

Stakeholder Comments Template

**Flexible Resource Adequacy Criteria and Must-Offer Obligation
Straw Proposal, July 25, 2013**

Submitted by	Company	Date Submitted
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This template is for submission of stakeholder comments on the topics listed below, covered in the Flexible Resource Adequacy Criteria and Must-Offer Obligation revised straw proposal on July 25, 2013, and issues discussed during the stakeholder meeting on August 1, 2013.

Please submit your comments below where indicated. Your comments on any aspect of this initiative are welcome. If you provide a preferred approach for a particular topic, your comments will be most useful if you provide the reasons and business case.

Please submit comments (in MS Word) to fcp@caiso.com no later than the close of business on August 15, 2013.

1. The ISO has proposed a process by which an annual flexible capacity requirement assessment would be conducted. Please provide any comments or questions your organization has regarding this proposed process.

2. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs. It is based on one possible measurement of the proportion of the system flexible capacity requirement to each LRA and calculated as the cumulative contribution of the LRA's jurisdictional LSE's contribution to the ISO's largest 3-hour net load ramp each month. Please provide comments regarding the equity and efficiency of the ISO proposed allocation. Please provide specific alternative allocation formulas when possible. The ISO will give greater consideration to specific allocation proposals than conceptual/theoretical ones. Also, please provide information regarding any data the ISO would need to collect to utilize a proposed allocation methodology. Specifically,
 - a. Over the course of a day or month, any of the identified contributors to the change in the net load curve may be positive or negative. How should the ISO account for the overall variability of a contributor over the month (i.e. how to account for the fact that some resources reduce the net load ramp at one time, but increase it at others)?

- b. What measurement or allocation factor should the ISO use to determine an LRA's contribution to the change in load component of the flexible capacity requirement?

A: Using contribution to peak load does not seem to be the appropriate metric for allocating flexible capacity resource needs to an LRA or, subsequently, an LSE. Peak load contribution has almost nothing to do with flexible capacity needs. It seems like it should be determined based upon a contribution to the maximum 3-hour ramp, which is based upon the net load calculation (gross load less peak solar generation). While admittedly wind can contribute to the ramps, it seems that the largest concern, in the near term, is the generation from solar in the midday.

- c. Does your organization have any additional comments or recommendations regarding the allocation of flexible capacity requirements?
3. The ISO has proposed must-offer obligations for various types of resources. Please provide comments and recommendations regarding the ISO's proposed must-offer obligations for the following resources types:
- a. Resources not identified as use-limited
 - b. Use-limited resources
 - 1. Please provide specific comments regarding the ISO's four step proposal that would allow resources with start limitations to include the opportunity costs in the resource's start-up cost.
 - 2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.
 - c. Hydro Resources
 - d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):
 - 1. Demand response resources
 - A.** EnerNOC appreciates the efforts that the CAISO has made to accommodate concerns expressed by EnerNOC with respect to a 17-hour availability window and associated must-offer

obligation (MOO). In response, CAISO has suggested a choice of one of two availability windows for DR: 6 AM-11 AM or 4 PM-9 PM. EnerNOC offers the following comments relative to CAISO's proposal, with the intention of maximizing the amount of DR available to the CAISO when needed.

In order for DR to serve as a resource to the grid, load has to be available to be reduced when directed. EnerNOC serves commercial, industrial, institutional and agricultural loads. Some of those loads have flexible hours of operation or may have 24 hour shifts; however, most of EnerNOC's customers are available during normal business hours. As such, those businesses are not available to drop load between 6-8 AM and/or between 7-9 PM, with the exception of emergency lighting, refrigeration and low-level air-conditioning load. Further, load increases and decreases throughout that business day. The commercial and industrial load shape is different from the residential load shape. As load is ramping up or down, during the early and late ramp hours, there is less of a capability to reduce load than during midday hours. Another example is that A/C load is a much more significant part of overall energy use for a business when the sun is shining, but would be less significant in the early morning hours or early evening hours. In short, it may mean that the majority of EnerNOC's C&I DR customers are not driving the early morning or early evening ramping need.

