

**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)

**COMMENTS OF ABENGOA SOLAR INC. ON THE ENERGY
DIVISION REPORT ON THE RESOURCE ADEQUACY
WORKSHOP**

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Pursuant to the Administrative Law Judge’s Ruling Seeking Comment, issued in the above-captioned docket on March 23, 2012, Abengoa Solar Inc. (“Abengoa Solar”) submits these comments on the Energy Division Report on the Resource Adequacy Workshop.

Abengoa Solar is an experienced international developer of renewable projects with 543 megawatts (“MW”) of large-scale solar projects in operation and 1,000 MW of additional projects under construction. In late 2011 the Commission approved a power purchase agreement (“PPA”) between Pacific Gas and Electric (“PG&E”) and Mojave Solar, LLC (“Mojave Solar”), an affiliate of Abengoa Solar. Resolution E-4433. The Mojave Solar Project (“Project”) is a 250 MW utility-scale concentrated solar thermal electric generating facility located in San Bernardino County, California. Among the provisions of the Mojave Solar PPA was a requirement that the Project provide Resource Adequacy (“RA”) credits to PG&E. Accordingly, Abengoa Solar has a direct interest in the Commission’s administration of the RA

program, both for purposes of performing its obligations under the Mojave Solar PPA and for purposes of future renewable project development in California. Accordingly, Abengoa Solar will comment on both the Energy Division Report and the CAISO Flexible Capacity Procurement Requirement proposal.

Abengoa Solar's primary concern is that both the Energy Division and the CAISO proposals appear to focus mainly on flexible and dispatchable generation resources to achieve resource adequacy, which has effect of significantly undervaluing renewable resources that are partially deliverable. As a result, such policies would misallocate the generation and transmission resources needed to serve California.

I. Properly Defining Resource Adequacy Requires Expanding Reliability Concerns Beyond System Peak Period Demand

Both the Energy Division Report on the Resource Adequacy Workshops held January 26-27, 2012 and the CAISO 2013 Flexible Capacity Procurement Requirement proposal dated March 2, 2012 acknowledge that changes in the resource mix of generation available in California and the impact of a large quantity of renewable resources in that mix (significant portions of which are intermittent and/or non-dispatchable) will require major changes in a Resource Adequacy requirement that was designed primarily to handle system peak period load when it was introduced in the aftermath of the California Energy Crisis.

The Energy Division points out that reliability risk “will soon be detached from peak load conditions and might occur more during off-peak months and during periods of ramping, such as when the wind ramps down in the morning at the same time as load ramps up.”¹ The Energy Division also recognizes that the state's generating fleet is changing and that demand side programs and smart grid alternatives will affect the character of the generation

¹ Energy Division Report -Resource Adequacy Workshop, January 26-27, 2012, p. 5.

available to serve load, as will the character of the renewable resources under contract, whose availability may be related by weather conditions or the time of day.

The CAISO 2013 Flexible Capacity Procurement Requirement proposal identifies significant challenges for the state given the combination of an aggressive program of renewable resource procurement, an upcoming reduction in flexible fossil generation due to new rules prohibiting once-through cooling for power plants, and the fact that many of the new renewable generation resources “operate on intermittent fuel supplies such as sunshine and wind, and are incapable of responding to ISO dispatch instructions and needs.”²

Abengoa Solar agrees with these assessments, and believes that both reports correctly identify a major shift in the California generation market whereby reliability will become an issue not just during system peak periods on summer afternoons, but at varying times during the day at all times of the year.

