

## Stakeholder Comments Template

### **Flexible Resource Adequacy Criteria and Must-Offer Obligation Third Revised Straw Proposal, Posted October 3, 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 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](mailto:fcp@caiso.com) no later than the close of business on October 16, 2013.

*BrightSource appreciates this opportunity to submit its comments to the CAISO. In addition to the specific comments provided below, BrightSource offers the following overall summary of its primary outstanding issues in the 3<sup>rd</sup> straw proposal:*

- Solar thermal with storage resources do not contribute to the incidence of significant net load ramps and should not be included in the flexible capacity requirement assessment by design.*
  - The specialized must-offer obligation hours for solar thermal resources should not assume the presence of storage.*
  - The availability incentive mechanism framework needs to consider the most appropriate application to flexible variable energy resource capacity.*
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  $\Delta$  load component of the flexible capacity requirement.

*No comments on this item at this time.*

- 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).

*No comments on this item at this time.*

- 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?

*No comments on this item at this time.*

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

*No comments on this item at this time.*

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?

*BrightSource supports the ISO's proposal to allocate flexible capacity requirements to each LRA based in part on the aggregate of its constituent LSEs' variable energy resource portfolio's contribution to the maximum 3 hour net load ramp. The desired effect should be to encourage LSEs to fully consider the benefits and costs of its resource and demand management decisions and to provide the CAISO with a balanced portfolio that mitigates net system ramps and consequential flexible capacity procurement costs. In particular, the effect of procuring variable energy resources of differing production profiles and dispatch capabilities is essential.*

*As BrightSource explained in its comments to the first and second straw proposal, solar thermal resources integrated with sufficient energy storage need to be evaluated for inclusion in the calculation of the monthly maximum 3 hour net load ramp. Their inclusion, if not appropriate, will artificially create an increased procurement requirement in excess of actual system need, thereby increasing costs:*

*“Specifically, the Solar Thermal component of the allocation formula should include only Solar Thermal facilities without energy storage capabilities. Solar Thermal facilities with energy thermal energy storage capabilities possess varying degrees of dispatchability depending on plant design. Their daily output profiles will be based on, among other factors, energy and ancillary service market optimization results, current and prior operating day solar resource availability (which influences storage system charge status) and Scheduling Coordinator decisions related to contractual obligations. Therefore, output profiles cannot be predicted based on a uniform, geographically-based solar profile forecast. The dispatchable characteristics are more akin to dispatchable thermal or hydro supply resources, which are also not contemplated as components in the allocation formula.”<sup>1</sup>*

*Footnote 18 of the 3<sup>rd</sup> straw proposal states that “solar and wind resources that are firmed outside of the ISO balancing area will not be included in the allocation calculation.” Solar thermal facilities with storage can perform this firming at the point of generation and should not be included in the allocation calculation either.*

*BrightSource appreciates the ISO’s response to its comments on this subject in the second straw proposal; however, the split of solar PV and solar thermal into separate categories in the flexible capacity requirement assessment does not address the issue presented above. If the ISO intends to “allow an LSE to submit data regarding any additional dispatchability or curtailment provisions,”<sup>2</sup> which could affect a resource’s inclusion in the flexible capacity requirement assessment, the ISO’s fourth straw proposal should explicitly state this as it relates to solar thermal with storage resources, similar to the statement related to firmed wind and solar resources.*

*The capability of solar thermal with storage resources to modify system ramps and provide other sources of operational flexibility such as regulation and load-following has been well established in the research literature. Most notably, Denholm et al., (2013) models solar thermal with storage resources using an LTPP 33% RPS scenario and demonstrates its contribution to energy, load-*

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<sup>1</sup> BrightSource Comments to ISO 2<sup>nd</sup> Straw Proposal.

<sup>2</sup> ISO Responses to Submitted Comments regarding Second Straw Proposal at pg 42.

<http://www.caiso.com/Documents/StakeholderCommentsMatrix-FRACMOO-SecondRevisedStrawProposal.pdf>

*following, regulation, and spinning reserves, as well as its capacity ratings assuming net load conditions in 2020.<sup>3</sup>*

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?

*No comments on this item at this time.*

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

*No comments on this item at this time.*

- 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.

