

## Stakeholder Comments Template

Submitted by	Company	Date Submitted
Please fill in the name, e-mail address and contact number of a specific person who can respond to any questions about these comments.	MegaWatt Storage Farms and TeMix Inc.	10/27/2014

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:**

*At the transmission level the need is for multi-hour (4 to 7 hour) storage to smooth the “Duck Curve”/*

*At the distribution level, storage should be operated to maximize its revenues in delivering energy to end users given distribution grid constraints and wholesale prices.*

**Distribution**

**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:**

*Energy and AS products are already too complicated. It is almost impossible to understand the future prices of multiple AS products.*

*If storage, and other resources are offered a price to generate or consume energy on short notice, storage operators can respond.*

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

Longer duration storage will be needed to absorb over generation of renewable and apply the storage energy at other times. The current RA framework is focused on peak demand rather than the shifting capability needed to smooth the “Duck Curve”. FRAC MOO is focused on the incenting fossil plants to allow dispatch by the ISO rather than self-dispatch. Both RA and FRACMOO miss the real need. It is likely that the only way to solve this problem is much higher wholesale and retail price caps and lower price floors with wholesale prices passed through to retail customers.

**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:**

*Simplify the ISO products: don’t create new ones.*

*Attempting to aggregate different storage resources, each with a different state of charge, energy/capacity ratio, age, efficiency, and location is a very difficult task to do accurately.*

**r**

**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	CAISO,

storage participating in the wholesale market under current ISO market settlement rules.	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:**

*All storage should be charged and discharged at ISO 5 minute energy prices. HVAC and heating energy required for operation should be at these prices.*

*Behind the meter storage energy should also be priced at wholesale. Behind the meter storage should also pay or be paid for two way flows and counter flows on the distribution grid.*

**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:**

All use, storage, and generation of energy behind a meter should be under a single tariff that properly prices energy at wholesale prices and

*Distinguishing multiple use scenarios is a waste of effort.*

**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
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**Comments:**

*Distinguishing hybrid use cases is a waste of effort.*

**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:**

*Yes, a common storage evaluation methodology is needed.*

***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
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**Comments:**

*The ISO should focus only on the meters at the transmission interface to the distribution grid. The distribution operators should report the necessary information to the ISO*

*Sub-metering information to the distribution operator or ISO is unnecessary, given a standard retail tariff for all.*

*The ISO, CPUC, and IOUs need to rethink their approach – just extending the centralized information and contrail requirements of the ISO to the distribution grid will end badly for all.*

**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

**Comments:**

No 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:**

No 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 resources that meet certain use-case criteria	CAISO, CPUC, and IOUs

**Comments:**

No comments

**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:**

*All of this is way to complicated, which makes the point that a better overall approach is needed. Happy to help, but laying out another approach is beyond the scope of these comments.*

## **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:**

*Same comment as above.*