

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 ENERNOC, INC., ON THE
ENERGY DIVISION'S RESOURCE ADEQUACY WORKSHOP REPORT**

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EnerNOC, Inc. (EnerNOC) respectfully submits these Comments on the Energy Division's Resource Adequacy (RA) Workshop Report, which was attached to the Administrative Law Judge's (ALJ's) Ruling issued in this proceeding on March 23, 2012 (March 23 ALJ's Ruling). These Comments are filed and served pursuant to the Commission's Rules of Practice and Procedure, the March 23 ALJ's Ruling, and the ALJ's Ruling of March 30, 2012, sent by electronic mail to the service list, extending the due date for these Comments to April 11, 2012.

**I.
INTRODUCTION**

The March 23 ALJ's Ruling offers parties the opportunity to comment on the Energy Division's Workshop Report for Resource Adequacy workshops held on January 26 – 27, 2012 ("Workshop Report"). Parties are also permitted to comment on "all topics addressed in presentations and/or in the transcripts of the January workshops," as well as on the California Independent System Operator's (CAISO's) "Submission of Supplemental Information to Proposal," (CAISO's Proposal) filed on March 2, 2012.

While EnerNOC participated in the January 2012 workshops, it also attended the more recent Energy Division Workshop held on Friday, March 30, 2012. At that workshop, two proposals were discussed: Energy Division's proposal on maximum capacity contribution

(MCC) buckets (which is included in the Workshop Report) and the California Independent System Operator's (CAISO's) Proposal for flexible capacity products that would be included in the resource adequacy (RA) requirements of the load-serving entities (LSEs). At the March 2012 Workshop, CAISO indicated that, while it would defer including the flexible capacity products into the RA requirement for 2013, it wanted to very quickly convene a process to discuss the incorporation of the flexible capacity products into the 2014 RA requirement. Further, CAISO stated its desire to expand the current annual RA requirement to a multi-year requirement. CAISO will also pursue backstop authority for resources at risk of retirement.¹

EnerNOC provides its comments on the Workshop Report and related presentations and proposals below with reference to the Energy Division's proposal in the Workshop Report and the CAISO's Proposal. It is EnerNOC's position that Energy Division has done a commendable job in developing new MCC bucket definitions and recommends that those definitions be adopted. In contrast, EnerNOC recommends that the Commission continue to study CAISO's Proposal since there is insufficient information to implement any requirement for the 2013 RA Compliance Year, or beyond, at this point. EnerNOC's specific comments on both the CAISO's Proposal and the Energy Division's Workshop Report are addressed below.

¹ On a procedural note, EnerNOC is aware that there is a Proposed Decision (PD) in the long-term procurement planning (LTPP) proceeding (R.10-05-006), which adopts a settlement entered into by several parties to the proceeding (Settlement Agreement). CAISO is a settling party. The Settlement Agreement finds that no new resources are needed for purposes of renewable integration until 2020. There is also a new LTPP Docket that has been opened (R.12-03-014), in which the issue of flexible capacity procurement has been preliminarily determined to be within the scope of that proceeding. Given the multiple forums where this issue is being addressed, EnerNOC urges the Commission to actively coordinate its consideration of this issue in a manner that will lead to consistent, uniform results that reflects the input of all affected stakeholders.

II. CAISO'S FLEXIBLE CAPACITY PRODUCT PROPOSAL

A. Summary of CAISO's Proposal

Based on its March 2 Supplemental Information, CAISO's Proposal shows over 12,000 MW of existing flexible capacity will retire by 2020 due to the State's once-through cooling (OTC) rules. In addition, California will add over 13,000 MW of wind and solar intermittent capacity by that time.

