

**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**

Rulemaking 10-12-007
(Filed December 16, 2010)

**EAGLE CREST ENERGY COMPANY
OPENING COMMENTS ON THE ASSIGNED COMMISSIONER'S RULING
PROPOSING STORAGE PROCUREMENT TARGETS AND MECHANISMS**

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I. INTRODUCTION

In accordance with the California Public Utilities Commission’s (“Commission’s”) Rules of Practice and Procedure Eagle Crest Energy Company (“Eagle Crest”) hereby submits these reply comments on the Assigned Commissioner’s Ruling Proposing Storage Procurement Targets and Mechanisms, issued by Commissioner Carla Peterman on June 10, 2013 (“ACR”). As outlined further in our comments below, we believe the ACR, as presently structured, ignores a cost effective and already commercially proven storage technology – pumped hydroelectric storage (“pumped hydro”) - that has particular relevance and applicability to the near term challenges facing Southern California. As a result, the ACR will deprive California ratepayers of the future benefits of the most widely-installed, commercially available storage technology.

The Commission should issue a ruling that immediately orders analysis of how pumped storage can cost effectively be procured between 2014-2020 to address near term challenges arising out of the SONGS and OTC closures, as well as other capacity needs in California.

II. GENERAL COMMENTS

Eagle Crest strongly disagrees with the proposal that third-party pumped hydro be ineligible to bid into energy storage reverse auctions. With respect to pumped hydro, the record fails to demonstrate that the market barriers identified for storage technologies do not also apply to pumped hydro, despite the fact that pumped hydro projects in California and the rest of the world have an extensive record of successful commercial operation. By excluding third-party pumped hydro from utility storage procurement, developers of pumped hydro projects are penalized for pumped hydro's successful track record around the world and California's ratepayers will likely pay higher costs for storage technologies that lack the cost effectiveness and commercial success of pumped hydro. In addition, the market barriers outlined in the ACR will prevent pumped hydro from competing in other utility procurement processes.

II. PUMPED HYDROELECTRIC STORAGE IS THE MOST COMMERCIALY INSTALLED AND COST EFFECTIVE STORAGE TECHNOLOGY IN THE WORLD TODAY

The first pumped hydro project came on line in Europe in the early 1900s¹ and in the United States in the 1930s. Pumped hydro projects were designed to meet the electric grid needs of each era, including energy storage, load balancing, frequency control and reserve peak power generation, using the most advanced technology available at the time.

Worldwide, more than 127,000 MW of pumped hydro are currently installed and operating. In the US, more than 20,000 MW of pumped storage are installed and operating, including the Helms and Castaic projects in California.

Historically, pumped hydro projects have been built as the most cost effective energy storage technology. In 2010, the New York Times reported that Department of Energy Sec. Chu “said using pumped hydro to store electricity costs less than \$100 per kilowatt-hour and is highly efficient, Chu told his energy advisory board during a recent meeting. By contrast, he said, using sodium ion flow batteries -- another option for storing large amounts of power -- would cost \$400 per kWh and have less than 1 percent of pumped hydro's capacity.”²

III. THE EAGLE MOUNTAIN PUMPED STORAGE PROJECT CAN PROVIDE ANCILLARY SERVICES, RENEWABLE INTEGRATION, AND SONGS REPLACEMENT CAPACITY

Eagle Crest is developing the Eagle Mountain Pumped Storage Project (“Eagle Mountain”) near Desert Center, California. Eagle Mountain is designed

¹ Information in this section is taken from National Hydroelectric Association, Challenges and Opportunities for New Pumped Storage Development, Appendix A, 2012.

² New York Times, <http://www.nytimes.com/gwire/2010/10/15/15greenwire-doe-promotes-pumped-hydro-as-option-for-renewa-51805.html?pagewanted=all>, October 15, 2010,

as a closed loop pumped hydro project utilizing two former mine pits for the upper and lower reservoirs. By utilizing a closed loop process at a brownfield industrial site, California can take advantage of this 22,000 MWh storage facility with no adverse recreational issues and no impact on aquatic species. In addition, Eagle Mountain will provide significant economic benefits for eastern Riverside County during both construction and operation.

Eagle Mountain is nearing completion of a long licensing process and will be designed to meet the renewable integration, ancillary service, energy storage and capacity needs of the evolving California electric grid while reducing the need for future gas-fired generation to maintain system reliability.

Eagle Mountain is located close to the existing Palo Verde transmission corridor and close to planned and constructed solar projects. We believe Eagle Mountain can provide significant benefits to assist the California ISO in managing morning and evening ramps associated with solar energy production.

The Eagle Mountain project will have the ability to integrate and store wind and solar renewable generation in Southern California. The project will be designed to provide fast ramping response in both generation and pump mode and will be capable of ramps as fast as 10 MW per second per turbine (current design is four pump/turbines). In addition, Eagle Mountain is currently evaluating the ability of Eagle Mountain combined with existing and planned solar projects in Riverside East and Imperial County and additional transmission lines to

materially reduce the need for additional thermal generation in coastal Los Angeles and San Diego as a replacement for SONGS.

III. MARKET BARRIERS FOR PUMPED HYDRO IN CALIFORNIA

Third-party developers of pumped hydro projects in California face many market barriers which were not addressed in the ACR. Eagle Crest participated in the development of the Transmission Connected Bulk Storage Use Case and identified the impact of current market barriers for pumped hydro in California, including System Need, Cohesive Regulatory Framework, Cost Effectiveness Analysis, Cost Recovery Policies and Interconnection Processes.

