Stakeholder Comments Template

Flexible Resource Adequacy Criteria and Must-Offer Obligation Third Revised Straw Proposal, Posted October 3, 2013

Submitted by	Company	Date Submitted
Brian Theaker brian.theaker@nrgenergy.com	NRG Energy, Inc. ("NRG")	October 16, 2013

This template is for submission of stakeholder comments on the topics listed below, covered in the Flexible Resource Adequacy Criteria and Must-Offer Obligation third revised straw proposal on October 3, 2013, and issues discussed during the stakeholder meeting on October 9, 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 October 16, 2013.

NRG's comments are in blue italics.

1. 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. Specifically, please comment on:

    a. The ISO's proposal to use an LSEs average contribution to historic daily ISO maximum 3-hour load changes to allocate the Δ load component of the flexible capacity requirement.

    This approach is an improvement relative to allocating the Δ load component based on an LSE's non-coincident peak demand. However, using average three-hour load changes to allocate an obligation to procure that is based on the maximum three-hour ramp may still not fully reflect causation principles.

b. The potential of using historic average daily maximum 3-hour net-load ramps or time of day system maximum 3-hour load ramps (morning vs. evening ramps).

Again, using average values to allocate a requirement that is based on a maximum value may not fully reflect causation principles.

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

Ideally, the flexibility requirement would be allocated on each LSE's contribution to the projected ramping need. Nevertheless, allocating the three-hour ramp component of the flexibility requirement based on analysis of historic contributions to ramping needs is a better approach than allocating that component based on projected peak demand.

d. Should the ISO consider seasonal allocations for each component? What would these seasonal allocations look like?

Inasmuch as RA (and flexibility) procurement is likely to be specified and enforced on a monthly basis, it would not make sense to allocate monthly requirements on a seasonal basis.

2. The ISO believes the proposed methodology reflects causation principles. Specific to allocating flexible capacity requirements, what does "causation" mean to your organization and how would this definition be most accurately reflected in a flexible capacity requirements allocation process?

"Causation" means allocating the flexibility requirement in direct proportion to the operational characteristic that gives rise to the requirement. Ideally, this would mean being able to accurately forecast each LSE's maximum three-hour ramp.

3. What are the appropriate bounds for the maximum and minimum for the error term as well as how to address year-to-year variability? What are the appropriate actions if such bounds are reached?

The error term is intended to account for uncertainty in the projection of the flexibility requirement – something that cannot be ascertained until some history is obtained. The minimum for the error term should be zero (0). The error term maximum should be set at a level that provides a reasonable "safety margin" for the CAISO to ensure that adequate flexibility has been procured. Perhaps a starting point would be to set the error term to provide one or two standard

deviations of margin for both components of the flexibility requirement (maximum peak demand and the three-hour ramp).

4. 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

    The CAISO proposal is reasonable.

    b. Dispatchable gas-fired use-limited resources

        1. Please provide comments regarding the ISO's proposal that would allow resources with use- limitations to include the opportunity costs in the resource's default energy bid, start-up cost, and minimum load cost.

        The CAISO's approach – to allow use-limited resources to include an opportunity cost to help ration their use – is reasonable. It is also reasonable for the CAISO to include the opportunity cost in the calculation of the proxy cost cap. What is less clear is what scrutiny any opportunity cost adder submitted by the resource's owner, not by the CAISO, will be subject to.

        2. Please provide information on any use-limitations that have not been addressed and how the ISO could account for them.

        No response.

    c. Hydro Resources

    The CAISO's approach is reasonable.

    d. Specialized must-offer obligations (please also include any recommended changes for the duration or timing of the proposed must-offer obligation):

    NRG remains concerned that the flexibility offering obligation proposed by the CAISO for some specialized resources remains dramatically different than the flexibility offering obligation that is proposed for other resources. While NRG supports allowing preferred resources to provide needed market products, including flexibility, the idea that resources that have

very different offering obligations could provide the same amount and kind of flexibility as other resources with much more demanding offering obligations does not align with idea of encouraging technology-neutral competition through sound, equitable market design. If resources providing flexibility are allowed to have different offering obligations, then some mechanism must be developed so that these resources' limitations are reflected either in the amount of flexibility they are allowed to provide or the compensation they receive.

1. Demand response resources.

While NRG supports the CAISO's proposal that DR resources must provide at least three hours of response to qualify to provide flexible capacity, NRG does not support allowing DR resources to offer into one of two smaller, discontinuous periods instead of having to offer for the full flexibility period. If the CAISO restricts the use of a DR resource to once a day, it is not clear why such resources should only have to offer into one of two parts of the overall flexibility period and not for the entire flexibility period. If the concern is that DR resources may not have the load to support offered flexibility - a DR resource that does not have the load to support its flexibility offering obligation should not be allowed to offer flexibility at that level.