As a result, the ability to "balance" supply and demand with a fleet of variable renewable resources and a disappearing fleet of resources with flexible dispatch capabilities will threaten the reliability of the system. Therefore, the Commission needs to require load serving entities (LSEs) to procure capacity, not only for purposes of covering peak demand plus a reserve margin, but also to provide flexible capacity characteristics that will allow the CAISO to dispatch the resources to balance renewable intermittency. The three newly proposed products are: (1) "continuous ramping," (2) "load following," and (3) "regulation." If inadequate flexible capacity reserves are available, CAISO may procure additional flexible capacity, through backstop procurement, and allocate the costs back to load. Further, CAISO will seek backstop authority for resources that are at risk of retirement.

The "continuous ramping" product will identify resources that are capable of ramping up or down to meet the longest period of continuous increase or decrease in net load, gross load less wind and solar output. For example, the longest continuous ramping period in August 2011 is 11.1 hours at 27 MW/min for a total capacity of just over 18,000 MW.

"Load following" is the maximum change in net load within an hour. The largest change in net load in 2011 occurs in December, with a total change of just over 4,500 MW and an

average ramp rate of 75 MW/min. November through February appear to be the months in which there is the greatest need for load following.

“Regulation” measures the maximum net load change within a 5-minute dispatch period. The months in 2011 wherein the need for maximum regulation resources occur are March and November at around 1000-1200 MW at an average ramp rate of about 270 MW/min.

B. The Commission Should Grant CAISO’s Resource Adequacy Requests Only to the Extent that They Do Not Supplant or Conflict With This State’s Energy Policies.

EnerNOC understands and appreciates that the CAISO is charged with ensuring the reliability of California’s electricity grid. It is also true that the nature of ensuring grid reliability is becoming increasingly complex as a result of changes in the provision of electricity service that emanate from specific energy policy goals.

For example, California has adopted targets for greenhouse gas (GHG) emissions reduction by 2020 that will be met, from the electricity sector, primarily through increasing the renewable resource penetration to 33% and by increasing energy efficiency. In terms of planning for generation to meet load, energy efficiency and demand response are at the top of, and are the “preferred” resources, in the Commission’s “loading order” of resources to meet that demand. Further, the State has set distributed generation targets of 12,000 MW, is actively implementing smart grid technologies, and encourages policies that support the clean, efficient use of energy, including plug-in electric vehicles.

All of these policies challenge the conventional definition of resources from a central-station facility to distributed resources from unconventional sources, including adjusting consumption in response to price signals or other incentives. This construct will become more prevalent as technology progresses and access to smart technologies become more ubiquitous.

EnerNOC appreciates that these changes in electricity production and consumption complicate the CAISO's ability to manage, control, and balance system requirements and that CAISO may require new products to meet changing needs. However, the Commission must ensure that any response it makes to CAISO's requests is consistent with and in furtherance of, California's, and its own, energy policies and any applicable legislative mandates.

C. The Commission Does Not Have Adequate Information to Translate CAISO's Stated Need For 4,600 MW of Flexible Capacity Into a Resource Adequacy Requirement.

CAISO has identified the potential loss of existing "flexible" capacity due to the OTC rules,² as well as the amount of new intermittent capacity that is likely to come online through 2020.³ CAISO appears to have excluded new, non-renewable capacity that is projected to come online within the study period.⁴ It is unclear what assumptions CAISO incorporated for future demand response resources, either participating directly in CAISO, through dispatchable demand-side programs or non-dispatchable programs that, nonetheless, modify the load shape of demand. Other than the chart on page 3 of CAISO's Proposal, there is no substantiation of the quantity that is needed or how the specific products requested by CAISO equate to an additional 4,600 MW of flexible capacity products or a new RA Requirement.

EnerNOC is concerned that the resource need on which CAISO relies is determined based upon a worst-case scenario of inelastic demand, maximum retirements, and little acknowledgement of flexible capacity value from newly added intermittent resources or other new, non-renewable capacity additions. CAISO has not established any interim capacity needs prior to 2020. For these reasons, EnerNOC submits that there is still a lot of additional

² CAISO indicates that over 12,000 MW of flexible capacity may retire as a result of the once-through cooling regulations. It is not clear if all plants that are affected by the OTC regulations have decided to retire and the retirement is imminent or if this is a worst-case scenario.

