

**BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Pursuant)	
to Assembly Bill 2514 to Consider the)	R.10-12-007
Adoption of Procurement Targets for)	
Viable and Cost-Effective Energy Storage)	
Systems)	
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**COMMENTS OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
ON ORDER INSTITUTING RULEMAKING**

The California Independent System Operator Corporation (“ISO”) appreciates the Commission’s invitation to actively participate in the above-referenced rulemaking to consider the potential adoption of procurement targets for energy storage systems as mandated by Assembly Bill 2514 and, equally important, to utilize this proceeding to explore and direct the ongoing transformation of our electric system as we collectively strive to fulfill California’s many environmental initiatives. In this regard, the ISO commends the Commission for commencing this proceeding well in advance of the statutory mandate. A creative, yet deliberate and cautious, approach by the Commission will be necessary to navigate through the technical and regulatory complexities presented by new energy storage technologies and the additional time will be critical to ensuring AB 2514’s goal that an energy storage procurement requirement, if any, be cost effective and consistent with reliable electric service.

The Order Instituting Rulemaking (“OIR”) did not detail the scope of the proceeding. Rather, it requested that parties comment on the facts and issues believed to be relevant to the proceeding’s scope as guided by the OIR and white paper entitled

“Electric Energy Storage: An Assessment of Potential Barriers and Opportunities,” issued by the Commission’s Policy and Planning Division. (OIR at 5.) The ISO generally concurs that the stated purposes of the proceeding as enumerated in the OIR conform to the directives of AB 2514 and that the staff white paper provides an excellent list of issues to guide the Commission’s inquiry. Consistent with the OIR and white paper, the ISO recommends that the Commission structure this proceeding in three conceptual and largely sequential phases:

- Phase 1: Develop a clear and detailed understanding of the various storage technologies and their current and potential performance capabilities, and how those capabilities can potentially function in various scenarios of the future electric system. This phase would utilize existing studies and other relevant information where available, and would also identify further questions that need to be investigated to assess the viability, costs, and benefits of pursuing identified storage technologies to fulfill those functions as compared to other technologies or alternatives. This phase would also serve as a screening of potential storage functions to identify the most promising uses of these technologies and develop priorities for any further analyses required by phase 2.
- Phase 2: Perform analyses necessary to form an objective and defensible evidentiary record to support the Commission’s obligation to satisfy the mandates of AB 2514, i.e., cost effectiveness, viability, etc.
- Phase 3: Address regulatory and jurisdictional issues. This phase answers the questions for those storage functions determined worthy of pursuing, if any, regarding how the development and commercial operation of storage facilities can best be facilitated, e.g., through specific approaches for their

procurement and compensation, and who should pay for the costs of storage.

The ISO anticipates that properly and comprehensively executing each phase this proceeding will require the entire period permitted by AB 2514 or up to October 1, 2013. The precise schedule for these phases and their potential overlap and interdependence can be more fully developed following the Preliminary Ruling and Prehearing Conference. The ISO expands on these phases below.

I. Phase 1 – There is a Need to Carefully Frame and Understand the Potential Roles and Functions of Energy Storage in Various Possible Future California Electric Industry Scenarios

Although the staff white paper and other publications, such as that by the Electric Advisory Committee,¹ provide a valuable overview of storage technologies and their potential uses in the electric delivery system, greater clarity is needed prior to embarking on any steps toward actual procurement. Indeed, the staff white paper first recommends the Commission convene a symposium to explore “the best options for [energy storage] deployment” and “narrow the focus of a potential rulemaking by helping to define the ultimate goal(s) of [energy storage] deployment.” (White Paper at 8.) The ISO’s recommended Phase 1 mirrors, but goes beyond, the stated objectives of the symposium.

