- Similarly, the CPUC DRP proceeding (R.14-08-013) should also be informed by, and coordinated with the Roadmap.

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<sup>2</sup> Examples of market products include, ancillary services, Resource Adequacy (RA), and load management.

<sup>3</sup> The Energy Storage Roadmap will prioritize the issues and suggest what agency would be the best forum to develop solutions. This effort is not intended to solve every issue, but identify and queue them up for further discussion in the agency stakeholder meetings.

**iii. Refine existing and add new wholesale market products to meet grid needs**

Action	Venue(s)
Identify gaps and consider changes or additions to existing wholesale market products that would better meet grid needs and improve revenue opportunities for resources such as storage that can provide those needs.	CAISO
Further examine and clarify the role of storage in deferring or eliminating the need for transmission or distribution upgrades	CAISO, CPUC
Consider revising the ISO’s procedure for testing and certifying resources for ancillary services	CAISO
Streamline rules for aggregations of distributed storage units to participate in CAISO markets, including participation via use of the NGR model.	CAISO
Evaluate the need and potential for the development of distribution level grid services and products that provide new revenue opportunities for distribution connected storage resources.	CPUC

**Comments:**

Given the diverse operating characteristics of energy storage devices (i.e. fast-response vs. slow-response or short vs. long duration), energy storage products bid into the Day Ahead (DA) and Day Of (DO) wholesale markets may not be accurately valued. In order to estimate the value of an energy storage product, it is imperative that the CAISO and CPUC utilize lessons learned from the operation of California IOU energy storage resources procured in the 2014-16 Biennial Procurement Period and demonstration projects in other balancing authorities (e.g. PJIM). This effort will allow an empirical assessment of the energy, capacity, and grid regulation value that energy storage projects can provide to meet grid needs. The CPUC is currently engaged in evaluating the need for distribution level grid services in the DRP Rulemaking, R.14-08-013, as mandated by AB 327. Based upon the types services that are needed (i.e. energy, capacity, and grid regulation), the CPUC will also assess how these services will be valued through tariffs and other pricing mechanisms. After a regulatory framework has

been established, energy storage developers rather than the CPUC will assess if revenue opportunities exist for a particular energy storage resource.

**iv. Identify gaps in rate treatment and identify existing rules that could address issues**

Action	Venue(s)
Clarify rate treatment for the charging mode of grid-connected or distribution-connected storage participating in the wholesale market under current ISO market settlement rules.	CAISO, CPUC
Clarify existing tariffs for Behind the Meter storage devices that are paired with NEM generators	CPUC
Consider new proceeding for stand-alone Behind the Meter storage devices to address rates for charging and exporting power	CPUC

**Comments:**

ORA supports the above action items to clarify rate treatment and tariffs. However, a separate proceeding is not required on the specific stand-alone Behind the Meter (BTM) storage devices to address rates for charging and exporting power.

The following are ORA’s initial views on Roadmap action items based on the workshop discussions.

- The main focus of the Roadmap should be placed on simplification of rates and tariffs related to these functions. Complicated, inconsistent, and uneven rules and tariffs will likely tend to act as barriers for energy storage developers as well as other parties involved in the process.
- ORA agrees with other stakeholders that providing services such as load shifting should receive adequate compensation. Some of the compensation is already provided through different proceedings and programs at the CPUC and should not be double compensated, but other services may need to be identified and addressed.

- The Roadmap should include consideration of pros and cons of defining energy storage that is dispatched to the grid at the wholesale level, and defining it as retail if not dispatched to the grid. Differentiating and separately measuring wholesale and retail storage can be resolved by possibly separate or subtractive metering. Feasibility and cost impacts should be considered for different options before implementation.
- On the load side, the energy used to charge the storage device could be divided into (1) “wholesale” calculated based on actual dispatched energy to the grid, plus a round-trip efficiency multiplier, and (2) “retail” using subtractive metering based on total energy used to charge the storage device minus the wholesale amount calculated in (1) above.

**v. Define multiple-use applications of storage to facilitate development of models and rules**

Action	Venue(s)
Define and develop models and rules for multiple-use scenarios of storage where feasible.	CPUC, CAISO

**Comments:**

The development of models and rules for multi-use scenarios of storage should be dictated by the location and CAISO’s dispatchability of the energy storage facility.

**vi. Determine hybrid storage configurations to enable prioritization and development of requirements**

Action	Venue(s)
Identify and develop clear models of use cases for hybrid energy storage sites, and prioritize them for purposes of facilitating their participation	CAISO, CPUC, IOUs
For the use cases of greatest interest or greatest likelihood of near-term development, clarify the requirements and rules for participation.	CAISO, CPUC, IOUs

**Comments:**

No comments provided. ORA reserves the right to address this issue at a later time.