II. California Must Effectively Use All Generation Sources to Address Reliability Issues, Not Merely Traditional Dispatchable Sources

Both the Energy Division and CAISO reports fail to identify or take advantage of an important category of resources available to combat reliability issues at off peak times. When the availability of adequate resources is uncertain at off peak periods, such as during the ramping down of wind load and the ramping up of demand in the morning, the utilities’ transmission systems will not be operating at peak capacity. As a result, many of the new or soon to be constructed renewable resource generators will not be subject to the same transmission constraints that may occur during peak periods, and these renewable resources will be resource adequate if their generation technology allows them to generate at that time. For example, this is clearly true with a concentrated solar thermal project such as the Mojave Solar Project, which

² CAISO 2013 Flexible Capacity Procurement Requirement proposal, March 2, 2012. p. 4.

can provide a steady supply of electricity once it has achieved sufficient solar energy in the morning to heat its supply of water in the heat exchangers. From that point until late in the day, well after the system peak, such a solar thermal plant can generate reliably, without intermittent reductions due to passing clouds. Such plants offer partial deliverability that is of significant value to the grid operator, and that value should be accounted for in the regulatory and operational proposals addressing Resource Adequacy.

One potential way to achieve this is to redefine the derivation of a generator's net qualifying capacity (NQC) so that a partially deliverable resource gets credit for the times when it can generate. This proposal is consistent with concerns raised by other parties regarding the inflexibility of the current resource adequacy definition, which tends to exclude resources that are capable of providing partial deliverability that is still valuable for reliability purposes.³ One step in the right direction would be to replace exceedence methodology with Effective Load Carrying Capacity (ELCC) methodology in determining a generator's NQC.

The exceedence methodology for calculating NQC places 100% of a resource's capacity value during the one event in five year peak event and gives no value whatsoever during other hours of operation. Now that there is a consensus that this definition of reliability is inappropriate given the future generation mix in California, and the fact that flexibility and ramping capability in shoulder months and during morning and evening load ramps has become the critical need, the analytical methodology to determine the NQC of resources needs to reflect this fundamental change. Almost by definition, this requires switching to ELCC to calculate NQC. The analytical determination of transmission adequacy needs to change accordingly as well. We currently define "full deliverability" as incremental transmission capacity equal to the

³ Motion of the California Wind Energy Association Regarding 2012 Renewables Portfolio Standard Procurement Plans, R11-05-005, pp. 4-7, filed Dec. 8, 2011.

generator nameplate capacity in stressed conditions during that same one extreme event in five years. Given the size of the generator interconnection queue and the very significant turnover in the State’s generation fleet in the next decade, this has lead to an absurd apparent” need “ for massive amounts of expensive new transmission in order to achieve this “full deliverability” standard. Unfortunately, the only current alternative is an “energy only” interconnection standard that if applied in lieu of full deliverability would lead to massive congestion and administrative curtailment. What is required is a more nuanced standard of “partial deliverability” for transmission that matches the rubric for generator NQC. This again, by definition, means using the same ELCC methodology for assessment of transmission adequacy. ELCC is a tried and true methodology used worldwide for this kind of analysis. In fact, the CAISO already uses the same modeling construct (security constrained chronological dispatch) and the same software and data base (Plexos) as would be used in ELCC for many purposes today. This change in methodology is not monumental if the agencies concur in the need to reflect the value of partial deliverability.

III. The Energy Division and CAISO Proposals Should Be Amended to Recognize the Value of Partially Deliverable Generation Assets

Unfortunately, the Energy Division proposal does not expressly value renewable generators that are not 100% fully resource adequate, but which can provide substantial support for the system for varying periods of time. The “bucket” structure explained in the report does allow resources with partial deliverability to comprise part of the utilities’ procurement structure, up to specified percentage caps, derived from the historical availability for such resources over recent years. The utilities are given significant latitude in contracting for resources within the percentages allowed for each category of generation assets. However, the “bucket” structure does not specifically address how partially deliverable resources are to be valued in contrast to 100% available resource adequate generation under the existing framework. The “buckets”

place limits on utility contracting but do not give any real guidance to the utility in terms of encouraging the use of partially deliverable resources.