*No comments on this item at this time.*

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

*No comments on this item at this time.*

- c. Hydro Resources

*No comments on this item at this time.*

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

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<sup>3</sup> Denholm, P., Wan, Y-H., Hummon, M., and M. Mehos, "An Analysis of Concentrating Solar Power with Thermal Energy Storage in a California 33% Renewable Scenario," National Renewable Energy Laboratory, Technical Report, NREL/TP-6A20-58186, March 2013.

1. Demand response resources.

*No comments on this item at this time.*

2. Storage resources.

*No comments on this item at this time.*

3. Variable energy resources (VERs).

*While future solar thermal facilities are likely to incorporate storage capabilities, no solar thermal facilities, either operating or nearing completion, in the ISO balancing area currently possess storage capabilities. The currently proposed MOO hours, which assume the presence of storage capabilities, do not consider this reality and “the availability of all energy sources for the resource,” which are currently candidates for participation as flexible VER capacity.<sup>4</sup>*

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

*No comments on this item at this time.*

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

*No comments on this item at this time.*

- 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?

*No comments on this item at this time.*

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

*No comments on this item at this time.*

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<sup>4</sup> ISO Responses to Submitted Comments regarding Second Straw Proposal at pg 43.  
<http://www.caiso.com/Documents/StakeholderCommentsMatrix-FRACMOO-SecondRevisedStrawProposal.pdf>

d. The proposed SFCP evaluation mechanism/formula

*No comments on this item at this time.*

1. The formula used to calculate compliance (including the treatment of long-start and use-limited resources)
2. The treatment of forced and planned outages
3. The minimum availability thresholds for use-limited resources

e. The proposed substation rules for forced outages

*No comments on this item at this time.*

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

*The straw proposal does not include or make clear how incentive mechanism credits and penalties will be measured for participating flexible VERs. If flexible VER capacity is unavailable to generate (or decrement) due to natural resource availability, the ISO should treat these MOO intervals as having received an economic bid, subject to a verification process. To support this approach, further study is warranted of the coincidence of wind and solar resources' availability and net load ramps, to support a market in which there are "opportunities for all types of flexible capacity, including ... renewable resources that are willing and able to adjust their output to meet system needs."*

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 ISO's proposal to calculate a flexibility price adder for use in the incentive mechanism framework and, particularly, backstop procurement requires additional attention to ensure that it achieves its goals. The \$23.25 / kW-year adder appears to be arbitrarily set without regard for the difference in actual flexibility of the "average-priced" and the 85<sup>th</sup>*

*percentile generator.<sup>5</sup> Moreover, the setting of the adder for backstop procurement prior to the annual LSE showings could be problematic. There is no evident support for the proposition that the adder method will result in a “slightly higher price for flexible backstop procurement,” so this approach could artificially restrict the price of flexible capacity and obscure economic signals for investments in flexible capacity. If competitive offers suggest a price for flexible capacity greater than the generic capacity backstop price plus the flexibility adder, then LSEs may be incentivized to under-procure flexible capacity and to contract with flexible generators for system capacity only. The resulting conditions might either leave the ISO with an inability to procure sufficient resources or to resources being paid below a market-based appropriate price.*

*Other tariff-based adders or formula payments provided for operational flexibility, such as PJM’s payment for fast regulation, have been developed with an analytical framework, and are linked to actual operational requirements and unit performance. An analytical basis could be developed for this adder as well and could align the incentives provided better with the types of flexibility resources that are consistent with state policy goals.*

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

*No comments on this item at this time.*

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

#### *Effective Flexible Capacity (EFC) Calculation for Flexible VERs*

*The CPUC Energy Division has issued a draft proposal for calculation of EFC for demand response and storage resources, including storage resources co-located with generation, using an Effective Ramping Capability methodology. For solar thermal with storage facilities, this could suggest an EFC which differs from the ISO’s PMin, NQC and ramp rate based formula.<sup>6</sup> In general, the implementation of new probabilistic capacity value modeling could impact the ability of Flexible VERs to help the ISO meet the system needs addressed in proposal.*

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<sup>5</sup> In addition, the capacity price of the 85<sup>th</sup> percentile generator, which here is used as a proxy for flexible capacity cost, would represent a composite price of system and flexible capacity since only a portion of the generator’s capacity would be considered flexible.

<sup>6</sup> ISO 3<sup>rd</sup> Straw Proposal at pg 25.