Stakeholder Comments Template

Flexible Resource Adequacy Criteria and Must-Offer Obligation Revised Straw Proposal, June 13, 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 June 13, 2013, and issues discussed during the stakeholder meeting on June 19, 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 June 26, 2013.

1. The ISO has outlined the a methodology to allocate flexible capacity requirements to LSE SC based one possible measurement of the proportion of the system flexible capacity requirement to each LSE SC based on its contribution to the ISO's largest 3 hour net-load ramp change each month. Please provide comment regarding the equity and efficiency of the ISO proposed allocation. Please provide specific 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,

   Has the ISO identified the core components for allocation? Are more needed? If so, what additional components should be considered and how should ISO consider them? Are fewer needed? If so, what should the ISO include? CDWR response: CDWR appreciates ISO's effort and commitments in revising the FRAC MOO proposal that will ultimately address stakeholders' concerns. The five components (change in load, wind output, solar PV output, solar thermal output, and DG output) that are believed to be causing the flexibility needs are reasonable components to consider, although CDWR recommends changes in how two of them are

allocated. CDWR agrees with CAISO that the allocation of responsibility for flexibility needs should take into account the portfolios of the individual LSEs and reflect the degree that each LSE has invested in resources that create the need for additional flexibility. CDWR also agrees that CAISO has properly focused on intermittent resources such as solar and wind as driving the bulk of the need for flexibility. However, CDWR does not support the allocation methodology for change in load and distributed energy resources.

b. Has the ISO used the right allocation factors for the identified components (i.e. load ratio share, percent of total capacity contracted)? If additional or fewer components should be considered as identified in 1a, above, please provide specific allocations factors for these components.

FCR for Change in Load: the proposed allocation of FCR to an LSE based on its coincident peak load share does not reflect true causation in the case of an LSE whose load is moving in the opposite direction to the ramp. An LSE that has negative load ramps or runs flat during the period when maximum flexibility would be needed would be penalized by an allocation of an FCR obligation.

For example, LSE A has negative gross load ramps in the morning = -200 MW and evening gross load ramps of -100 MW coincident with the ISO system need for ramp up. The LSE A has a coincident peak load share of 2%. If ISO FCR for Δ Load is 4000 MW, then the LSE A would be allocated 80 MW of FCR based on coincident peak load share of 2% for Δ Load. However, the LSE A did not cause the ramp up needs; rather it helped the system by negative gross load ramps. Therefore, for the LSE A, instead of allocating FCR, it is appropriate to award credits of -100 MW (at system peak-evening) FCR which can count towards FCR obligation associated with other four components for the LSE. In order to adopt this methodology, the allocation based on coincident peak share should be replaced by allocation based on LSE's load profile that provides a measure of gross load ramp specific to the LSE. This is the only appropriate method to allocate FCR attributed to LSE's change in load. Awarding credits for the negative net load ramps for an LSE would incentivize LSE to reshape their load year-after-year based on the characteristics of their load. CDWR believes that awarding FCR credits for negative gross load ramps would promote demand response in the form of the "load modifier" described in the CAISO Demand Response Roadmap. An excerpt from the CAISO Demand Response Roadmap states:

> ***The load reshaping path*** *focuses on the demand side of the balance equation, to create a flatter system load shape that has a lower peak and is both less deep and*

less steep. Modifying consumption patterns to reshape system load in this favorable way can reduce costs and simplify grid operation. A lower peak load reduces the need for peaking generation capacity. A less deep load shape means less risk of over-generation and better utilization of existing resources. A less steep load shape reduces the need for fast-acting (fast starting and ramping) resources. This path therefore focuses on programs and incentive mechanisms such as retail tariff structures that change consumer behavior and favorably alter the load shape. It also includes activities for incorporating "load-modifying" DR programs into the demand forecast, rather than including such programs on the supply side as is currently generally the case.