Pumped Storage Projects, while expensive in total dollars, are among the least costly energy storage when valued on a dollar/kw or a dollar/kwh basis. However, pumped storage projects take five to seven years to complete the environmental permitting process and can take from 2-4 years to construct. Current procurement and cost recovery processes in California are not flexible enough to allow load serving entities (“LSEs) to consider large bulk storage projects to meet their future capacity, renewable integration and ancillary service needs.

In addition, there is no current interconnection process at the California ISO for bulk energy storage projects. The Large Generator Interconnection Process does not work for bulk energy storage projects, as it treats the storage project as a “generator” and does not model the benefits the “storage” part of the project adds to the system.

IV. RECOMMENDED ADDITIONS TO THE ACR

Eagle Crest recommends that the Commission immediately order analysis of the cost effective potential of pumped storage to address critical grid capacity challenges in California, including the dates by which the procurement is needed, and to recognize both the contribution that pumped hydro can make to the future California electric grid as well as the market barriers that exist for third-party pumped hydro developers. Consistent with the bulk storage transmission interconnection Use Case, Eagle Crest recommends that the Commission mandate EPRI, KEMA or other third party experts to assess and report back on such potential benefits, including the recommended timeframe for building such projects. This would allow cost effective pumped hydro projects to be developed, constructed and operated for the benefit of California's electric ratepayers. Eagle Crest believes the addition of new pumped hydro to the California electric grid would reduce greenhouse gas emissions versus the current base case.

V. COMMENTS AS REQUESTED IN SECTION 5 OF THE ACR

- a. Please comment on the proposal overall, with emphasis on the proposed procurement targets and design.**

Eagle Crest believes that exclusion of pumped hydro from the proposed procurement analysis and targets is inconsistent with the three purposes of the Commission's Energy Storage Procurement Framework outlined in Section 4.a of the ACR.

- b. Comment on whether any of the projects proposed to count toward the procurement targets be excluded, or any additional projects included, and on what basis.**

Eagle Crest believes that pumped hydro projects should not be excluded from meeting procurement targets. Pumped hydro represents a significant amount of new storage in construction around the world and is currently being constructed to provide, among other things, greenhouse gas reductions and renewable integration. Allowing pumped hydro to compete to meet procurement targets is consistent with the proposed Energy Storage Procurement Framework.

- c. Comment on how actual operational deployment should be defined for PIER- and EPIC-funded projects potentially eligible to count toward a utility's procurement target.**

At this time, Eagle Crest has no comment on this issue.

- d. Comment on how any utility's procurement that exceeds a target in one year should be addressed and considered for future procurement targets.**

At this time, Eagle Crest has no comment on this issue.

- e. Comment on whether and to what extent utilities should be permitted flexibility in procuring among the use-case "buckets" (transmission, distribution, and customer-sited) of energy storage within one auction, and whether a minimum amount in each "bucket" must be targeted.**

The buckets should be expanded to include pumped storage and to also include analysis of the extent to which pumped storage can address the capacity challenges of grid capacity in southern California.

- f. Comment on the appropriate “off ramps” for relief from procuring up to each target and what metrics should be used to evaluate the appropriateness of the off ramps.**

Eagle Crest believes that “off ramps” should be tied to a cost effectiveness metric.

- g. Comment on how this proposal may be coordinated with Renewable Portfolio Standard procurement plans, as set out in Public Utilities Code section 2837.**

At this time, Eagle Crest has no comment on this issue.

- h. Comment on the options presented by ESPs and CCAs to either a) be required to procure an equivalent amount of storage projects commensurate with the load they serve or b) have their customers assessed the costs of the IOU procurement of energy storage projects through a cost allocation mechanism.**

At this time, Eagle Crest has no comment on this issue.

- i. Comment on how the preliminary results of cost-effectiveness models should be applied to the question of procurement targets.**

Eagle Crest supports the use of cost-effectiveness models to set cost caps.

- j. Based on the preliminary results, should the utilities set a cost cap for offers to be submitted in the 2014 auction? If yes, what should the cap be and how should the auction be structured to incorporate the cap?**

Eagle Crest supports the use of cost-effectiveness models to set cost caps but also believes that the analytic models need to include all forms of storage, and over a period that includes the closure of SONGS, OTC and other major challenges to California's grid.

VI. CONCLUSION

From the beginning of this proceeding, Eagle Crest has asked the Commission to remove market barriers for energy storage projects in a technology neutral manner. With the recently announced retirement of the San Onofre Nuclear Generating Station ("SONGS"), the uncertainty associated with the repowering of some of the identified once-through cooled thermal projects ("OTC") and the increased targets for utilization of renewable resources, Eagle Crest does not believe now is the time to exclude pumped hydro from providing cost effective storage services to the ratepayers of California. New innovations in pumped hydro technology, including adjustable speed pumps, increase the capabilities of pumped hydro to provide the full suite of flexible capacity services identified by the California Independent System Operator. Pumped hydro projects, with appropriate market design, can compete with other generation

technologies and reduce potential curtailment of renewable generation at the lowest possible cost. Eagle Crest encourages the Commission to consider the steps recommended above and allow pumped hydro to contribute to a more environmentally responsible California with lowest additional economic burden on ratepayers.

Eagle Crest appreciates the opportunity to submit these comments for the Commission's consideration.

Respectfully submitted,

/s/ J.Douglas Divine

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