As such, EnerNOC's ability to provide a consistent load reduction across the proposed availability window hours (6 AM - 11 AM and 4 PM – 9 PM) could be addressed in a couple of ways: 1) EnerNOC would offer the "lowest" amount available across the five hour window in order to reflect a decreased capability to reduce load between 6 AM and 8 AM and/or between 7 PM and 9 PM, 2) EnerNOC would offer an average capacity across the 5 hours, with some variability hour-by-hour or 3) EnerNOC would be able to choose a 5-hour availability window from the 10-hours suggested by CAISO over which it could provide a more consistent level of performance. There can also be a combination of 2 & 3. EnerNOC wants neither to overstate nor understate its capabilities. Therefore, even if EnerNOC would face penalties, it may be advisable to submit offers that reflect the available capacity, as opposed to the committed capacity, so as not to send an erroneous signal to the CAISO about the resource capability.

Option 1 ensures the lowest amount of DR is available to CAISO, but results in a consistent amount across the availability window. Option 2 reflects the fact that load capabilities to curtail vary throughout the day, especially as load is ramping up or down and uses an average capacity commitment, which can vary hour-by-hour. Option 3 would fulfill the resources availability for five hours/day, but would allow the resource to determine the hours in which the resource could provide the greatest availability to the grid.

Admittedly, EnerNOC's customers may only be contributing partially to the ramping needs. In other words, residential and small commercial customers may be contributing more to the ramping needs than the medium-to-large C&I segment. In that case, EnerNOC's DR can be useful in partially reducing, but cannot fully mitigate that ramping need.

2. Storage resources
3. Variable energy resources
4. The ISO has proposed to include a backstop procurement provision that would allow the ISO to procure flexible capacity resources to cure deficiencies in LSE SC flexible capacity showings. Please provide comments regarding the ISO's flexible capacity backstop procurement proposal.
5. The ISO is not proposing to use bid validation rules to enforce must-offer obligations. Instead, the ISO is proposing a flexible capacity availability incentive mechanism. Please provide comments on the following aspects of the flexible capacity availability incentive mechanism:

A: This is an interesting proposal of using a carrot, as opposed to a stick, to encourage conformance with the MOO.

- a. The proposed evaluation mechanism/formula
 1. The formula used to calculate compliance
 2. How to account for the potential interaction between the flexible capacity availability incentive mechanism and the existing availability incentive mechanism (Standard Capacity Product)
- b. The use of a monthly target flexible capacity availability value

1. Is the 2.5% dead band appropriate?
 2. Is the prevailing flexible capacity backstop price the appropriate charge for those resource that fall below 2.5% of monthly target flexible capacity availability value? If not, what is the appropriate charge? Why?
- c. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.
6. Are there any additional comments your organization wishes to make at this time?
- A. Yes. See below.

Use Limitations: Despite the limited hours of daily availability for DR resources proposed by CAISO, continuous daily dispatches of DR resources are likely to result in customer fatigue. Therefore, it will be important to limit dispatches to when the resources are truly needed and when it is economic to provide the demand reductions. There are essentially two ways of reducing the potential for resource fatigue: 1) use limitations and 2) pricing. EnerNOC will address pricing in the subsequent section.

There are a few parameters to define use limitations, which were developed with generation in mind. They include: number of starts/day, maximum run hours/start, minimum run hours/start. These use limitations may not be adequate to prevent over-use of the resource. Participants need to be able to specify a maximum number of dispatches and hours of dispatch per month or year.

EnerNOC had previously proposed that another way to get to the use-limited nature of DR is to establish a MOO for DR resources when the actual ramping need on the system is forecast to be within 5% of the maximum ramp identified for the month. This is another way to limit DR dispatches to those hours when they are most needed.

Without the ability to specify use limitations, then DR resources have to rely upon price to limit the dispatches to those hours when it is economic to curtail and when the curtailment is required by the system.

Opportunity Costs for Monthly or Annual Start Limited Resources: The opportunity cost proposal contained in the Second Revised Straw Proposal is an interesting approach to limit dispatches to only those hours that are in excess of the opportunity cost. Essentially, the opportunity cost would serve as a strike price.

Such a mechanism could be useful for DR resources. However, there are a few clarifications that would be necessary.

First, the four-step formula on pages 25 and 26 are not necessarily useful for DR and appear to have been directed to generation. Second, the DR resource should define the opportunity cost-not the CAISO and not an independent entity. Third, it would be helpful for the CAISO to clarify the relationship between the default energy bid and the opportunity cost. It would be important for the DR resource to modify or adjust the opportunity cost, and therefore be a dynamic entry, as it may be subject to change based upon changes in customer circumstances.