Similarly, the CAISO 2013 Flexible Capacity Procurement Requirement proposal appears focused exclusively on dispatchable resources. The proposal states that resources that cannot respond to ISO dispatch instructions are not eligible to provide flexible capacity.⁴ The proposal acknowledges that “most renewable generation resources, which generate only when the sun is shining or the wind is blowing, ...and other physically or contractually limited resources should not count as flexible capacity if they cannot respond to ISO dispatch signals.”⁵ Abengoa Solar believes that this approach is too narrow, given that such resources may provide substantial capacity at varying times of the day, including both peak and off-peak periods. In fact, even today, ***most of the RA capacity is provided by either baseload or self-scheduled resources that by definition are also “non-dispatchable.”***

Furthermore, a revision of the NQC definition as proposed by Abengoa Solar would be consistent with the provisions of Section 399.26(d) of the Public Utilities Code, which requires the Commission to determine the extent to which renewable resources contribute to resource adequacy. To Abengoa Solar’s knowledge, this provision of the Code has not yet been implemented by the Commission. Note that the full provisions of the Section 399.26 obligate the CAISO integrate renewable resources so as to minimize new transmission requirements and obligate the CPUC to determine the effective load carrying capacity of renewable resources for the express purpose of meeting resource adequacy requirements:

399.26. (a) In order for the state to meet the requirements of the California Renewables Portfolio Standard Program, substantially increased amounts of electricity generated by eligible renewable energy resources must be integrated with, and interconnected to, the

⁴ *Id.*, at p. 20.

⁵ *Id.*

transmission grid that is either owned by, or under the operational control of, the local publicly owned electric utilities and the transmission grid that is under the operational control of the Independent System Operator.

(b) The Independent System Operator and the balancing authority of each area in California shall do both of the following:

(1) Work cooperatively to integrate and interconnect eligible renewable energy resources to the transmission grid by the most efficient means possible with the goal of minimizing the impact and cost of new transmission needed to meet both reliability needs and the renewables portfolio standard procurement requirements.

(2) Accomplish the requirements of paragraph (1) in a manner that respects the ownership, business, and dispatch models for transmission facilities owned by electrical corporations, local publicly owned electric utilities, joint powers agencies, and independent transmission companies.

(c) The Independent System Operator shall seek any approvals from the Federal Energy Regulatory Commission that are necessary to accomplish the goals and requirements of this article.

(d) In order to maintain electric service reliability and to minimize the construction of fossil fuel electrical generation capacity to support the integration of intermittent renewable electrical generation into the electrical grid, by July 1, 2011, the commission shall determine the effective load carrying capacity of wind and solar energy resources on the California electrical grid. The commission shall use those effective load carrying capacity values in establishing the contribution of wind and solar energy resources toward meeting the resource adequacy requirements established pursuant to Section 380. (Emphasis added)

The Commission has yet to fully carry out the process mandated in Section 399.26(d), and it would be a valuable contribution to the effort to reform Resource Adequacy if this were to be completed. Abengoa Solar believes this process should be pursued in 2012 and completed as soon as possible in order to expedite the reforms to Resource Adequacy.

IV. Recommendations

The process of reforming Resource Adequacy will not be a short or simple process, and will involve multi-year cooperation and follow through by all of the California agencies involved in energy planning and regulation. Consequently, Abengoa Solar

recommends that the Commission, the CAISO and the CEC continue to coordinate and work together to achieve meaningful reform in the Resource Adequacy program by taking the following measures at this time:

1. Adopt the current CAISO proposal for “flexible capacity” for 2013, and specify that the results of the process be reflected in CPUC procurement proceedings for each electric utility for that year.

2. While adopting “flexible capacity”, the CPUC should commence the evaluation required by Section 399.26(d) and attempt to quantify the extent to which renewable resources can contribute to resource adequacy, not just on an annual system peak basis, but in terms of providing capacity that will support reliability at varying times during the day and during seasonal variations in generation and load.

3. At the same time, the CAISO should, in consultation with the CPUC, determine how to revise the definition of NQC, using ELCC methodology, to provide an alternative means of providing value to generation projects with partial deliverability.

4. At the same time, the CAISO should, in consultation with the CPUC, determine a new standard of transmission adequacy consistent with the new definition of NQC to optimize the buildout of new transmission to serve the changing characteristics of California’s generation fleet.

Respectfully submitted this 11th day of April, 2012 at San Francisco, California.

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