

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

[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 ¹	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:

- (1) **Operational needs at Transmission level – Clarify under this action item that the operational needs are “quantified (in MWhr)” and any “locational” aspect of the need should be identified. CAISO Annual TPP process seems to be a good forum under which such needs can be identified. Also, this information from TPP should be used in the Storage Solicitation Process. IOUs (and POUs) should use this information for evaluating and ranking the various storage offers.**
- (2) **Operational needs at Distribution level – Clarify under this action item that the operational needs are “quantified (in MWhr)” and “locations” where the need exists be clearly identified. IOUs & CPUC should identify a process/forum under which this information from POUs can be shared with the stakeholders. Also, this information should be used in the Storage Solicitation Process. IOUs (and POUs) should use this information for evaluating and ranking the various storage offers.**

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:

¹ WDAT and Rule 21 are addressed under section 2.C.i

- (1) CAISO should list the existing and under development market products (such as Flexible Ramping Product) that Storage resources can participate in. Also, it would benefit the stakeholders if CAISO can help quantify revenue potential from these new and existing products.
- (2) RA framework – This action item should be clarified. The current disconnect between “RA availability” requirements (4 hour) vs Effective Flexible Capacity (1.5 hour) should be further discussed at CPUC or else this discrepancy will continue to pose development uncertainty.

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:

CAISO should clearly identify and list all wholesale market products under this Action item, including the ones that are currently under development and then have a stakeholder discussion on what possible gaps exist. One such gap for instance appears to exist in the CAISO Pay for Performance for Regulation market product where there appears to be not enough financial incentive for a Storage resource in providing fast and accurate regulation.

Role of storage in deferring transmission/distribution need – This action should be fully clarified. CAISO/CPUC should look into proposing an evaluation criteria on how this goal can be achieved.

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:

Charging energy rate treatment should be clarified. This should be a high priority item. LS Power believes CESA’s proposal on rate treatment is a good start for discussion purposes.

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:

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

Action	Venue(s)
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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:

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:

Evaluation methodologies used by IOUs – The methodologies used by IOUs should be should be “objective”. A developer should be able to look at the methodology and perform its due diligence related to how its project would rank based on the methodology. This item should be considered high priority.

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:

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:

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
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Comments:

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:

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	CAISO,

resources that meet certain use-case criteria	CPUC, and IOUs
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Comments:

- (1) **Clarify existing interconnection processes, including developing process flow charts and check lists – LS Power believes that all exiting interconnection processes should continue to apply for Energy Storage type resources. More work on these processes is likely needed in areas to clarify the interconnection study rules of “charging” portion of the storage project.**
- (2) **Fast Track rules, screens and evaluation criteria for storage resources, to the extent these need modification, should be modified at the earliest. This should be treated high priority. Also, it should be identified; under which proceeding/forum will these rules will be modified?**

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:

Any modifications needed for Interconnection study process for Distribution connected projects (WDAT) should be quickly identified and the modifications should be discussed with stakeholders and promptly finalized. Interconnection is typically a long lead time item for overall development of a project, therefore addressing this area should be done at high priority.

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:

LS Power appreciates the opportunity to submit comments.