BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking 13-12-010 (Filed December 19, 2013)

COMMENTS OF BROOKFIELD RENEWABLE ENERGY PARTNERS LP ON CPUC PLANNING ASSUMPTIONS AND SCENARIOS FOR USE IN 2014-2015 LONG-TERM PROCUREMENT PLANNING

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For: Brookfield Renewable Energy Partners LP

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Pursuant to Rule 14.3 of the California Public Utilities Commission ("Commission" or "CPUC") Rules of Practice and Procedure, Brookfield Renewable Energy Partners LP ("Brookfield")[1] respectfully submits the following comments on the CPUC Staff Proposal for Planning Assumptions and Scenarios for use in the 2014-1015 Long-Term Procurement Planning ("LTPP").

Brookfield has more than 100 years of experience as an owner, operator and developer of hydroelectric power facilities. Brookfield's power generation operations located in North America and Brazil total more than 5,000 MW, of which more than 2,000 MW are in the United States. Brookfield's generating assets are predominantly renewable energy resources (hydro and wind). Within California, Brookfield owns and operates 430 MW of wind capacity as well as the 30 MW Malacha hydro-electric facility. Brookfield also has the 280 MW Mulqueeney Ranch Pumped Storage Project located in Livermore, California under development.

Brookfield supports the Commission's effort to develop integrated system resource plans that will provide insight into the best resource portfolio over the long-term to achieve state policy goals and a commitment towards a transparent, consistent and coordinated planning process across key regulatory agencies such as the CPUC, California Energy Commission ("CEC") and California Independent Systems Operator ("CAISO"). Brookfield's comments on the Staff Proposal include the following:

[1] Brookfield requested party status in this proceeding by email on 1/6/2014.

- Despite the Commission's expressed support for large-scale pumped storage hydro in the Final Decision in the Energy Storage Proceeding only 700 MW of transmission-side energy storage is built into the assumptions issued by the CPUC.
- Pumped storage hydro is omitted from key scenarios even though in many instances it could be the key to achieving the RPS and green-house-gas ("GHG") goals in a way that is cost-effective to ratepayers.
- CARB appears to be absent from the coordinated efforts taking place between the CEC, CPUC and CAISO to develop the scenarios and assumptions that will lead to an integrated resource plan.

It is clear that large-scale pumped storage hydro will ultimately be needed to meet future renewable and carbon targets in California post-2020. Therefore, Brookfield recommends the Commission correct these oversights and incorporate large-scale pumped storage hydro into the scenarios and assumptions as part of the mix of supply resources that will be required to meet California's varied resource needs.

Large-scale pumped storage hydro, despite the proven benefits it can provide, faces significant barriers to entry into the marketplace which have been described in detail by Brookfield and other parties in their comments to the Storage Proceeding .[2] The Commission is planning to evaluate and further address these barriers through a series of workshops occurring in concert with the 2014 LTPP proceeding. In the meantime, it is critical that the correct framework for the 2014 LTPP proceeding be established through the Planning Assumptions and Scenarios. This is the first step to creating a reality in which the utilities can effectively procure these resources based on decisions informed by studies that effectively model the beneficial relationship of combining high levels of renewable energy penetration with bulk storage.

A. The exclusion of large-scale pumped storage hydro projects from the 2014 LTPP Planning Assumptions and Scenarios is in conflict with recommendations provided by the Commission in the Decision from the Storage Proceeding.

Large-scale pumped storage hydro is not considered as part of the energy supply portfolio in either of the Commission's more aggressive planning scenarios. Specifically, the 40% RPS by

[2] See Brookfield's comments to September 3, 2013 Proposed Decision of Commissioner Peterman in R1012007.

2030 and the Expanded Preferred Resources scenarios consider only the 700 MW that resulted from the Storage Proceeding procurement targets and anticipate no further growth in storage. 700 MW of transmission-side energy storage has been built into the assumptions. The 700 MW number is based on the procurement targets established in the Storage Proceeding for emerging storage technologies. Those procurement targets, however, specifically exclude pumped storage hydro projects over 50 MW in size.[3] The Commission excluded such projects, not because they are unneeded, but because it determined that including them in the targets would undermine the Commission's goal in that proceeding of promoting emerging storage technologies. In this new LTPP proceeding, on the other hand, it is important that the Commission's assumptions include consideration of all storage resources, including large-scale pumped storage hydro.

For the reasons Brookfield detailed in its comments in the Storage Proceeding, large-scale pumped storage hydro will be needed to meet California's aggressive RPS and GHG reduction goals that are being contemplated beyond 2020. It is therefore simply unrealistic to exclude it from 2014 LTPP Planning Assumptions and Scenarios. There is no justification for excluding large-scale pumped storage hydro from the bigger picture consideration of the State's evolving electricity needs related to the integration of intermittent renewable resources and greenhouse gas reduction goals. This was not the intent of the final decision in Storage Proceeding, which excluded pumped storage only due to its large size, nor was it the intent of AB 2514[4].

