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)**

COMMENTS OF BROOKFIELD RENEWABLE ENERGY PARTNERS LP ON JANUARY 18, 2013 ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE RULING

I. INTRODUCTION

Pursuant to Administrative Law Judge C. Yip-Kikugawa's January 18, 2013 ruling Entering Interim Staff Proposal Into Record and Seeking Comments in the above captioned proceeding ("Energy Storage OIR"), Brookfield Renewable Energy Partners LP ("Brookfield") respectfully submits the following comments. As outlined further in our comments below, we support the efforts by the Commission to identify and address the barriers to the deployment of energy storage and policy options to enable procurement and facilitate the ability of any storage facilities to compete on equal footing with other technologies. This proceeding thus far has heavily focused on the challenges faced by emerging technologies for electric energy storage, such as battery storage. While we agree these emerging technologies face their own unique challenges, we request the Commission to ensure the barriers to deployment faced by mature larger capacity technologies, such as pumped storage hydro, are also acknowledged and effectively addressed through this proceeding.

II. COMMENTS

Through this proceeding, Brookfield helped to develop the Transmission Connected Energy Storage Use Case[1] ("Use Case") in concert with other parties, a portion of which describes both the benefits and barriers to deployment of bulk storage technologies which include pumped storage hydro. While some benefits that can be provided by pumped storage are shared with other technologies, what sets pumped storage apart are its proven capability to provide a wide range of products and services to the electric grid, its large scale, and its ability to discharge stored energy over a comparatively long timeframe that is often advantageous to utilities and ultimately to rate payers. As described in the Use Case, the requirements for a number of these products and services, such as fast ramping capability, will rapidly increase over the next few years in order to facilitate renewable integration. Of the different types of storage technologies being considered in this proceeding, bulk storage technologies connected to the high voltage transmission system are very well positioned to address major changes and challenges in operational needs including, but not limited to, the new Resource Adequacy requirements for flexible capacity that are being considered in the Resource Adequacy proceeding.[2]

A number of the barriers described in the Use Case are also shared by pumped storage and other bulk storage technologies. The most significant barrier to deployment that is unique to mature larger capacity storage technologies can be attributed to the long development and construction timeframes needed to realize these projects. This barrier is described in the bulk storage Use Case, but we believe it is important to call out its relevance in further detail here.

[1] Use Cases are included as Attachment A to the January 18 ruling.
[2] R.11.10.023 issued October 20, 2011.

While it is clear that the future need for pumped storage and other large capacity storage technologies will be driven by operational requirements that are still being defined, it is apparent that additional facilities of this nature will likely be needed to ensure the reliability of the electric grid in the future. For this reason we request that the Commission specifically address the challenges faced by capital intensive long lead time projects, as further described below, that are specific to timing and pricing, and that the Commission do so sooner rather than later to ensure these types of projects will be ready when needed.

On average, a typical natural gas plant will take about 5-7 years to develop, as compared to 8-10 years for a pumped storage hydro project. As an example, the most recent request for offers that result from the biennial LTPP process allow for lead times for projects of about 6 years in the future, and previous requests for offers typically reflected more compressed timeframes. This does not provide adequate lead time required for pumped storage to compete effectively against technologies that have shorter development cycles. Consequently, even though pumped storage provides a number of system benefits that are likely cost-effective and/or unique compared to other technologies, it would be ruled out from the start merely due to its longer development requirements.

Another obstacle is tied to the nature of the development process that defines the cost and pricing for such projects. Given the unique civil engineering design for pumped storage projects (as with hydro facilities in general) and their long development timeframes, project costs can only be fully estimated after significant field investigation and design work has been completed. Commercial realities dictate that this work can only be performed upon assurance that such cost will be recoverable. Coupled with the long lead times for a pumped storage project, other pricing provisions and staged commitment structures would benefit both the buyer and seller.

The typical contracting process and the standard PPA used for projects with shorter development timeframes and more standardized designs is not a practical alternative for pumped storage. A unique procurement channel for long lead time projects or an expansion of the existing LTPP process is needed that allows for more flexible terms and conditions around both timing and pricing. Absent more flexible contracting opportunities, pumped storage facilities with demonstrated value that can offer a broad range of capabilities to the electric grid and help support renewable integration will simply not be developed due to overly rigid procurement rules.

There are a number of different ways these pricing and timing issues could be addressed. One approach could for the CPUC to facilitate bilateral negotiations for the procurement of long-lead time storage assets by enabling a separate process to evaluate the benefits of long lead time projects. This process could initiate after it is determined that a pumped storage project is qualified to meet a pre-defined set of system requirements (*e.g.*, response time, load balancing requirements, energy discharge timeframes, energy/capacity, etc.) as determined by the LTPP process and other requirements as defined by the potential buyer. If a project is determined to be cost effective then development can proceed initially with a detailed feasibility study or a similar model that would allow the project to progress through a series of defined milestones until such time when more certainty in pricing can be determined. Such a process can incorporate off-ramps that allow for appropriate risk-sharing between the buyer and seller as the project becomes more defined through the normal development process. Precedents for such processes can be seen with large-scale transmission development that is similarly long lead-time with relatively high initial uncertainty. Further, such projects utilize cost of service recovery mechanisms that

may also prove beneficial for pumped storage projects for both buyer and seller and reflect alternative risk sharing arrangements.

Brookfield continues to support the outcome of this proceeding leading to the creation of a technology neutral environment, where all resources can compete on a level playing field. Regardless of the approach determined by the Commission to achieve this goal, Brookfield requests that the needs of large capacity, long lead time storage projects be taken into account so they may effectively compete and not be ruled out due to their unique development requirements. We feel this is important given the unique benefits such projects, notably pumped storage, can provide to the electricity system.

III. CONCLUSION

Brookfield appreciates the opportunity to submit these comments and looks forward to working with the Commission and parties throughout the remainder of this proceeding.

Respectfully submitted,

BROOKFIELD RENEWABLE ENERGY PARTNERS LP

/s/ Margaret Miller

Margaret Miller
Director of Regulatory Affairs
Brookfield Renewable Energy Group
513 San Marco Place
El Dorado Hills, CA 95762
Tel: (916) 673-3082

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