BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement Targets for Viable and Cost-Effective Energy Storage Systems.	R. 10-12-007 (Filed December 16, 2010)

COMMENTS OF CALPINE CORPORATION ON ENERGY STORAGE FRAMEWORK STAFF PROPOSAL

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January 31, 2012

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Pursuant to Administrative Law Judge's Ruling Entering Initial Staff Proposal Into Record and Seeking Comments issued on December 14, 2011 ("Ruling"), Calpine Corporation ("Calpine") offers the following comments on the *Energy Storage Framework Staff Proposal* ("Staff Proposal").[1] The Staff Proposal requests comments on four general areas: (1) the regulatory framework for storage; (2) the cost-effectiveness of storage; (3) a roadmap for the evolution of storage policy, and (4) whether and how the Commission should develop procurement targets for storage. Accordingly, Calpine's comments are organized into these four general areas.

There is no justification to favor storage in procurement or to create unique cost-effectiveness frameworks for storage. To the extent that storage provides many of the same benefits as other resources, such as generation, it should compete against these other resources in wholesale markets and all-source solicitations.

I. REGULATORY FRAMEWORK

The Storage Barriers Regulatory Matrix included as Figure 1 to the Staff Proposal adequately summarizes the regulatory framework for storage.

[1] A copy of the Staff Proposal is available at: http://docs.cpuc.ca.gov/efile/RULINGS/155568.pdf.

II. COST EFFECTIVENESS

In instances in which storage serves the same wholesale market functions as generation,[2] the cost effectiveness of storage should be determined using the same methods used to determine the cost-effectiveness of generation (i.e., by participation in wholesale markets and/or the intermediate- and long-term all-source solicitations of the investor-owned utilities ("IOUs") and other load-serving entities ("LSEs")). Through participation in wholesale markets and all-source LSE solicitations, the following value streams will be considered:

1. Energy value—the value of the energy supplied from a storage resource net of the value of the energy used to charge a storage resource.
2. Resource Adequacy ("RA") value—the value of the RA capacity provided by a storage resource including any premia associated with the provision of capacity in specific locations or with specific operating characteristics, such as a fast ramp rate.
3. Ancillary Services ("AS") value—the value of the AS provided by a storage resource (recognizing that it is generally not possible to provide multiple, different AS simultaneously or to provide energy and certain specific AS simultaneously).

If storage participates directly in wholesale markets, a storage resource developer, just like a generation resource developer, will determine the cost-effectiveness of a storage resource by comparing the prospective value streams (net of any relevant operating costs) to the costs of developing the resource or keeping an existing resource in service. In the case of an LSE all-source solicitation, an LSE would similarly determine cost-effectiveness by comparing the

[2] Many of these functions are enumerated in the CAISO/Market and Generation categories of Figure 2 of the Staff Proposal.

prospective value streams of storage resource to the payments associated with a contract for the resource.[3]

Calpine opposes the development of storage-specific cost-effectiveness methodologies. Such methodologies likely would rely on administrative rather than market values and distort determinations of both the absolute cost-effectiveness of storage, as well as its cost-effectiveness relative to other resources.

Furthermore, the marketplace is evolving to value more appropriately the cost effectiveness of storage. For example, recently proposed changes to include a mileage payment in the compensation of regulation; the introduction of new products, such as the California Independent System Operator's proposed Flexible Ramping Product; and the development of rules through which storage may be able to provide generic resource capacity and potentially provide resource adequacy that is differentiated with respect to operating characteristics should lead to AS and RA prices that better account for the RA attributes of storage.[4]

Finally, to the extent that there are avoided emissions associated with the operation of storage, energy and AS prices will account ultimately for these avoided emissions. The value of avoided emissions will be reflected in the greenhouse gas allowance prices resulting from the California cap and trade program. These greenhouse gas allowance prices will in turn be reflected in energy and AS prices. Thus, given the clear trajectory of the evolving marketplace, the Commission need not develop a unique cost-effectiveness methodology for storage.

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[3] For example, see the description of the market valuation methodology used in PG&E's most recent long-term solicitation (A.09-09-021) in Chapter 3 of https://www.pge.com/regulation/LongTermRFO-Solicitation2008-II/Testimony/PGE/2009/LongTermRFO-Solicitation2008-II_Test_PGE_20090930_177107.pdf.

[4] For example, see the CAISO's recent Flexible Capacity Procurement Proposal. R.11-10-023, CAISO Proposal on Phase 1 Issues (Jan. 13, 2012).

III. ROADMAP

As described above, the Commission should ensure that the cost effectiveness of storage can be determined through its participation in wholesale markets and LSE solicitations.

IV. PROCUREMENT OBJECTIVES

Calpine opposes the development of specific numeric procurement targets for storage. As described above, storage should participate in wholesale markets and LSE all-source solicitations. Requiring storage to compete in wholesale markets and all-source solicitations will better ensure that the "procurement of energy storage systems by a load-serving entity or local publicly owned electric utility [is] cost effective," as required by Assembly Bill 2514,[5] and the appropriate and efficient amount of storage will be developed.

Respectfully submitted

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[5] A copy of Assembly Bill 2514 is available at: http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_2501-2550/ab_2514_bill_20100929_chaptered.pdf.