CDWR proposes the following formula for FCR allocation:

Allocation of FCR to LSE's change in load= (LSE's 3 hour gross load ramp coincident with ISO system largest ramp need ÷ISO system change in load (gross load ramp in 3 hours) at the largest ramp up need) × ISO determined flexible capacity need attributed to Δ Load.

Where,

ISO system change in load (gross load 3 hour ramp) at the largest ramp need = sum of all LSE's gross load 3 hour ramps coincident at the system's monthly largest 3 hour net load ramp.

Allocation of FCR to LSE A = (-100 ÷ 3600) × 4000

= -111 MW, this negative allocation should be treated as credit, capped to the LSE's negative gross load 3 hour ramp (100 MW only). In this case, LSE A should be awarded credit of 100 MW FCR. If it was positive, then the LSE would have full amount as its obligation. Awarding credit would balance FCR needs attributable to the intermittency of LSE portfolio resources.

FCR for Change in DG output:

CDWR does not support allocation of FCR for change in DG output based on an LSE's coincident peak load share ratio for an LSE that has no DG. As proposed, an LSE that does not have DG in its portfolio would still receive an FCR obligation for its load ratio share of DG connected to other entities. In this example LSE A does not have DG in its portfolio. The ISO's need of FCR for Δ DG output is 500 MW. As proposed by ISO, LSE A would receive 2% of 500 MW= 10 MW FCR obligation. CDWR proposes that FCR for ΔDG output be calculated based on each LSE's contribution to the total Δ DG Output.

Assessment of total FCR allocation to LSE A:

FCR for Δ Load = -100

FCR for Δ Wind = 50 (based on methodology proposed by ISO)

FCR for Δ Solar PV & solar Thermal= 45 (based on methodology proposed by ISO)

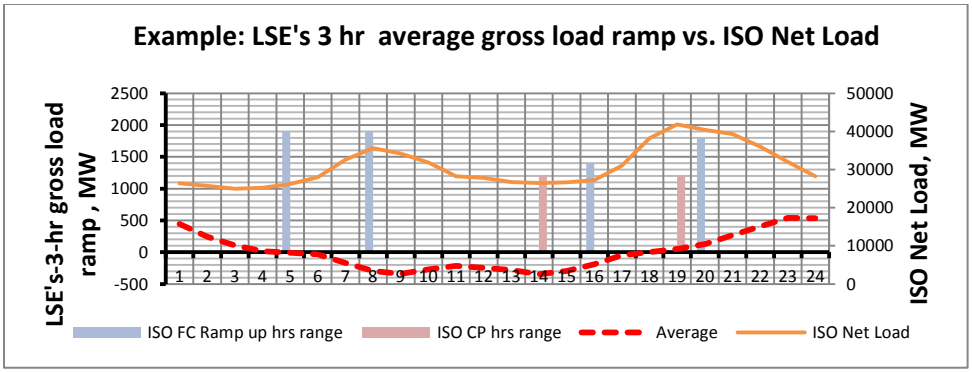
FCR for Δ DG Output = 0, because LSE A does not have DG in its portfolio.

Total FCR allocation to LSE A = -100+50+45 = -5 MW

If the Total FCR is negative (5 MW here), it should be credited towards LSE's system RA need or compensated in some way to reward "Load Modifier".

As an example, if FCR for Δ Load is +100, then total FCR=100+50+45=195 MW

CDWR recognizes the challenges in determining an LSE's 3 hour gross load ramp, because it would require hourly demand forecasts. CDWR believes that an LSE's last 3-5 years of hourly historical load data may provide a reasonable basis for calculating each LSE's 3 hour gross load ramp for future years. An LSE's average 3 hour gross load ramp during the morning and evening ramping super peak hours (for example 5 am- 9 am in the morning and 4 pm - 8 pm in the evening-similar to RA availability assessment hours, shown in the chart below) for the last 3-5 years for a specific month may be considered as the LSE's 3 hour gross load ramps for future years for that month. Adjustment to historical hourly load may be made reflecting load growth patterns, etc.



c. Does your organization have any additional comments or recommendations regarding the allocation of flexible capacity requirements?