**vii. Assess existing methodologies for evaluating storage and identify or develop a preferred common methodology**

Action	Venue(s)
Prepare report or summary of efforts underway to develop publicly available models for assessment of energy storage	CEC
Consider refinements to the evaluation methodologies used by IOUs to support CPUC decisions on storage procurement	CPUC, CEC

**Comments:**

It is premature to consider refinements to the evaluation methodologies used by the IOUs, at this time. In its energy storage proceedings, the CPUC granted the IOUs flexibility to employ their own methodologies to evaluate future energy storage bids. Specifically, in Decision (D.) 13-10-040, the CPUC concluded that each “utility should be allowed to propose its own methodology to evaluate the costs and benefits of bids and evaluate the full range of benefits and costs identified for energy storage in the use-case.”<sup>4</sup> In D.14-10-045, the CPUC reaffirmed its decision by “acknowledging that D.13-10-040 gives IOUs wide latitude to use proprietary protocols for actual projects section [.]”<sup>5</sup> Since the IOUs must prepare final Request for Offer (RFO) solicitations on or by December 1, 2014, the CPUC and stakeholders have not had the opportunity to determine whether the IOUs’ respective proprietary methodologies are reasonable. Those

<sup>4</sup> D.13-10-040, Conclusion of Law (CoL) 37, p. 75; in Rulemaking (R.) 10-12-007.

<sup>5</sup> D.14-10-045, p. 69; in Application (A.) 14-02-006 et al.

opportunities will come when the IOUs file their applications seeking approval of contracts for initial storage projects.<sup>6</sup>

With regards to the consistent evaluation protocols (CEP), the CPUC directed the IOUs to “use CEP for benchmarking and reporting purposes [.]”<sup>7</sup> The CPUC also recently found that the IOUs generally complied with the CPUC’s directions in D.13-11-040,<sup>8</sup> and approved the CEPS with two minor adjustments.<sup>9</sup> Similar to the evaluation methodologies, any refinements to the CEP should be contemplated after the IOUs have actually employed them. Refinements to the IOUs’ methodologies and protocols can be raised in the IOUs’ applications or other future CPUC proceeding.

**a. Actions targeted at cost reduction**

**i. Review metering requirements for opportunities to reduce costs**

Action	Venue(s)
Establish the value of and develop a regulatory and policy framework under which the ISO and UDC can share metering and/or meter data.	CPUC, CAISO
Establish rules for resource owners to submit settlement quality meter data	CAISO
Establish rules for UDC subtractive metering for BTM wholesale resources	CPUC
Establish rules for certifying sub-metering and third-party meter data collection and VEE	CPUC
Complete the Expanding Metering and Telemetry Options Phase I and II initiatives – “expand scenarios for SC metered entities”	CAISO

**Comments:**

Metering and data communications requirements should be determined by demonstrated operational needs. The benefits associated with improvements in metering accuracy (e.g., installation of submeters) should outweigh metering costs. Treatment of third parties for metering or meter data communications should parallel existing

<sup>6</sup> D.14-10-045, p. 103.

<sup>7</sup> D.14-10-045, Finding of Fact 38, p. 111.

<sup>8</sup> D.14-10-045, CoLs 14-15, p. 114.

<sup>9</sup> D.14-10-045, p.

treatment in Rule 21<sup>10</sup> and/or other existing rules. Rule variations for metering similar activities but for different purposes or in different service territories should be harmonized to the maximum extent practical, with a view towards eventually eliminating any such variations. Further, sharing of metering data, regardless of activity or location, must comply with the CPUC’s privacy rules<sup>11</sup> and other relevant State laws.<sup>12</sup>

**ii. Review telemetry requirements for opportunities to reduce costs**

Action	Venue(s)
Evaluate CAISO telemetry requirements for smaller resources	CAISO
Evaluate KYZ, increasing 1-minute requirement, 10 MW limit	CAISO
Evaluate value of common telemetry framework for California	CAISO
Complete the Expanding Metering and Telemetry Options Phase I and II initiatives – definition and support for “data concentrators”	CAISO

**Comments:**

Based upon reading the Oct. 13<sup>th</sup> workshop slide deck, this issue seems to be under the jurisdiction of CAISO.

**iii. Assess codes and standards to identify gaps and best practices**

Action	Venue(s)
Review existing fire protection codes for various energy storage technology and applications and identify best practices	CEC
Determine applicability and scope of UL and other certifications for stationary storage systems	CEC

**Comments:**

<sup>10</sup> Rule 21 is tariff that governs interconnection, operating, and metering requirements for generation facilities to be connected to a utility’s distribution system. Visit: <http://www.cpuc.ca.gov/PUC/energy/rule21.htm>.

