

## Stakeholder Comments Template

Submitted by	Company	Date Submitted
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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:**

*The Joint LDES Companies agree with the actions outlined above to better define and communicate grid needs to the marketplace. In addition, as discussed in our response to the Energy Storage Roadmap survey, CAISO and the CPUC should also identify and communicate grid needs with respect to the duration of energy storage resources needed for various market functions, at the transmission, distribution and behind the meter levels. The agencies should examine the modeling conducted by Energy + Environmental Economics’ (E3) Report: Valuing Energy Storage as a Flexible Resource: Final Phase 1 Report for Consideration in CPUC A. 14-02-006, included as Background Information for the Energy Storage Roadmap and available at: [https://www.ethree.com/documents/E3\\_Storage\\_Valuation\\_Final\\_Phase\\_1.pdf](https://www.ethree.com/documents/E3_Storage_Valuation_Final_Phase_1.pdf) (“E3 Report”). Section 5 of this report discusses the benefits of longer duration (minimum 4 hour) energy storage resources in addressing flexible ramping needs, integrating renewable resources and reducing the need for curtailment. The CPUC required the IOUs to begin consideration of quantitative factors to account for the impacts of energy storage duration and the costs of aggregation of multiple energy storage projects in D.14-10-045. Better articulation of grid needs with respect to energy storage duration will better inform all stakeholders and help to build a robust and sound energy storage market in California.*

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

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

**Comments:**

*The Joint LDES Companies reserve comment on this issue at this time.*

**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:**

*The Joint LDES Companies agree with the above-identified actions to help refine and add new wholesale market products to meet grid needs. In streamlining rules for the aggregation of distributed storage units, the CAISO should also identify grid management costs associated with the aggregation of multiple shorter-duration resources (i.e. interconnection, integration, dispatch management) and establish rules to ensure that such costs are not socialized onto ratepayers. See Section 5.3 of the E3 Report for a further discussion of this issue.*

**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:**

*The Joint LDES Companies reserve comment on this issue at this time.*

**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 Joint LDES Companies reserve comment on this issue at this time.*

**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:**

*The Joint LDES Companies reserve comment on this issue at this 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 for to support CPUC decisions on storage procurement	CPUC, CEC

**Comments:**

*The Joint LDES Companies appreciate the steps outlined above, and would add that California’s energy agencies should go further and develop a common tool that is transparent to all stakeholders and that can be used by IOUs, the CPUC, the Procurement Review Groups, the Independent Evaluator and stakeholders as a “yardstick” to consistently evaluate the cost effectiveness of energy storage projects.*

*The lack of a common modeling tool has been raised by many stakeholders in this roadmap process and in the CPUC’s A.14-02-006 et al. proceeding as a barrier to storage market success. By creating a common, vetted, transparent tool, regulators, storage developers, technology companies, investors, ratepayer advocates, environmental organizations and others will be better able to fulfill the AB 2514 energy storage procurement goals set by D.13-10-040 and address California’s need to mitigate greenhouse gas emissions, integrate renewables and ensure grid reliability. We understand that the IOUs have expressed a need for customized evaluation methodologies to address needs specific to their service territories. But a common methodology should be established as well so that IOU bid evaluations and selections can be measured and better evaluated and so that developers, technology companies and investors can work to develop storage projects and products that effectively address grid needs.*

*The CPUC has begun this process via the Consistent Evaluation Protocol (CEP) ordered in D.13-10-040. In D.14-10-045, the CPUC acknowledged that a review of the CEP and any currently-unquantified costs and benefits of energy storage projects should occur in the next CPUC energy storage rulemaking and/or in the 2016 review of the AB 2514 program. But, during the interim period, the Commission directed the IOUs to “begin consideration of quantitative factors to account for GHG impacts, impacts of energy storage project duration, and costs of aggregation of multiple energy storage projects, etc.” D.14-10-045, Conclusion of Law # 14. That decision provided that “Key issues to resolve include: 1) to what extent are GHG impacts already captured in forward energy prices (or not); 2) appropriate valuation of both*

CAISO/RA duration requirements and distribution reliability duration requirements unique to each IOU; and 3) to what extent is the cost of aggregation, depending on how it is defined, an incremental cost to the IOUs (as opposed to being a cost to the aggregator, in which case it would be captured in the bid price offered by the aggregator to the IOUs.) Any proposed changes to the CEP should be coordinated through the coordinated through Energy Division and in consultation with the Independent Evaluator. Such an early review could help lay a better foundation upon which to more extensively evaluate a suite of proposed quantitative factors in the 2016 Evaluation and/or to be determined ES OIR proceeding.” Id. at 68. The decision also directed the IOUs to work with the CPUC Energy Division to give mathematical weight to factors currently considered qualitative and to revise the CEP to clarify the evaluation of concurrent benefits. Id., Conclusion of Law # 15 and pp. 68-69.

We applaud the CPUC for recognizing the importance of beginning to account for these factors for the 2014 RFO, and encourage the IOUs and energy agencies to work with stakeholders to make the CEP a consistent, transparent methodology to evaluate the cost effectiveness of energy storage projects.

**b. 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:**

The Joint LDES Companies reserve comment on this issue at this time.

**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:**

*The Joint LDES Companies reserve comment on this issue at this time.*

**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:**

*The Joint LDES Companies reserve comment on this issue at this time.*

**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:**

*The Joint LDES Companies reserve comment on this issue at this time.*

**c. 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 Joint LDES Companies reserve comment on this issue at this time.*

**d. 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:**

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**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:**

*The Joint LDES Companies reserve comment on this issue at this time.*