Determining the opportunity cost for a DR resource is not as straightforward as the calculation for a generating unit. It is not as definitive because different customers have different thresholds as to their willingness and ability to curtail. A DR resource is comprised of many customer sites representing businesses across the economic spectrum. These businesses have different usage and operating characteristics, business cycles, financial targets, environmental and corporate responsibility goals, etc. Also, EnerNOC does not have a lot of experience with managing a DR resource for this purpose. Flexible capacity is a unique resource to the CAISO. Therefore, EnerNOC will need to gain experience with its customers' capabilities to curtail for this purpose, during "odd" hours. It is also unclear as to how the resource requirements will affect recruitment and the existing customer composition. There are many unknowns and therefore there is a need for flexibility for offering DR to CAISO.

It would also be important to know if the opportunity cost will be mitigated. EnerNOC understands that DR will not be subject to local market power mitigation. Resources should be free to specify prices below which they are unwilling to be dispatched, subject only to the system-wide offer cap; but, such offers should not otherwise be constrained, modified or mitigated.

Determination of Bid Capacity: It is unclear whether the amount of capacity that a resource is required to bid to fulfill its MOO is the same over an annual period or if it could change monthly, as the amount of flexible capacity requirement changes monthly. It would be preferable to establish a monthly MOO as load availability for curtailment will change based upon many factors, including A/C.

At present, Load Impact Protocols are the basis for determining the DR capacity that can count toward meeting local and system RA requirements. It is not clear if that process or some other process will be used for determining the amount of DR capacity that can be used for flexible capacity resource purposes. Since this is a market, EnerNOC would suggest that it be left to the market participant to decide, along with all of the attendant responsibilities if the market participant fails to meet its commitments.

Sub-LAP Delivery of a System Resource:

CAISO states, at page 29, that DR Providers can “rotate” dispatches from day-to-day among customers so as not to over-burden any single enrollee. However, the CAISO seems to forget that DR Providers are required to bid, through PDR, on a sub-LAP basis, even to provide a flexible capacity resource, which is a system requirement. The sub-LAP design limits the number of customers that can participate in a resource. The ultimate design of the FRACMOO may reduce the number of customers that are eligible to meet the resource requirements. In combination, it will be difficult to find enough customers to participate in FRACMOO, much less be able to rotate among them for dispatches. Even if we did rotate customers, then the amount of capacity available at any one time is going to be less than if we didn’t have to rotate customers. For the purpose of providing flexible capacity or system resources, the CAISO should consider allowing DR to offer and settle on a DLAP basis.

DR FRACMOO Bids and NBT: The average energy price on CAISO’s system for the annual period ending with the first quarter 2013 is roughly \$50/MWh. The net benefit test (NBT) threshold is roughly \$50/MWh. By definition, it is uneconomic for DR to participate in the electricity market when the clearing price is at or below the NBT threshold. Therefore, in most hours, DR would be uneconomic or only marginally economic to participate in the energy market. Practically speaking, an energy price of \$50/MWh will not be enough of an inducement for a customer to participate.

Dispatch Notice: By qualifying as a flexible capacity resource, the resource must offer into the D/A and R/T energy markets. Even if the resource’s D/A offer is accepted, the resource is required to offer into the R/T energy market. The DR resource will be paid the D/A energy clearing price plus or minus any deviations to that D/A schedule that result from the R/T market clearing. Market participants will be notified of their dispatch instruction after the R/T market closes and 37.5 minutes in advance of the dispatch interval.

The more advance notice that EnerNOC can provide to its customers of a dispatch instruction, the better. However, the uncertainty between the D/A and R/T market awards will introduce uncertainty in the ability to manage the resource performance based upon the final award. That leaves only 37.5 minutes to ask customers to either perform more or less before the dispatch interval. It is not possible to tell at this moment whether the difference between the D/A and R/T market awards will be significant. However, significant changes from the D/A to R/T will make it difficult for EnerNOC to manage the resource performance and provide adequate notice to its customers.

Complexity and Lack of Market Signals: Based upon these comments, there are still several areas of concern to work through and the resulting structure may still be complex and confusing. While EnerNOC is committed to providing constructive feedback to the CAISO with the goal of creating a workable framework, and EnerNOC appreciates the CAISO's responsiveness to date, adopting a flexible capacity resource requirement moves CAISO further and further away from sending market signals to encourage the specific attributes and characteristics that the CAISO wants and needs to reliably manage the electricity system. In so doing, the CAISO model is diverging from other successful market models, like PJM.