

CPUC Staff Workshop on Energy Storage Phase 2 R.10-12-007

Introduction

In response to ALJ Yip-Kikugawa's Ruling of August 3, 2012, Energy Division Staff are moving ahead with Phase 2 of the Storage Rulemaking R.10-12-007. The Energy Division has scheduled a workshop on August 20 to foster discussion of Phase 2 issues and to consider a proposed schedule for Phase 2 activities which could be presented to the ALJ during the Pre-Hearing Conference on September 4, 2012.

During the workshop, Staff will propose a workplan of analysis that follows the framework set out in the Staff Final Proposal, which identified several priority scenarios focusing on particular end uses of energy storage systems (ESS). As was noted in D.12-08-016 closing Phase 1 of the Storage proceeding:

"We believe that focusing on the end uses, and applying them to specific scenarios will reduce the risk that this potential resource will be undervalued. More importantly, this approach will allow us to identify those relevant situations where storage could be utilized and whether it would be appropriate to set targets to encourage the cost-effective deployment of energy storage systems. Identification of relevant situations will facilitate the inclusion of energy storage as needs are identified in other proceedings, such as RA, RPS and LTPP."

Separate consideration of each scenario allows us to disaggregate the complexity of issues related to ESS and facilitates a more focused analysis in the context of each scenario.

The analysis initiated at the Aug. 20 workshop will be further developed in subsequent workshops and parties comments – and possibly evidentiary hearings – during Phase 2, which is expected to last approximately nine months.

Priority Scenarios

In the Staff Final Proposal adopted by D12-08-016, four priority scenarios were identified that align with existing state and Commission policy objectives:

1. Renewable Support/Dispatchability
2. Ancillary Services
3. Distributed Storage
4. Demand-Side Management

Use Cases

Following up on the Staff Final Proposal, Staff have been working, in consultation with various stakeholders, to flesh out the scenarios and connect them to real-world applications that would serve as the basis for detailed "Use Cases".

Use Cases are documents that illustrate the context for specific applications of storage technologies. This allows us to easily picture where and how storage can be used in the utility system, thus promoting clearer decision-making. The purpose of describing Use Cases is not to fully specify the exact nature of each and every energy storage project and their relevant technologies (i.e., specifications of a particular device, how a particular project is designed, or how it is to be developed, financed and built). Instead, Use Cases define goals and purpose: the problems we are trying to solve. Establishing these goals lays

the foundation for the scope of analysis that will follow.

In Phase 2, Staff propose to collaborate with stakeholders to conduct focused analysis in the context of a particular Use Case that includes:

1. Discussion of novel characteristics and associated value streams relevant to a specific Use Case,
2. Consideration of potential cost-effectiveness methodology that properly addresses those characteristics and multiple value streams,
3. Identification of specific barriers to deployment of storage in that Use Case, and
4. Evaluation of specific policy options to address the identified barriers, including but not limited to, development of procurement targets, if appropriate.

To the extent possible, the Use Cases should be informed by actual operational experience gained from currently active energy storage projects and those in development.

The following illustrates an expansion of the four scenarios into more detailed use cases that would be subjected further comment and analysis by Parties (note: some scenarios names below have been changed from the Staff's Final Proposal).

<u>Scenario/Use Case</u>	<u>Primary End Use</u>
• Generator-sited Storage <ul style="list-style-type: none">• Co-located with VER• Co-located with Conventional Gen• Co-located with Wholesale DG	Renewables integration
• Bulk Generation <ul style="list-style-type: none">• Storage as "Peaker"• Ancillary Services	Ancillary Services/Capacity/Energy Ancillary Services
• Distributed Storage <ul style="list-style-type: none">• Distributed Peaker• Distribution Storage• Community Energy Storage	Energy cycling to meet peak Defer upgrades Local service reliability
• Demand-Side Management <ul style="list-style-type: none">• Permanent load shift• On-site renewables with storage	End-use bill management

Questions to Address in the Use Case Analysis

For each use case selected for analysis, Staff proposes to address detailed questions, such as:

Is energy storage commercially ready to meet this use?

1. Is energy storage operationally viable for this use?
2. What are the potential benefits of energy storage? Can these benefits be monetized via existing market structures? If not, how should they be valued?
3. Is energy storage cost-effective for this use?
4. What barriers are preventing or slowing deployment of energy storage in this use?
5. What are the policy options to address the identified barriers encountered by energy storage?
6. Should procurement target or other policies to encourage energy storage deployment be

considered for this use?

Workshop Documents: Use Case Matrix, Templates and Timeline

Attached to this memo are several documents, as follows (all subject to further discussion and refinement in the workshops and via comments):

- Appendix A, a “Matrix” which outlines the key parameters of these proposed Scenarios/Use Cases.
- Appendix B is a draft generic template proposed by Staff to describe the details of a particular Use Case.
- Appendices C1 and C2 illustrate the use of the above template to describe two of the Use Cases as examples (and are still incomplete).
- Appendix D is a list of “real world projects” which could be used as reference to develop the detailed descriptions of proposed Use Cases.
- Appendix E provides a proposed timeline for Phase 2 activities.
- Also, a document that explains Use cases and their value in this proceeding.

Scope of Phase 2

Procurement Targets

Phase 2 activities will lead to a determination by the Commission for policies to advance energy storage procurement by regulated utilities and load-serving entities, as per AB 2514.

Cost/Benefit Analysis

To inform the discussions regarding cost-effectiveness of ESS for specific use cases, the workshops will also explore different approaches to cost/benefit analysis for storage systems, examine potential benefits associated with storage and how to assign economic value to them, and leverage various modeling efforts by the industry to quantify benefits and costs over the life of a storage project.

This effort will provide the tools of analysis that might apply to determining cost-effectiveness when utilities or other parties propose storage projects for specific applications.

Barriers

In Phase 2, Staff expects to conduct additional workshops to seek input from the Parties on identification of other relevant benefits and potential revenue streams, applicable barriers to implementation (also addressed in the Staff Final Proposal), and how to resolve these barriers.

Other Potential Phase 2 Issues

- Coordination with other proceedings, in particular, how this proceeding should coordinate with the Long Term Procurement Policy (LTPP) and the Resource Adequacy proceedings.
- Developing a Resource Adequacy value for energy storage.
- Market needs analysis – whether it should be separately conducted in Phase 2, or adopted from findings in LTPP and RA.
- Impacts of ownership models (utility, 3rd-party, customer).
- Defining the longer-term Roadmap for addressing storage in future proceedings, as called for in AB 2514.

Other Questions for Workshop Participants:

Are there alternate Use Cases **not** listed in the Appendix A Matrix that deserve specific analysis?

Will evidentiary hearings be necessary to address any Phase 2 issues?

Some parties have suggested that there are a number of operational characteristics of storage that traditionally have not been monetized (i.e., flexible capacity, ramp speed, time of availability, locational benefits, reduced siting risk, ability to construct in phases, T&D line loss reductions). How can these characteristics be valued and incorporated into a cost/benefit methodology?

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