In the final decision from the Storage Proceeding the Commission recognized the value of large-scale pumped storage hydro and made clear that they should be given due consideration in LTPP proceedings:

> We emphasize that our decision to limit the size of pumped storage projects in the decision is not to discourage large-scale pumped storage projects. On the contrary, these types of projects offer similar benefits as all of the emerging storage technologies targeted by this program; it is simply their scale that is inappropriate for inclusion here. We strongly encourage the utilities to explore opportunities to partner with developers to install large-scale pumped storage

[3] Brookfield is not challenging the validity of the procurement targets established in the Storage Proceeding. Brookfield recognizes that the Commission's purpose in establishing those procurement targets was to facilitate market entry for emerging storage technologies. Brookfield also recognizes that the large size of most pumped storage hydro projects would dwarf the procurement targets, leaving no room for emerging storage technologies.

[4] See text of Assembly Bill No. 2514 at: http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_2501-2550/ab_2514_bill_20100929_chaptered.pdf

projects where they make sense within the other general procurement efforts underway in the context of the LTPP proceeding or elsewhere.[5]

Consideration of the contribution of large scale pumped storage hydro must be included in the Planning Assumptions and Scenarios in order for these resources to have an opportunity to be fairly evaluated and compete towards providing low cost, and zero emissions power as part of California's supply portfolio.

B. Pumped Storage can provide cost effective alternatives towards meeting California's aggressive RPS and GHG reduction goals that are being contemplated beyond 2020.

The exclusion of large-scale pumped storage hydro from the 2014 LTPP Planning Assumptions and Scenarios is problematic because it fails to recognize the pivotal role that pumped storage can play in helping the Sate achieve its long-term climate objectives and maximize its substantial investment in renewable energy. For example,

- Bulk storage resources such as pumped hydro coupled with high renewable penetration offers one of the most promising and cost-effective ways to achieve the State's 2050 climate objectives. Not anticipating the need for large-scale pumped storage hydro undermines the goal of reducing emissions of greenhouse gases and other criteria pollutants as significantly more zero-carbon energy will be required post-2020.

- Pumped storage hydro can provide a cost effective alternative for both flexible capacity and balancing services that will be in needed in increasing amounts to run the electric grid with a high penetration of intermittent generation.

- In coming years, installation of bulk energy storage will be necessary to avoid major curtailment of installed renewable resources during periods of over-generation and transmission congestion. Curtailments of renewable energy not only deprive the State of the direct environmental benefits but also risk damaging the financial viability of those generation projects, since most of them are paid on the basis of the energy that they produce and deliver to the grid.

[5] D.13-10-040 at p.36

Furthermore, the EPRI Study on Cost-Effectiveness of Energy Storage in California that was conducted as part of the Storage Proceeding showed a high net benefit cost ratio (1.37) for pumped storage hydro that was exceeded by only four technologies and scenarios out of 31 technologies and scenarios.[6] Brookfield has encouraged the Commission to do further analysis specific to pumped storage as part of the planned pumped storage workshop, the results of which should be leveraged within the 2014 LTPP proceeding.

C. CARB should be part of the collaborative effort occurring between CEC, CPUC, and CAISO to develop Scenarios and Assumptions.

As the 2050 climate objectives should be a critical component in evaluating and determining California's future supply portfolio mix, CARB's goals should be embedded into the process. Without CARB's input, the scenarios may not adequately consider implications for achieving the long-term greenhouse-gas (GHG) reduction goals set forth in the California Air Resources Board's October 2013 AB 32 Scoping Plan Update Discussion Draft[7] which requires that California reduce emissions levels to 80% below 1990 levels. Currently, neither the 40% RPS Scenario or the Expanded Preferred Resources Scenario is specifically aimed at a midterm 2030 carbon reduction goal.

D. CONCLUSION

The procurement targets adopted in the Storage Proceeding excluded large-scale pumped storage hydro in order to promote the development and deployment of emerging storage technologies. Those targets should not limit the anticipation and evaluation of the need for large bulk energy storage that will be required to meet California's policy goals post 2020. As AB2514 recognized, and as is further driven by the future potential for a 40% RPS and aggressive GHG reduction goals, there is a need for the procurement of viable and cost-effective supply resources to facilitate the continued integration of renewable resources, ensure the reliability of the electric grid, reduce reliance on fossil fuel-fired generation, and reduce emissions of greenhouse gases and other criteria pollutants. Pumped storage has the potential to

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[6] Cost Effectiveness of Energy Storage in California: Application of the Energy Storage Valuation Tool to Inform the California Public Utility Commission Proceeding R. 10-12-007. EPRI Palo Alto, CA: 2013. 3002001162 (June 2013) Table A-2.

[7] See http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm

help the state achieve these goals in a cost-effective way and should be anticipated as needed as part of the future supply mix.

If the Commission does not consider a possible reality in which large-scale energy storage is needed to come online in the next 10 or 20 years, and facilitate the regulatory changes and investments needed to accommodate these critical resources, procurement decisions will continue to be made that exclude large-scale pumped storage hydro to the detriment of California ratepayers.

Respectfully submitted,

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