### **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 POWER INC. ON JULY 21, 2011 RULING ENTERING DOCUMENTS INTO RECORD AND SEEKING COMMENTS

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**Dated:** August 29, 2011

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### I. INTRODUCTION

Pursuant to Administrative Law Judge Amy C. Yip-Kikugawa's July 21, 2011 Ruling on Electric Energy Storage ("Ruling") Brookfield Renewable Power, Inc. ("Brookfield") respectfully submits the following comments and responses to questions posed by Energy Division Staff regarding presentations and issues discussed at the June 28, 2011 workshop ("Workshop") on Electric Energy Storage ("EES").

### II. COMMENTS

On July 21, 2011, the California Public Utilities Commission ("Commission") requested that parties provide comments and respond to specific questions related to presentations made at the June 28, 2011 Workshop. Brookfield provides its general comments in this section of these comments, and provides answers to the Commission's specific questions in Section III, below. Brookfield believes that ESS can provide valuable services to the electric grid, especially in light of increasing volumes of intermittent generation resources that will come online to achieve California's 33% renewables portfolio standard ("RPS"). However, before defining what products and services EES can provide, it is important to first consider and clearly understand the operational requirements that need to be in place in order to reliably manage the electric grid under the 33% RPS. Brookfield encourages the Commission to develop policies for EES based on an evaluation of EES's potential to enhance electric grid system reliability and provide value to customers. The framework the Commission adopts for structuring this proceeding should include an analysis of operational requirements of the California electric grid system followed by an objective valuation of the various energy storage technologies that could service these requirements, i.e. a technology neutral approach as previously proposed by CAISO.

Brookfield supports the Southern California Edison ("SCE") Company's proposed application-specific approach, which SCE presented at the Workshop, as an effective framework to identify and address energy storage issues in this proceeding, with the caveat that system needs should be evaluated prior to working through application specific assessments. To incorporate this caveat into SCE's proposal, Brookfield suggests adding an additional step to the beginning of the four-step process outlined on slide three of the SCE presentation, which is attached to the Commission's Ruling as Attachment C. This additional step would become Step 1 of the methodology, and could be summarized as "Step 1: Identify Operational Requirements." The purpose of this additional preliminary step would be to identify what operational requirements should to be in place in order to make effective use of EES, and would be followed by SCE's first proposed step "Identify Operational Uses," through which the Commission and stakeholders would evaluate the ways the identified operational requirements may be employed. Brookfield also agrees with SCE's proposed approach described on slide seven for how the application-specific approach can align with this proceeding. SCE proposes to: (1) define applications and associated uses for energy storage; (2) identify market or regulatory impediments by each application; (3) categorize issues by jurisdiction; and (4) assess

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and prioritize how and if the Commission can help resolve issues. Brookfield believes that this approach will ensure that impediments to any storage technology deployment are effectively identified and assigned to the proper jurisdictions.

Adopting a standard framework for this proceeding, such as the one proposed by SCE, will provide the Commission and stakeholders with a common structure to evaluate costs and benefits of ESS across technology types. Taking a holistic approach to matching ESS value to system requirements, rather than a piecemeal approach which narrowly focuses on individual storage technologies, will encourage the adoption of cost effective solutions that will most benefit California's electric system as well as ratepayers.

Some initial requirements gleaned from CAISO's studies into how best to achieve the 33% RPS have been released through the Long Term Procurement Planning Proceeding, Commission Docket R. 10-05-006, but the final analysis of operational requirements likely will not be completed until first quarter of 2012. Brookfield believes that these results could and should be evaluated as part of this proceeding. Working in concert with CAISO, the Commission's evaluation should include (1) an analysis of ramping ancillary services and other grid needs and requirements under the 33% RPS based on study data provided by CAISO, and (2) establishment of technology-neutral contracting mechanisms to enable deployment of required capital to support needed projects.

### III. RESPONSES TO QUESTIONS

# 1. Which barrier(s), either identified by the presenters or the Commission, do you believe present the greatest impediment to more widespread usage of energy storage and development of ESS in California?