2. Storage resources.

NRG still does not understand how offering into the Regulation Energy Market satisfies an obligation to provide ramping capability over a three-hour period. While NRG supports finding ways to encourage the participation of preferred resources, including storage, in the CAISO's markets, the regulation energy management product is fundamentally different from the flexibility product as currently designed.

3. Variable energy resources.

The CAISO's proposal is reasonable.

5. The ISO has proposed a flexible capacity availability incentive mechanism Please provide comments of the following aspects of this mechanism:

   a. The selection of the adder method as the preferred option

NRG supports this approach. However, as noted below, NRG has serious concerns about the level of the proposed adder.

1. Should the ISO still consider the bucket method, the "worse-of" method, or some other method not already considered? Why?

   No.

b. The price for the flexibility adder. Specifically, if the ISO proposed price is not correct, what price or data source should the ISO consider and why?

   The proposed flexibility value of $23.25/kW-year is not reasonable. From NRG's experience, the current value that market participants ascribe to flexibility is likely several orders of magnitude below that number.

   The mathematical exercise the CAISO enlisted to derive the $23.25/kW-year price (starting with the 2011 difference between the median system RA price and the 85% system RA price, then escalating that price to 2015 by the difference between that difference and the same difference in 2010) is not valid. The CAISO started with one, and perhaps two, arbitrary points on the RA supply curve; nothing ties the value of flexibility to either of these points. Further, the assumed escalation was not supported; for example, the CAISO provided no evidence that system RA prices have actually escalated as the proposed flexibility price was escalated.

   The only comparable market product that currently exists from which the CAISO could derive a value for flexibility is the Flexible Ramping Constraint. However, for reasons that are not yet clear to NRG, the CAISO has dismissed using the FRC as the proxy flexibility value.[1]

   NRG finds the $23.25/kW-year value proposed by the CAISO to be unreasonable. At the same time, the CAISO does not wish to use a value derived from the FRC price. As a result, there appears to be no common path forward and additional work will be needed to derive an initial SFCP price.

c. The interaction between the existing SCP and the proposed SFCP

   Under the adder approach, the proposed interaction is reasonable.

d. The proposed SFCP evaluation mechanism/formula

[1] "For example, the use of the flexible ramping constraint offered an extremely wide spread of values depending on the assumptions about how a non-zero shadow price in the flexible ramping constraint. Therefore, the ISO does not believe the flexible ramping constraint is the appropriate mechanism to establish the flexible capacity adder." Third Revised Straw Proposal at Page 43.

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)

The formula proposed by the CAISO is:

$$SFCP\ Availability_{MTH_y} = \frac{\sum_{i,j}[Min(MW\ bid\ into\ hour\ i\ on\ day\ j\ into\ DAM, MW\ bid\ into\ hour\ i\ on\ day\ j\ into\ RTM)]}{Compliance\ hours\ in\ the\ month * Flexible\ capacity\ provided}$$

If a resource owner bids flexible capacity into the CAISO's markets, and some of that capacity is awarded energy in the Day-Ahead market, NRG presumes that capacity need not be bid in to the Real-Time market. For example, if the resource owner sold 100 MW of flexible capacity, was awarded 50 MW of energy associated with that bid in the Day-Ahead market, the resource owner would only have 50 MW of flexible capacity left to offer in Real-Time. However, as NRG understands, the CAISO's formula, since the formula looks at the ***minimum*** *of the flexible capacity offered to either the Day-Ahead or Real-Time market, the formula would understate the amount of capacity actually offered when flexible capacity is awarded energy in the Day-Ahead market. NRG seeks clarification on whether it is correctly interpreting the CAISO's intent.*

2. The treatment of forced and planned outages

The CAISO's proposal is reasonable.

3. The minimum availability thresholds for use-limited resources

The CAISO's initial proposal – bidding in 90% of the required hours over at least 20 days – is reasonable.

e. The proposed substation [substitution?] rules for forced outages

The CAISO's proposal is reasonable.

f. Please also include comments regarding issues the ISO must consider as part of the evaluation mechanism that are not discussed in this proposal.

No response.

6. 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 following issues of ISO's proposed flexible capacity backstop procurement proposal:

    a. The inclusion of the adder methodology

    The adder methodology – which would subject the generic RA to one penalty level and the flexible capacity to another penalty level – seems reasonable. However, as noted above, the $23.25/kW-year penalty value proposed by the CAISO is NOT reasonable.

    b. The opportunity for LSEs to provide a list of uncommitted flexible capacity that can be used to help cure flexible capacity deficiencies

    NRG supports this.

7. Are there any additional comments your organization wishes to make at this time?

    NRG appreciates the CAISO's efforts to move forward with the FRACMOO effort. Doing so is a necessary complement to work that will soon begin at the CPUC. NRG also supports pushing the FRACMOO decision back to the February 2014 Board meeting to provide more time to work through this important and complicated matter.