

**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

R.11-10-023
(Filed October 20, 2011)

COMMENTS OF NRG ENERGY, INC.

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For
NRG ENERGY, INC.

April 11, 2012

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

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

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COMMENTS OF NRG ENERGY, INC.

In accordance with the March 23, 2012 *Administrative Law Judge's Ruling Seeking Comment*, as amended by Administrative Law Judge David Gamson's March 30, 2012 e-mail to the parties in this proceeding granting an extension of time to submit comments until April 11, 2012, NRG Energy, Inc.¹ ("NRG") hereby submits these comments on (1) the March 23, 2012 *Energy Division Report Resource Adequacy Workshop January 26-27, 2012* ("Workshop Report"), which included a revised Energy Division ("ED") proposal for modifying the current Maximum Cumulative Capability ("MCC") buckets to account for flexibility requirements ("ED MCC Proposal"),² and (2) the California Independent System Operator Corporation's ("CAISO's") March 2, 2012 *2013 Flexible Capacity Procurement Requirement Supplemental Information to Proposal* ("CAISO FCP Supplement").³

I. COMMENTS

The topics covered in January 26-27, 2012 and March 30, 2012 workshops were:

- The coincidence adjustment;

¹ NRG Energy, Inc. is the parent of Cabrillo Power I LLC, Cabrillo Power II LLC, El Segundo Power LLC, Long Beach Generation LLC and NRG Solar Blythe LLC, each of which owns and operates generating resources in California. Because the focus of this proceeding is on California market issues, NRG Energy, Inc. appears on behalf of these entities, referred to here as the NRG Companies.

² Available at <http://docs.cpuc.ca.gov/efile/RULINGS/162601.pdf>.

³ Available at <http://docs.cpuc.ca.gov/efile/RESP/162107.pdf>.

- Qualifying capacity for resources connected via pseudo-tie and dynamically scheduled resources;
- The rounding convention;
- The ED MCC Proposal; and
- The CAISO FCP Supplement.

NRG’s comments will focus on the last two topics.

A. The ED MCC Proposal Presents a Problematic Classification System.

The current MCC buckets, first created in D.05-10-042, were intended to ensure that Load-Serving Entities (“LSEs”) do not rely on resources with limited energy production or run-hours to meet Resource Adequacy (“RA”) requirements. ED staff has proposed to restructure the existing MCC buckets to provide flexibility (i.e., the ability to change output at the CAISO’s direction to follow changing system conditions).

The ED MCC Proposal would classify resources into one of four buckets based on whether they are (1) dispatchable or (2) use-limited. Below is a summary table of the ED MCC Proposal’s suggested classification of resources:

Bucket	Would include these resources	Hours of Operation	Dispatchable	Maximum percentage*
1	Wind, run-of-river hydro	Limited	No	5%
2	Combustion turbines, DR, energy storage, dispatchable hydro	Limited	Yes	45%
3	Nuclear plants, solar, Combined Heat and Power, steam turbines	Unlimited	No	69%
4	Combined cycle gas turbines, geothermal, pumped storage, firm imports	Unlimited	Yes	100%

* that could be used to meet RA requirements

ED also analyzed hourly net load (i.e. load – wind) data from several years to establish cumulative procurement limits for bucket 1 – 3 resources, those resources deemed non-dispatchable, or that had energy limitations, or both.

ED has proposed a creative approach for modifying the somewhat irrelevant current MCC bucket structure to address flexibility needs. While creative, the ED MCC approach has several shortcomings. NRG offers the following comments on the ED MCC Proposal.

i. Inaccurate proposed classification of pumped storage resources.

ED has proposed to include pumped storage resources in bucket 4, which contains resources that are both dispatchable and use-unlimited. Pumped storage resources are typically very flexible when operating as generators, but unless they are equipped with variable-speed pumping capability, they are not flexible when operating as pumps – they are either off, or pumping at full load. Further, pumped storage resources may have significant energy and operating limitations due to such things as water-flow-through schedule requirements, forebay and tailbay size, and environmental restrictions on allowable daily changes to forebay and tailbay water elevations. These resources are better classified in bucket 2 – dispatchable and energy limited.

ii. Using hourly net load is not the appropriate basis for the analysis.