Allocation of FCR should follow cost causation principles. CDWR believes its proposal at 1 (b) above would truly reflect cost causation and promote demand response.

2. The ISO believes that there are either tools in place or under development to manage a resource's use-limitations while still be subject to economic bid must offer obligation. The ISO, consistent with the CPUC's RA proposed decision, will require hydro resources to be able to provide a minimum of 6 hours of energy at Pmax to be eligible to provide flexible capacity. However, some resources, including demand response and storage resources may have use limitations that may do not fit well within these mechanisms.

   a. Please provide comments regarding what use-limitations are currently managed by existing or proposed ISO tools and what must-offer obligation should apply to these resources.

   CDWR response: 1) The ISO's eligibility criteria, especially the requirement of 6 hours of energy at Pmax, may prevent many use limited resources from providing flexible capacity. A resource may be able to provide 6 hours of energy at half the Pmax and half the Pmax should therefore be eligible capacity to provide flexibility. The criteria should be modified to state that the use limited hydro resources will have an eligible capacity for flexibility if that capacity can be sustained for 6 hours or more while providing energy. Some use limited resources can be operated at reduced capacity for an even longer duration, and they should be included. Given the ISO's projected needs for flexibility, it should not exclude resources that can make some contribution from consideration.

   b. Should the ISO consider other minimum energy or run time limits for other types of use limited resources to be eligible to provide flexible capacity? If so, what should these limits be? Why?

   CDWR believes that the future stakeholder process announced by the ISO should consider all resource limitations for purposes of determining whether they can provide flexible capacity. While some types of limitations could not effectively be priced into a unit's opportunity cost, the ISO should explore all options for obtaining flexibility from existing resources. Failure to do so exposes ratepayers to increased costs for new units that may not be needed.

Daily energy, environmental, or start limited resources: the current masterfile information provides a list of constraints should be included in such consideration, such as:

Maximum Generation Capacity | Minimum Generation Capacity | Minimum Dispatchable Level | Minimum On Time | Maximum On Time | Minimum Off Time | Maximum Startups Per Day

Pump Maximum Daily Startups | Pump Minimum Up Time | Pump Minimum Down Time | Gen-to-Pump Minimum Down Time | Pump-to-Gen Minimum Down Time

Pump Shutdown Time

Daily energy limit should be considered for daily dispatch. Minimum down time, or minimum run time should also be considered as defined in the current tariff. CDWR notes that environmental limitations such as those associated with hydroelectric projects or certain thermal units may result in prohibitions on use that may not be easily priced into opportunity cost bids, and the dispatch of flexible capacity should incorporate and respect environmental limitations.

Monthly or Annual Energy or environmentally or start limited resources: a resource's default energy bid, reflecting the opportunity cost of being dispatched, may limit dispatch of such a resource to its constraints. In any instance, environmental limitations must be respected in the dispatch.

Demand Response Resources: The current Masterfile information with regard to participating load pumps should be respected.

Pump Maximum Daily Startups | Pump Minimum Up Time | Pump Minimum Down Time | Gen-to-Pump Minimum Down Time | Pump-to-Gen Minimum Down Time

As identified in the proposal, daily and annual use limitation may include number of events, maximum length of event per day, and specific hours available.

3. The ISO is assessing how bid validation rules could work for flexible capacity resources that are subject to an economic bid must offer obligation. The ISO provided two examples of bid validation rules and potential interpretations. Please provide comments regarding how the ISO should address each of these examples and any others that may need to be considered.

It is not clear why the CAISO should reject the part of the bid that is providing flexible capacity, even where it is deficient in total amount.