<sup>11</sup> See, D.11-07-056, Attachment D, in R.08-12-009. Also see, D. 14-05-016; in R.08-12-009..

<sup>12</sup> See, Public Utilities Code Section 8380 and other relevant California laws.

The CPUC and CEC should work closely with the IOUs and stakeholders to assess codes and standards to identify gaps and best practices for energy storage. In its decision approving the IOUs’ energy storage framework and program applications for the 2014-2016 biennial procurement period, the CPUC stated that “with the emergence of new storage technologies, continuous and vigilant [] oversight, in cooperation with IOUs and other market participants” is necessary to ensure that standards evolve and do not erode over the long-term.<sup>13</sup> Therefore, the CPUC adopted a “multi-prong” approach recommended by the IOUs and ORA to ensure safe and reliable delivery of energy storage to California customers.<sup>14</sup> The CPUC concluded that 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.”<sup>15</sup>

The CPUC and CEC should closely coordinate to ensure that codes and standards pertaining to energy storage are current and consistent with best practices. It is incumbent upon these agencies to promote consistency and ensure that efforts at one agency do not undermine or conflict with the efforts of the other.

**iv. Review interconnection process for small distribution-connected resources to reduce costs**

Action	Venue(s)
Address certification process for integrated device metering	CPUC
Address fees for interconnection of non-exporting resources	CPUC

**Comments:**

Interconnection fees for non-exporting resources should generally be less than those of exporting resources provided that they do not trigger any grid upgrades.

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<sup>13</sup> D.14-10-045, p. 25.

<sup>14</sup> D.14-10-045, p. 25.

<sup>15</sup> D.14-10-045, p. 25.

Applicants should provide the IOUs all necessary information such as the size, type of storage technology, and the proposed location for the interconnection to enable the IOUs evaluate the potential impact of storage facilities on the distribution system, if any, and to estimate the interconnection cost for the facilities. The owners of the non-export facilities should install and maintain, at their own expense, reverse power protection. There should be no cost shifting from the IOUs and/or the applicants to ratepayers for this equipment. The issue of cost certainty is being considered in the Rule 21 proceeding (R.11-09-011) at the CPUC and interconnection costs in the Roadmap should be coordinated with that proceeding.

**b. Actions focused on process and timing improvement**

**i. Clarify interconnection processes to make it predictable and transparent**

Action	Venue(s)
Clarify existing interconnection processes, including developing process flow charts and check lists	CAISO, CPUC
Coordinate between Rule 21 and WDAT to streamline queue management processes	CPUC
Evaluate the potential for a streamlined or ‘faster track’ interconnection process for storage resources that meet certain use-case criteria	CAISO, CPUC, and IOUs

**Comments:**

The CPUC’s Energy Division has noted that “simple projects with little or no impacts should be afforded a streamlined application and review, while more complex projects require a somewhat more complex approach.”<sup>16</sup> A Fast Track interconnection process should be developed for those projects that have little impact on the distribution/transmission system. In particular, non-exporting energy storage facilities

<sup>16</sup> Order Instituting Rulemaking on the Commission’s Own Motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources, R.11-09-011, *Administrative Law Jude’s Ruling Setting Schedule for Comments on Staff Reports and Scheduling Prehearing Conference*, Attachment A, Cost Certainty for the Interconnection Process Staff Report, p. 12. July 29, 2014.

should be allowed a Fast Track interconnection process as long as it guarantees safety and ensures delivery of electricity into the grid is not permitted. Therefore, Fast Track screens should be added to the interconnection process to allow non-export storage facilities a frictionless process to interconnect to the grid.

***c. Identify interdependencies and determine priorities to minimize delays***

During the workshop the Roadmap team highlighted the importance of identifying interdependencies among the actions. Correctly prioritizing actions and selecting the ones that currently either prevent other actions from being productive or directly prevent storage contracts from being signed will enable the CPUC, the CAISO and the Energy Commission to maximize progress in removing roadblocks to storage. Please provide comments on important interdependencies among actions that should be factored into the roadmap.

**Comments:**

No comments provided. ORA reserves the right to address this issue at a later time.

**Applicability to Storage Configuration and Use Cases**

The Roadmap team presented an early draft of a “matrix” that seeks to convey what actions will support each identified use case or storage configuration to come online and contribute to grid stability. Please provide comments and suggestions on how such a matrix can be made the most useful to stakeholders. If applicable, please provide examples.

**Comments:**

No comments provided. ORA reserves the right to address this issue at a later time.