

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

Order Instituting Rulemaking to Oversee the
Resource Adequacy Program, Consider
Program Refinements, and Establish Annual
Local Procurement Obligations

Rulemaking 11-10-023
(Filed October 20, 2011)

**OPENING COMMENTS OF BRIGHTSOURCE ENERGY, INC.
ON THE ORDER INSTITUTING RULEMAKING TO OVERSEE
THE RESOURCE ADEQUACY PROGRAM,
CONSIDER PROGRAM REFINEMENTS, AND
ESTABLISH ANNUAL LOCAL PROCUREMENT OBLIGATIONS**

Arthur L. Haubenstock
Vice President, Regulatory Affairs
1999 Harrison Street, # 2150
Oakland, CA 94612-3500
BrightSource Energy, Inc.
Telephone: (510) 250-8150
Facsimile: (510) 550-8165
Email: ahaubenstock@brightsourceenergy.com

November 7, 2011

On behalf of BrightSource Energy, Inc.

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

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations.

Rulemaking 11-10-023
(Filed October 20, 2011)

**OPENING COMMENTS OF BRIGHTSOURCE ENERGY, INC.
ON THE ORDER INSTITUTING RULEMAKING TO OVERSEE
THE RESOURCE ADEQUACY PROGRAM,
CONSIDER PROGRAM REFINEMENTS, AND
ESTABLISH ANNUAL LOCAL PROCUREMENT OBLIGATIONS**

BrightSource Energy, Inc. (“BrightSource”) respectfully submits these opening comments pursuant to the Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations filed on October 20, 2011 (the “RA OIR”) and the California Public Utilities Commission's (“Commission”) Rules of Practice and Procedure.

I. INTRODUCTION

The purpose of Resource Adequacy “is to ensure that consumers of electricity... receive service that is as reliable as reasonably possible, consistent with current technology and economic constraints.” D. 04-10-035 at p. 2 (2004). Considering the energy supply prevalent at the time, the Commission devised a resource adequacy system oriented to ensure the availability of sufficient generic generating capacity to meet the system’s super-peak demand needs. However, as presciently forecast in D. 04-10-035, and observed in the RA OIR, the nature of the energy supply is changing. The RA OIR rightly concludes that “[b]ecause a very large percentage of new generation procurement will need to be renewable,” it is time for the Commission to “consider any updates to the RA rules or practices in order to account for differences in renewable procurement” in this docket. RA OIR at Appendix A p. 2. Ensuring sufficient generic capacity to meet the system’s super-peak demand needs will remain important, but the greater challenge facing our energy system is to maintain cost-effective reliability

throughout the operating day with a diverse energy supply, not all of which will possess the reliability characteristics inherent in today's conventional fleet of thermal turbine-driven units. Balancing authority areas in the Pacific Northwest and in Texas have had difficulty ensuring a stable and reliable grid due as renewables penetration has increased, at least in part, to lack of planning and resource procurement thoughtfully targeted to maintain reliability at least cost and resource diversity; balancing authority areas in other countries, such as Spain, have shown that procurement of the right mix of renewable resources, possessing the characteristics needed for reliability, can meet these challenges.

The Commission's Resource Adequacy program must now change to ensure the prospective procurement of the products and services needed to meet these evolving operational challenges. As renewables penetration increases, it will not only be necessary to procure generic capacity that matches the changing load shape, which will be masked by distributed generation and extended out into later evening; it will also be necessary to procure capacity with the capability to provide the power quality characteristics needed to balance increasing quantities of renewable generation that lack required power quality characteristics, in order to maintain reliability throughout the day.

II. SPECIFIC COMMENTS

The following specific comments follow the format requested by the RA OIR.

A. Identification of the party and interest of the party in this proceeding.

BrightSource, headquartered in Oakland, California, is engaged in the design, development, construction, and operation of large-scale solar thermal energy generation projects. BrightSource's proprietary LPT power tower technology has produced the highest temperature and pressure steam of any solar application in the world. This solar thermal technology utilizes fields of mirrors to focus solar energy onto a boiler at the top of the tower, heating the water within the boiler to make steam that is then used to power conventional high-efficiency turbines. This technology provides cost-effective energy with grid-friendly characteristics, reducing integration costs and burdens, and contributing to an economic, efficient and reliable energy supply. In October, BrightSource's 29 MWth Enhanced Oil Recovery facility, built for Chevron at its oil field in Coalinga, California, went into operation, displacing natural gas-fired steam

production used for extraction of crude oil. BrightSource’s 370 MW Ivanpah Solar Electric Generating System project is well underway, with over 800 workers on site constructing its three units, which will serve contracts with Pacific Gas & Electric Company (“PG&E”) and Southern California Edison Company (“SCE”). BrightSource has two other major projects in active permitting; the 500 MW Hidden Hills Solar Electric Generating System, located in Inyo County, which has been determined data adequate by the California Energy Commission (“CEC”), and the 750 MW Rio Mesa Solar Electric Generating Facility, located in Riverside County, which is also before the CEC. Future BrightSource projects will deploy its SolarPLUS™ technology, which will combine the company’s high-efficiency LPT solar thermal technology with proven two-tank molten-salt storage. BrightSource’s SolarPLUS™ technology will extend the production of electricity into later parts of the day and after the sun sets, better matching the changing load shape; reduce cost by increasing plant capacity factor and offering higher efficiency; provide greater operational flexibility to shape production to meet changing demand; and offer additional operational and market value by providing balancing and shaping capabilities, as well as ancillary services to support a reliable grid.