The ED MCC Proposal uses inter-hour changes in hourly net load values as the basis for its analysis. The CAISO's analysis of flexibility need, however, is based on much more granular (one-minute) net load data. Using hourly load data may not sufficiently capture intra-hour flexibility requirements, such as sharp wind ramps. While ED staff may not have had access to the more granular net load data used by the CAISO, NRG expects that using hourly net load data may not have captured all the flexibility requirements.

iii. Questionable inclusion of both steam turbine and demand response resources in bucket 2.

The ED MCC Proposal classifies steam turbine resources in bucket 2 – non-dispatchable and use-unlimited. This classification apparently stems from the criteria ED has proposed that a resource must satisfy to be deemed “dispatchable”:⁴

- A maximum ramp rate of at least 4 MW/min.
- A contractual obligation to be available for CAISO dispatch.
- A registered start-up time of less than ten hours or a minimum down time not to exceed 24 hours.

In building on the MCC bucket approach, the ED MCC Proposal relies on the differentiation between dispatchable and non-dispatchable, and use-limited and use-unlimited resources, to assign resources to different buckets. While this differentiation has appeal in theory, developing the appropriate practical differentiation among these two characteristics will present a challenge. Such differentiation inevitably will be based on defining binary “is/is not” threshold values within a continuum – values that will be arbitrary and questionable. As a result, the classification of resources into certain buckets based on whether or not, or even to the extent, resources possess these characteristics will be suspect.

For example, with regards to one classification characteristic – dispatchability - the ED MCC Proposal indicates that demand response resources are considered to be dispatchable,⁵ while steam turbines are not.⁶ This counter-intuitive result warrants a further investigation into the concept of dispatchability. While demand response resources may be able to respond within ten minutes of notification, and may also have the ability to reduce output quickly once

⁴ Workshop Report at 6.

⁵ *Id.* at 7.

⁶ *Id.* at 9, the Workshop Report includes steam turbine units in bucket 3, and *id.* at 8, the Workshop Report indicates that bucket 3 resources are non-dispatchable.

triggered, demand response resources typically cannot be triggered repeatedly over the course of a day or even over the course of a season. Conversely, while steam turbine units may not be able to respond with the same MW/minute ramp as similarly-sized demand response resources, their ability to repeatedly change output is typically not limited. Examining the operating characteristics of these resources suggests that dispatchability has not only a speed dimension, but a duration dimension as well. These multiple dimensions will make it even more difficult to define suitable “bright-line” break points, where a resource is deemed to possess the desired attribute on one side of the break point but not on the other side of the break point. Lacking such clear break points, any proposal to classify resources based on certain characteristics will not produce clear results.

As another example of the difficulty in assigning binary classification to operating characteristics: the ED MCC Proposal classifies hourly firm intertie resources as dispatchable,⁷ while the CAISO FCP Supplement proposes that hourly intertie resources are not eligible to provide flexibility.⁸ Hourly intertie resources cannot be considered dispatchable; typically, the intra-hour “dispatch” of such resources is limited to a single intra-hour change. While large inter-hour intertie schedule changes, which are accomplished through a twenty-minute ramp that begins ten minutes prior to the start of the operating hour, often contribute to the need for flexibility, static intertie schedules do not provide flexibility and should not be considered “dispatchable”.

In sum, the ED MCC Proposal depends on binary classifications of characteristics that do not lend themselves to such classifications. In contrast, the CAISO’s approach, which centers on well-defined flexibility products, rather than trying to differentiate between resources based on

⁷ Workshop Report at 9.

⁸ CAISO FCP Supplement at 23.

continuous rather than discrete operating characteristics, will likely prove to be a more useful and durable platform on which to build a system to address flexibility needs.

B. The CAISO FCP Supplement Offers a More Useful Platform.

The CAISO has proposed to incorporate flexibility requirements into RA procurement through the following process:

- Identifying three “types” of flexibility:⁹
 - maximum ramp
 - load following
 - regulation
- Analyzing net load¹⁰ to determine monthly requirements (in all twelve months) for each of the three types of flexibility.
- Requiring that LSEs procure and show resources that provide 90% of the flexibility requirements in their annual showings, and procure and show resources that fully meet the flexibility requirements in their monthly showings.¹¹
- Excluding base load resources, intermittent resources, hydro-electric resources, and hourly intertie resources from providing flexibility services.¹²
- While the CAISO FCP Supplement proposes to incorporate flexibility requirements into RA procurement for the 2013 compliance year,¹³ the CAISO

⁹ See, e.g., *id.* at 10, Table 1.