³ It is not clear if CAISO assumes that the new renewable resource additions will not contribute at all toward CAISO's requested resource needs.

⁴ CAISO indicated that 5,000 MW of new, non-renewable generating capacity was expected to come online.

information that needs to be provided before the Commission can adopt CAISO's request and translate it into a new resource adequacy requirement for LSEs.

D. CAISO Has Not Explained How These New Flexible Capacity Products Will Interact With, Replace Or Supplement Existing CAISO Products.

Resources that are receiving credit for fulfilling an LSE's RA requirement are required to bid energy into the day-ahead (DA) markets. In addition, these resources have the ability to bid to provide ancillary services, such as spin, non-spin and regulation. It is unclear how these new resource definitions will interact with existing products or why the existing products are insufficient to meet CAISO's needs.

E. It Is Unclear How CAISO's Existing Least-Cost, Security-Constrained Dispatch Models Do Not Already Take Into Account Ramping and Load Following Requirements Based Upon Demand Profiles.

Existing demand profiles should incorporate intra-day demand changes. Demand forecasting, with the advent of smart meters, will increase precision, which should, in turn, increase the efficiency of CAISO's dispatch models. It is unclear how better forecasting, and as a result, better scheduling, would not, to some extent, address intra-day changes. It is also unclear why renewable resources exacerbate the need for load following, ramping or regulation if the study is calculated on net-load basis. In other words, the additional variability due to wind and solar has been deducted from the study results by using net load. Energy Division's study showed that a comparison of net load (gross load minus wind generation) to gross load would not require additional capacity for load following.⁵

⁵ Workshop Report, at p. 11. Note that there is a difference between the definition of net load between the Energy Division and CAISO. Also note that even though the CAISO has done a minute-by-minute analysis, whereas the Energy Division has done an hour-by-hour analysis, the definition of load following is to accommodate intra-hourly changes. Shorter duration changes may be better addressed through the regulation product.

F. CAISO Seems to Give Short Shrift to the Potential for Load to Act As a Resource to Balance the System, As Well As Any of a Number of Potential Technologies That May Become More Commercially Available During the Planning Period.

As the Commission and the investor-owned utilities (IOUs) are in the process of unlocking the value of the smart meters, both from a system operation and efficiency standpoint, including encouraging more demand-side services, the CAISO does not seem to quantify any of that additional potential as a means of integrating renewable resources. The CAISO also does not seem to include the value of storage or batteries or PHEV. In fact, the addition of new technologies seems only to be detrimental to system reliability and add no benefit.

EnerNOC is concerned that the CAISO has, therefore, understated the value of smart grid technologies, including demand-side resources, and the system benefits that intermittent resources, and DG, can provide. As a result, CAISO is overstating its resource needs and creating a self-fulfilling prophecy of continued reliance upon fossil-fueled facilities.

G. CAISO Has Not Explained How Demand-Side Resources Can Participate in the Products That They Are Requesting the Commission to Include in the RA Requirement.

It is unclear to EnerNOC whether, and under what conditions, demand response would be able to participate in the three products that CAISO has identified.⁶ For example, if a resource must be available for a full 11 hours/day in August to be considered a continuous ramping resource, then DR participation would likely be quite small. Yet, certainly DR could be beneficial for some portion of that 11-hour period. DR certainly could provide load following, again for periods of limited duration and possibly regulation; but, it is unclear what the notification, dispatch and metering requirements would be.

⁶ EnerNOC notes that CAISO has initiated a stakeholder process to examine a new regulation product that can be provided by demand resources; however, the product, as proposed, is limited to Participating Load, which means only load-serving entities can provide the service.