B. Any objections to or recommendations regarding this order’s determinations as to categorization of the proceeding as ratesetting, the need for hearing, issues to be considered, or scheduling.

BrightSource provides the following recommendations on scheduling and issues to be considered. We have no objections or recommendations with respect to this proceeding’s categorization or need for hearing.

1. Parallel Scheduling of Phase 1 & Phase 2 to Improve Outcomes for Longer Lead-Time Issues

BrightSource recommends that the Commission commence Phase 1 and Phase 2 of this proceeding in parallel, to provide early guidance on the more complex longer-term issues associated with the changes to the Resource Adequacy program that are required to meet the challenges of a renewables-rich energy supply. Consideration of these issues should begin now, given their complexity and the length of time needed to analyze them, but these issues will take more time to resolve than is available under the current Phase 1 schedule. An early Phase 2 Scoping Order and commencement of workshops on Phase 2 issues in parallel with

commencement of Phase 1 would avoid deferral of important issues that will require significant time to address and provide important opportunities to ensure that issues raised in this proceeding can be evaluated by or otherwise reflected in ongoing studies of future system operational needs at the California Independent System Operator Corporation (“CAISO”), national laboratories, such as the National Renewable Energy Laboratory (“NREL”) which is conducting studies of solar and wind integration solutions by conventional and renewable technologies, and elsewhere.

2. Additional Issues Not Addressed by the RA OIR

BrightSource agrees with the Large-scale Solar Association’s recommendation that the Commission incorporate, as a priority issue, consideration of Resource Adequacy value for resources that have interconnected with the grid but are not deemed by the CAISO as fully “network deliverable,” a condition that has come to be known as “partial deliverability.” Resources that are not fully network deliverable will nonetheless provide important reliability value that the Resource Adequacy program should acknowledge to ensure cost-effective reliability throughout the operating day.

The CAISO’s Generator Interconnection Process Phase II (“GIP-2”) stakeholder process has explored rules for just such a partial deliverability option. The Resource Adequacy program should expressly address the partial deliverability approach to help ensure cost containment by recognizing that resources that are not network deliverable still provide reliability value and by removing the individual economic incentive to pursue transmission upgrades that are intended solely to achieve full network deliverability for a given project or set of projects but that are not cost-effective from a social or system-wide perspective. We agree with LSA that this issue should be addressed in Phase 1 of this proceeding, so that renewable generation projects and transmission plans currently under development can be adapted most efficiently.

C. Priorities of issues to be considered, including recommendations for which issues should be taken up in Phase 1 (June 2012 target date for Commission decision) and which issues should be considered in Phase 2 (June 2013 target date for Commission decision).

BrightSource provides the following recommendations on priorities and phasing of the issues to be considered.

1. Phase 1 Issues – Net Qualifying Capacity for Storage & MCC Buckets

BrightSource recommends that the following issues be addressed in Phase 1 of this proceeding, presuming, as noted above, that Phase 2 work on adjusting Resource Adequacy to address grid needs resulting from increased renewables integration and storage can begin in parallel with Phase 1. Given the importance of those renewables integration and storage issues, if Phase 2 cannot begin in parallel with Phase 1, we recommend incorporating those renewables integration and storage issues in Phase 1 and coming to preliminary conclusions, which can be expanded upon for final resolution in Phase 2.

a. Net Qualifying Capacity for Storage. Storage will play an increasingly important role in California’s energy system, both integrated storage such as that deployed in solar thermal systems, in which some of the solar heat collected is diverted to storage before being used to create steam and generate electricity, as well as stand-alone storage (whether electrical, pumped or compressed). The Net Qualifying Capacity (“NQC”) for integrated storage at a renewable facility must reflect the availability to produce energy, like the NQC for conventional units, rather than relying on energy production to set the NQC, as is currently the case with renewable facilities without storage. BrightSource is prepared to assist the Commission and its staff in assessing the capacity value of solar thermal storage, and to provide a proposal to inform the discussion. To properly value integrated and stand-alone storage, this proceeding must establish new Net Qualifying Capacity methodologies for such resources, and this issue could readily be addressed in Phase 1.

b. Maximum Cumulative Capacity (MCC buckets). The MCC buckets were originally designed to reflect contract blocks and use-limited resource issues relative to the load shape as it existed in 2005. These buckets can and should be adjusted to reflect the likely time of day of availability of resources as well as for the changing load shape, which will be “masked” by distributed generation at what would otherwise be earlier peak times when weather is good, creating a new “net” peak later in the day, as NREL and others have shown. These adjustments will allow more focused procurement of capacity resources to meet system needs during relevant periods of the operating day.