Storage technologies and their characteristics and potential functions are very diverse. These functions, as noted by the white paper, frequently cross traditional boundaries of generation, transmission, distribution and demand management compounding the complexity of any analysis of benefits. As such, it must be clearly understood what the capabilities of various storage technologies are today, how those capabilities are most likely to evolve over the next five to ten years, how those

¹ See, *Bottling Electricity: Storage as a Strategic Tool for Managing Variability and Capacity Concerns in the Modern Grid*, The Electric Advisory Committee (Dec. 2008) at www.oenergy.gov/eac.htm.

technologies align with the functions storage facilities could provide, and how the needs for those functions may vary in relation to various future scenarios involving different renewable generation portfolios, energy efficiency, and demand management. Detailed knowledge of storage performance capabilities and the services these facilities can provide is essential for identifying the most effective and efficient uses of storage, which can then become the focus of subsequent questions regarding how to facilitate the development of, compensate, and recover the costs of these resources. For example, the white paper notes that storage can improve power quality. It will be critical to understand the role power quality plays in some commercial and industrial processes, which technologies are best suited to fulfill that function, how storage technologies must be physically integrated into the electric system to obtain those benefits, and the overall societal value of improvement to power quality.

Simply put, understanding the characteristics of various storage technologies and the way they may be used is a necessary prerequisite for the Commission to accurately develop the scope of questions that must be asked and answered to support the Commission's ultimate goal of assessing whether or not to adopt procurement targets and, if so, how to design the most effective and efficient procurement approaches.

II. Phase 2 – Perform Credible Analyses that Permit the Commission to Reasonably Assess Whether or Not to Impose and Design a Procurement Target is Appropriate for Jurisdictional Load Serving Entities

The objective of this phase is straightforward. The decision to impose potentially significant costs on California residents and the potential reliability impacts on system operation and must be well-informed. The Commission's process must, as recognized by the staff white paper, develop agreed-upon methodologies, inputs, and assumptions to evaluate the relative costs and benefits of using storage technology to serve various

electric system needs and to meet other policy directives. Many of these evaluations will entail detailed quantitative analyses to measure the viability and cost effectiveness of storage against other competing technologies or alternatives that can also achieve the state's environmental objectives. Formulating and performing these evaluations will be a critical function of this proceeding. The staff white paper similarly notes that the rulemaking must “compare the costs and benefits of various types of [energy storage] with those of other load-shifting and emissions reduction strategies (including energy efficiency, demand response, and renewable energy procurement), in order to determine how ratepayer funds can be optimally committed.” (White Paper at 8.)

III. Phase 3 – Address Regulatory Issues, Including Cost Recovery Mechanisms

One of the stated purposes of the proceeding is to “establish how [] costs and benefits should be distributed.” (OIR at 5.) For storage, the means to monetize and recover the full range of costs and benefits is complex, but addressing these issues must constitute a fundamental phase of this proceeding. The potential mechanisms cover a broad range of options from market based rates, explicit capacity and energy payments, cost of service rate recovery to any number of proportionate combinations thereof. The ISO believes it is unnecessary and premature to substantively address the rate issues at this time or even at the initial stages of the proceeding. Nevertheless, the ISO notes that the Federal Energy Regulatory Commission has also recognized the potential inconsistency between traditional rate recovery mechanisms and the multi-functional nature of energy storage.²

² Request for Comments Regarding Rates, Accounting, and Financial Reporting for New Electric Storage Technologies, FERC Docket No. AD10-13-000.

In that proceeding, the ISO acknowledged that where methods other than market-based rates are used for the recovery of costs associated with investment in storage technologies, and depending on the function performed by energy storage, issues regarding potential market distortions, discrimination among market participants, and operator independence must be addressed. The ISO anticipates that similar issues may need to be considered within the scope of this proceeding. Clearly, the complexity of these issues warrants a separate phase to effectively ask and answer the appropriate issues.

IV. Conclusion

The ISO offers these comments to assist the Commission in developing its more detail scope for this proceeding. The ISO intends to participate in the subsequent workshop and augment these comments as permitted by the Presiding Administrative Law Judge and the Commission. In addition, the ISO notes its agreement with the categorization of the proceeding as quasi-legislative and the absence of any need for hearing.

Respectfully submitted,
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CERTIFICATE OF SERVICE

I hereby certify that on January 21, 2011, I served, by electronic and United States mail, a copy of the foregoing California Independent System Operator Corporation Proposals on Phase 2 Issues to each party in Docket No. R.10-12-007.

Executed on January 21, 2011
at Folsom, California

/s/ Anna M. Pascuzzo /

Anna M. Pascuzzo
An Employee of the California
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