¹⁰ For the CAISO, net load is load less wind resources less solar resources.

¹¹ CAISO FCP Supplement at 18-19.

¹² *Id.* at 22-23.

¹³ *Id.* at 11-14.

indicated at the March 30, 2012 workshop that it would defer incorporating flexibility requirements until 2014.¹⁴

The CAISO's framework for incorporating flexibility requirements into the RA program, namely, defining the flexibility products and specifying clear procurement targets for those products, is preferable. The ED MCC Proposal's approach relies on highly subjective classification of resources into buckets based on characteristics that do not lend themselves to binary differentiation. While aspects of the CAISO's proposal warrants further clarification, discussion and refinement (*e.g.*, whether hydro resources are dispatchable, and whether resources that provide flexibility can be self-scheduled in the CAISO's markets), the CAISO's product-based framework seems a better platform on which to build a durable mechanism for meeting flexibility requirements. Parties may not agree that the three flexibility products proposed by the CAISO are the right three products, and further product definition should be discussed as needed. Nevertheless, NRG recommends building the system for incorporating flexibility requirements into the RA program based on the CAISO's product-centered approach rather than the ED Staff approach.

While the CAISO's framework is preferable, it seems apparent from the March 30, 2012 workshop that neither proposal will be implemented for compliance year 2013. In light of the CAISO's willingness to delay incorporating flexibility requirements into the RA program until 2014, the substantial opposition expressed by the LSEs at the March 30 workshop to implementing either the ED or CAISO proposal for RA compliance year 2013, and the expectation that there would be not be any shortages of flexibility for 2013, it seems reasonable (and prudent) to defer incorporating flexibility requirements into the RA program for 2013.

¹⁴ See March 30, 2012 CAISO Flexible Capacity Requirement presentation at Slide 14 (available at <http://www.cpuc.ca.gov/NR/rdonlyres/36AF21E5-5608-48EF-A4D5-5D2221BD0E00/0/CAISOFlexibleCapacityRequirement.ppt>)

Even if there was support for moving forward with flexibility requirements for 2013, it does not seem possible that either proposal could be sufficiently vetted or refined in time for the 2013 compliance year.

C. Multi-year Forward Procurement Must be Addressed.

Several factors point to the need to develop a durable multi-year forward RA procurement framework:

- The acknowledged “gap” in procurement between the one-year RA and ten-year LTPP time horizons;
- The LTPP proceeding’s focus on new, not existing resources;
- The CAISO’s active stakeholder process to obtain authority to allow the CAISO provide a backstop designation for flexible capacity and local capacity needs up to five years in the future.¹⁵

While this issue is not in the scope of this RA proceeding, it is proposed to be in scope of the newest LTPP proceeding.¹⁶ However, from an exchange at the March 30 Workshop, it is not apparent whether this issue will be considered in the LTPP proceeding or in the RA proceeding. As noted in its comments on the LTPP preliminary scoping memo, NRG urges that the Commission decide which proceeding this issue will be dealt with and begin work on this issue as soon as possible.¹⁷ For the reasons set forth in its comments¹⁷ on the LTPP scoping memo, NRG believes this issue may best be dealt with in the RA proceeding. Regardless of which

¹⁵ See materials at <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleCapacityProcurement.aspx>.

¹⁶ Order Instituting Rulemaking, issued March 27, 2012 in Rulemaking R.12-03-014 at 9 (available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/162752.pdf) (“We may consider adoption of new rules for forward procurement of flexible resources to support grid reliability, for either local reliability reasons and/or grid integration of renewable resources. In conjunction, we may review our policy and consider refinements to our existing rules concerning long-term contract solicitations.”)

¹⁷ Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, “Comments of NRG Energy, Inc. on Preliminary Scoping Memo,” R.12-03-014 (filed April 6, 2012).

proceeding addresses the issue of multi-year forward procurement, work on the issue should begin as soon as possible.

II. CONCLUSION

NRG thanks the Commission for this opportunity to submit these comments and respectfully asks the Commission take action consistent with the discussion herein.

Respectfully submitted,

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