In addition, if DR resources would be required to provide the same ramping, load following or regulation capacity up and down, it may prove problematic for some DR resources. Ramping up would be curtailing the DR resources consumption and ramping down would be consuming more energy. If a DR resource was already using its maximum, it is unlikely that the resource could consume more energy above that level, to ramp down, unless it was returning to normal operating levels from a previous curtailment.

Regulation, to date, has required telemetry, which is cost-prohibitive for most customers. It is unclear whether automated demand response (ADR) or use of smart meters can replace the CAISO's current telemetry and settlement data requirements.

H. Backstop Procurement for the Purpose of Deferring the Retirement of Certain Facilities Places the CAISO in the Position of Showing a Preference for Certain Generators Over Others.

EnerNOC is concerned about the potential preferential treatment certain generators would receive under the CAISO's proposal in the form of additional remuneration over others for the sake of deferring retirement and/or to "make-up" for energy compensation lost by certain generators as a result of increased renewable penetration. CAISO has not identified whether this additional remuneration will actually defer the retirement of the facility or if, but for the additional compensation, the facility would retire and that the facility's absence would jeopardize the reliability of the system. Further, displacement of one resource by another resource is what happens as new resources are added into the supply mix. If there is a policy to provide additional remuneration for resources that are being displaced, then, again, we have to ask if we are, in essence, undermining the underlying policy. This proposal is very controversial on many levels and should not be implemented without further discovery of the matters identified herein.

III. ENERGY DIVISION'S PROPOSAL

While EnerNOC does not support the CAISO's proposal in its current form for the reasons stated above, it does support the Energy Division's analysis in establishing MCC buckets based upon their analysis of 2009, 2010 and 2011 hourly load data. EnerNOC also supports the Energy Division's suggested change in the MCC bucket definitions from being based upon hours of availability exclusively, to including the ability for the resource to be dispatched, wherein dispatchability is defined by the Energy Division to include the following characteristics:

- A maximum ramp rate of at least 4 MW/min
- A contractual obligation to be available for dispatch by the CAISO
- A start-up time of 10 hours or less or a minimum down time not to exceed 24 hours
- DR is considered dispatchable

The Energy Division defines the MCC Buckets as follows:

<i>MCC</i>	<i>Description</i>	<i>Resources Included</i>	<i>Limit</i>
1	Non-Dispatchable, Limited Availability	Wind, non-dispatchable hydro and CHP	5%
2	Dispatchable, Limited Availability	DR, Energy Storage, Peakers	45%
3	Non-Dispatchable, Unlimited Availability	Solar, nuclear facilities and non-dispatchable geothermal	69%
4	Dispatchable, Unlimited Availability	Combined Cycle Combustion Turbines, Pumped Hydro	100%

In support of this proposal, Energy Division established the MCC Bucket 1 limitation based upon the fact that the resources that are defined by the definition represent only 2-4% of the net qualifying capacity (NQC) on the system; therefore, Energy Division recommended a cap of 5% of NQC that can come from those resources. Energy Division also studied the inter-hour fluctuations of wind on load and examined the median, mean and 90th percentile data for each

hour of data and determined that it was unlikely that fluctuations from MCC Bucket 1 resources would result in a need for new load following or ramping resources.

In establishing the limits for Buckets 2 and 3, Energy Division looked at the maximum load in each hour compared with minimum loads for the month. This analysis was done for each month. As a result, Energy Division determined reasonable limits for baseload, non-dispatchable resources and peaking, dispatchable resources of 69% and 49%, respectively.

EnerNOC finds Energy Division's analysis reasonable. EnerNOC, therefore, recommends the adoption of Energy Division's proposal.

IV. CONCLUSION

Given the foregoing concerns relative to CAISO's Proposal, the Commission should not adopt an RA requirement that includes a flexible capacity component for the 2013 RA Compliance Year or beyond without further study and analysis. The Commission should also not support CAISO backstop procurement for the purpose of deferring resource retirement without further study and analysis. However, for the reasons stated above, the Commission should adopt Energy Division's Proposed MCC Buckets.

Respectfully submitted,

April 11, 2012

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