2. Phase 2 Issues -- Renewables & Storage Attributes and System Needs

BrightSource recommends that the following interrelated issues regarding the impact of increased renewables penetration and storage on Resource Adequacy be addressed in Phase 2 of this proceeding, provided that the Phase 2 Scoping Order and commencement of workshops proceed in parallel with Phase 1.

- a. Non-generic capacity procurement requirement – a process to add resource operational characteristics such as regulation and ramping “load following” capabilities into the Resource Adequacy procurement requirements.

The existing Resource Adequacy program does not differentiate between, for example, fast-ramping and slow-ramping capacity. Identifying specific grid needs and assuring procurement of capacity that can meet those needs will be of increasing importance as renewables penetration approaches 33%. Notably, the Commission and CAISO have been conducting detailed renewable integration studies that address requirements at the system level for specific operational capabilities, while CAISO has been evaluating market design needs over the short, medium and long-term. In addition, the CAISO is expected to shortly release a study of system inertia at 33% RPS. Subsequent analysis in California will be necessary to examine, in greater depth, the effect of transmission constraints on both system and local capacity requirements; even where generic capacity targets are met, lack of load-following, reactive power, voltage control, inertia and other criteria that have previously been presumed to accompany generic capacity but are not inherent to all generators in a renewables-rich energy supply portfolio may cause reliability concerns, and in local areas may necessitate studies even in the normal (N-0) case. An early focus on these issues, in parallel with Phase 1, will enable sufficient time to design and conduct studies and reach timely resolution in the Phase 2 decision.

- b. Updates to the Resource Adequacy rules or practices in order to account for differences in renewable procurement.

There are two equally important factors that must be considered to ensure the Resource Adequacy program continues to provide reliability at least cost as the contribution of renewables to the energy supply increases. First, the program must properly value the reliability services that renewables provide, so as to avoid unnecessary additional procurement. Second, the program must identify the nature, quantity and location of the reliability services that the grid needs to integrate larger quantities of renewables. Studies underway at the CAISO, Lawrence

Berkeley National Labs, NREL and elsewhere will help illuminate both the characteristics of the evolving energy supply as well as the future needs of the grid. Speed is of the essence, however, as it takes time for the economic signals sent by Resource Adequacy and other procurement programs for various products and services to translate into the design and characteristics of the resources that will be offered by suppliers and ultimately deployed. By making future needs explicit as early as possible, generation resources, including renewables, can more quickly incorporate those needs in the first instance and avoid the need to procure separate resources solely to supply the demand for additional products and services.

- c. Technical updates to the Resource Adequacy rules for flexible grid operational attributes (such as those provided by energy storage technologies).

As with renewables, this proceeding must assess the attributes that storage resources provide to the energy system, and assess the needs of the grid for those attributes given the changing nature of the energy supply. These assessments should be undertaken in tandem with the related assessments for renewable energy resources, as part of Phase 2. The development of the NQC methodologies for storage, as discussed above, should be addressed in Phase 1.

3. Additional Phase 2 Issues -- Dynamically Scheduled & Pseudo-Tie Resources

BrightSource also recommends that the NQC methodologies for establishing the Resource Adequacy value for dynamically scheduled and pseudo-tie resources be addressed in Phase 2, along with the related issue of updating the methodology for allocating Resource Adequacy credit for imports. BrightSource looks forward to reviewing the Energy Division staff proposal on this issue.

III. CONCLUSION

BrightSource appreciates this opportunity to provide its comments on the RA OIR and looks forward to participating in this proceeding. This is a formative time in the development of California's renewables-based energy infrastructure, and the Commission is to be commended for beginning the process of adapting its Resource Adequacy program to meet the energy system's changing nature and needs. To help ensure the timely design, procurement and deployment of renewable and storage resources needed to address reliability needs while minimizing separate, expensive and inefficient procurement, we respectfully request that the

Commission commence Phase 2's consideration of renewables and storage issues in parallel with Phase 1 to provide early guidance to ongoing studies and a prompt and efficient resolution of Phase 2. We appreciate the Commission's consideration of these comments, and thank the Commission for this opportunity to provide them.

November 7, 2011

On behalf of BrightSource Energy, Inc.
Respectfully submitted,

/s/ Arthur L. Haubenstein

Arthur L. Haubenstein
Vice President, Regulatory Affairs
BrightSource Energy, Inc.
Telephone: (510) 250-8150
Facsimile: (510) 550-8165
Email: ahaubenstein@brightsourceenergy.com