4. The ISO currently has a tool in place that allows for a resource to include the opportunity costs associated with run-limitations into the default energy bid. The ISO is considering a similar mechanism to allow resources with annual or monthly start limitations to include the opportunity costs of start-up in the resource's start-up and minimum load costs. Please provide comments on how the ISO should consider the opportunity costs for start limitations and how that opportunity cost should be calculated.

   If the opportunity cost is used as compensation for operating a resource exceeding its use limitations, frequent dispatch of such resources may jeopardize environmental or operational criteria. For example, a pump's minimum up time of 10 minutes must be respected by operating the unit for at least ten minutes and there may be no adequate compensation for a unit that becomes unavailable due to dispatch that damages the unit or violates environmental requirements. An alternative could be to factor in the limiting factors in the dispatch directly rather than in the opportunity cost.

5. The ISO is proposing that all flexible capacity resources should be required to submit economic bids between 5:00 am and 10:00 pm. Please provide comments regarding this proposed must-offer obligation. Please connect to the response to this question to any responses to questions **Error! Reference ource not found.**5 or 5 as appropriate.

   Some demand response resources will not be available at every hour. Pumping load may be capable of increasing or reducing consumption, but what it could do would depend on the status of the pump (off or on) at the time of need. For DR resources with such limitations, the hours when bidding is required should be limited to the specific hours the units will be available coincident with ISO ramp up needs. A PL DR resource may not be available for dispatch in any hour within a RA compliance month if the pump load does not exist during that hour (e.g. if no water delivery is needed for some hours or days within the month). The ISO should waive the must offer requirement for demand response resources that cannot offer availability in all required hours.

6. The ISO has proposed to include 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.

The ISO will need some backstop authority. CDWR understands that ISO intends to apply the replacement procurement mechanism for the existing CPM, expiring in March 2015. CDWR believes this is a reasonable approach.

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

Demand response resources that provide flexible RA capacity (acting as a "supply resource" under the demand response roadmap) should not be subject to the additional 15% planning reserve margin. The load component of DR flexible RA capacity would not be deducted from load forecast (unlike "load modifier" under the CAISO demand response roadmap) and this resource would be made available to ISO market.

Since the implementation of MRTU, the Participating Load (PL) concept limits Participating Loads such as pumping loads to bid in only Curtailable Demand (i.e. dropping load). To allow a participating load to bid in load increase, the PL model and the CAISO Tariff must be modified. Modification of the PL model to allow bids for increased load will allow the PL to mitigate over-generation in the ISO system and to more flexibly provide load shifting when water requirements permit. CAISO has indicated (in the DR road map) that the PL model may be modified through a stakeholder process to enable it to be a dispatchable demand resource (DDR)[1]. The ISO will also have to assess whether the current PL model fits the requirements for flexible RA or requires modification.

Total FCR consists of contingency and non-contingency FCR. The ISO should allow the contingency portion of FCR to be provided by DR resources (such as participating load) under contingency dispatch. Contingency FCR may be allocated to LSEs based on peak load ratio share. The non-contingent portion of FCR should be allocated to LSE's based on the five components identified in section 4 of the proposal (as modified in accordance with the suggestions herein). This would encourage DR participation by resources that may have limitations but which could be very effective when deployed.

[1] "Another route for DR to gain access to the ISO's wholesale market is the participating load model. Under this model, demand-side resources can participate in ISO markets by increasing and decreasing consumption. Currently, the model only supports bidding into the market on the positive or "generation side," operating region of the resource. The ISO implemented a non-generating resource (NGR) model last year to enable energy storage participation through such positive and negative operating ranges. This model can be adapted through a stakeholder process to enable participating load to be a dispatchable demand resource (DDR) to support the ability of participants to more fully reflect operating capabilities to the ISO market. The timing of this stakeholder initiative will depend on the annual prioritization with other stakeholder catalog items."
http://www.caiso.com/Documents/Draft-ISODemandResponseandEnergyEfficiencyRoadmap.pdf