The biggest barrier to more widespread usage of energy storage and development of ESS in California is the lack of sufficient long-term, forward-looking system planning and regulatory

mechanisms to support project developers' incremental, but rapidly increasing, energy storage and transmission requirements and commitments. In particular, the absence of financial incentives to develop large-scale energy storage resources has hindered the development of such resources in California. Brookfield supports CAISO's storage vision, which it articulates as, "Facilitate cost-effective, comparable participation in ISO markets to fully utilize technology capabilities," on Slide 3 of its workshop presentation, which is attached to the Commission Ruling at Attachment B. It appears that CAISO is taking the steps to ensure that tariff requirements for suppliers of ancillary services and regulation are technology neutral and will support participation by a broad pool of resources in its markets, but more can be done to foster the development of robust and reliable energy storage technology.

While the CAISO markets provide effective short-term, least-variable cost optimization and procurement of energy resources, they do not provide assured long-term revenue streams in the form of energy and ancillary services necessary to promote investment. As Brookfield mentioned in its prior comments to the Commission on the Order Instituting Rulemaking in this proceeding,<sup>1</sup> large-scale projects such as pumped storage require a fair degree of system planning and an increasing level of assurance to support the developer's incremental commitments to proceed through the development stages of a specific project. Accordingly, the Commission should explore whether there are any needed changes to its regulatory processes, such as Resource Adequacy ("RA") requirements, that would better anticipate and incorporate future requirements and promote the development and deployment of long-life, capital-intensive storage projects. The analysis should also consider how long-term contracting mechanisms

<sup>&</sup>lt;sup>1</sup> See Comments of Brookfield Renewable Power Inc. On The Order Instituting Rulemaking at: <u>http://docs.cpuc.ca.gov/efile/CM/129823.pdf</u>

could enhance the set of incentives needed to prompt these kinds of investments. The current process of procuring only generic capacity through the RA process will not ensure that specialized needs of the grid are met under the 33% RPS, including any specific value that can be provided by ESS.

For example, pumped-storage facilities have proven capabilities to provide a broad range of products to the electric grid and can adjust their service offerings in the future as requirements change with the evolving resource mix. However, without adequate procurement channels and incentives that allow purchasers to secure and reflect the value provided by these features, and without the ability of developers to receive sufficient compensation for their development efforts, developers will not commit capital and lenders will not finance these large scale projects. Brookfield particularly encourages the Commission to consider adopting financial incentives to encourage the development of large-scale pumped storage resources in California.

2. Are there other barriers that were not identified during the workshop? Please explain how these other barriers impede the usage or development of energy storage and whether they need to be resolved at the Commission or other forums. To what extent can the Commission assist in removing these barriers?

There are barriers to widespread usage of energy storage and development of ESS in California other than those identified during the workshop. For discussion of these barriers, please see Brookfield's response to question # 1 above.

## 3. In your opinion, are there certain barriers that need to be resolved first, and therefore have higher priority?

Brookfield requests that the Commission pay particular attention to pumped storage issues. Pumped storage resources are a mature and proven technology that can provide a broad range of products and services to the electric grid, and are an important component to support renewable energy resource integration. However, as mentioned in the comments above, the existing lack of incentives to encourage investment in these large scale projects represents a significant barrier to the development of pumped storage. Brookfield believes the process of the Commission evaluating operational needs and determining the value streams for EES through this proceeding will be a valuable first step towards providing regulatory certainty to encourage capital intensive investment and development of large scale projects such as pumped storage.

### **IV. CONCLUSION**

Brookfield appreciates the opportunity to present these comments for the Commission's consideration and urges it to act on the recommendations outlined herein.

Respectfully submitted,

/s/ Joseph B. Williams

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Dated: August 29, 2011

### **CERTIFICATE OF SERVICE**

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have on this day served a copy of the foregoing "COMMENTS OF BROOKFIELD RENEWABLE POWER INC. ON JULY 21, 2011 RULING ENTERING DOCUMENTS INTO RECORD AND SEEKING COMMENTS" on all parties identified on the attached service list. Service was effected by one or more means indicated below:

- Transmitting a copy via electronic mail on those parties who provided an e-mail address; or
- First Class mail on those parties that have not provided an electronic address to the Commission.

Executed this 29<sup>th</sup> day of August, 2011, at Washington, D.C.

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