



**Comments on the 2<sup>nd</sup> Revised Straw Proposal for  
Flexible Resource Adequacy Criteria and Must-Offer Obligation  
Department of Market Monitoring  
August 28, 2013**

The Department of Market Monitoring (DMM) appreciates this opportunity to comment on the newest version of the ISO's proposal for Flexible Resource Adequacy Criteria and the Must-Offer Obligation. We also appreciate that the ISO has put significant effort into this 2<sup>nd</sup> revision of the draft proposal, and added many elements and made improvements to those parts that were already in place. These changes represent a real improvement in the proposal, and a significant step along the way to making the proposal a reality.

As an initial matter, DMM notes that many of the questions asked in the comments template have different answers depending on the exact purpose of this initiative. Is this initiative intended to only cover the flexibility needs of the projected maximum three hour continuous ramp for each day? Or, is this measure meant to help manage variability in net load overall, with the three hour ramp also being a proxy for the shorter term flexibility needs such as those that will be met by the flex-ramp product and contingency response constraints being developed? The answer to that question has implications for how we should treat must-offer obligations for VERs, DR, storage, and hydro resources, and thermal resources with energy, regulatory or operating limitations that limit the ability of these resources to actually provide operational flexibility. Currently, some aspects of the proposal seem tailored to the three hour ramp, while others seem intended to handle more general variation in net load. DMM hopes that the ISO will clarify this issue as the proposal moves forward.

Provided below are DMM's comments on a variety of other specific issues relating to ISO's 2<sup>nd</sup> revised Straw proposal.

**Must-Offer Obligations**

The latest version of the straw proposal includes more detail on possible MOOs for a variety of resource types. DMM appreciates the time and effort that the ISO has put into expanding and detailing this part of the proposal. However, some questions remain. One involves timing of the MOO for DR and VERs, and again relates to the question asked in the introduction to these comments. If the target of FRACMOO is to handle three hour ramp, then the appropriate hours for MOO are the hours of the three hour ramp, and a few on either side to ease grid management. If the goal is broader management of net load, then DR should be able to choose which part of the day it offers in, as long as the morning and evening ramps are both potentially constrained. Additionally, if the goal is broader net load

management, DR and VERs could be used by the ISO to handle over generation situations that have often arisen in the early morning hours by expanding the MOO for VERs to a 24 hour obligation, and adding a DR possibility to increase load in the overnight hours.

### **Opportunity cost-based bid limits**

DMM is supportive of the concept of including opportunity costs associated with physical use limitations in bid limits for start-up and minimum load costs, conditional on an all-hours must-offer obligation. DMM has been working with the ISO and some members of the MSC on enhancing the methodology and offers the following five general principles as the ISO continues to refine its approach.

1. DMM suggests the ISO consider limiting the direct application of the ISO's proposed opportunity cost calculations to instances when local market power occurs and requires the use-limited resource to provide counter-flow to resolve the local constraint. When units were subject to local market power mitigation, the ISO's calculated opportunity cost-based bids would apply to bids for minimum start-up costs, minimum load costs and default energy bids for energy above minimum load. In all other instances, scheduling coordinators could include their own assessment of opportunity costs associated with use limitations within specified bounds (e.g. 200 percent of the opportunity cost-based bids calculated by the ISO). DMM believes this approach could limit the potential impact of over or underestimating the true opportunity cost using whatever standard methodology is developed. The methodology currently envisioned by the ISO is based on a mix of historical and anticipated market conditions. Should actual market conditions differ, this may result in the need to either modify opportunity costs or to backstop the process with further limitations, such as monthly or daily limitations as the ISO has proposed. Allowing participants to manage their own opportunity costs using whatever data and technique they believe is most appropriate, subject to mitigation, minimizes the need to continually modify opportunity costs or use backstops in the event that actual conditions differ from anticipated conditions. With this approach, DMM believes it will continue to be necessary to limit start-up and minimum load bids even when local market power mitigation provisions are triggered. This is because under certain predictable conditions specific units may often need to be committed at minimum load to meet minimum on-line constraints or to meet other non-modeled reliability requirements that the ISO continues to meet through exceptional dispatch. This type of local market power is not mitigated by the ISO's current automated local market power mitigation procedures for energy.
2. Opportunity-cost based bid limits for use limitations should be available for verified physical use limitations only. Specifically, DMM believes that use limitations for thermal resources are primarily limited to units with a strict number of unit starts or run hour-limitations based on environmental permits. This provision should exclude units with use limitations limited to economic considerations such as staffing limitations or major maintenance (which may be included in minimum load and energy bids through a separate adder). To provide clarity, the ISO should explicitly identify as many of the specific use limitations that would (and would not) apply under these provisions as possible. This could be done by requiring all existing resources to submit information on such potential limitations as part of this stakeholder process. Furthermore, the ISO should develop a process to

evaluate and verify use limitations to ensure that only resources with the appropriate physical use limitations receive the use limited opportunity cost adder.

3. Given that the proposed methodology relies on forecasting market conditions including energy prices and variable costs, DMM encourages the ISO to propose a method for evaluating and reporting on the effectiveness of the opportunity cost calculation on an ongoing basis. Calculated opportunity costs that are consistently lower than the true opportunity cost of the use limitation would undervalue each limited hour or start, which could result in exhausting the use limitation too quickly. To address this, the ISO has proposed including monthly or daily backstops. However, as DMM suggests, limiting the use of the calculated opportunity cost to instances where local market power occurs would reduce the impact of potential estimation errors when actual conditions differ from anticipated conditions.
4. DMM encourages the ISO to calculate opportunity costs in as transparent a manner as possible by providing a description of the data sources and estimation techniques used in these calculations that is detailed enough to allow replication by market participants.
5. DMM offers the following suggestions on the proposed opportunity cost calculation for monthly or annual energy or environmentally limited resources:
  - a) The ISO may consider adapting this methodology for units with run times greater than one hour. Currently, all of the use limited gas resources with NDEBs have minimum run times of exactly one hour – so the existing methodology works, but both the population of use limited resources and the characteristics of these resources may change.
  - b) The ISO has proposed two opportunity cost methodologies: the monthly or annual energy or environmental limited resources (7.1.2.2) and the start-limited resources methodology (7.1.2.3). The first methodology (7.1.2.2) is inconsistent with the start-up cost methodology (7.1.2.3) if variable costs are different per unit of output or start-up, and minimum online costs are significant, which is likely under most circumstances. The ISO may wish to consider more consistent methodologies for the different types of limitations. Specifically, the ISO may want to consider making first methodology (7.1.2.2) more consistent with the start-up cost approach (7.1.2.3).

DMM is supportive of the ISO's efforts to develop an opportunity cost based methodology and anticipates further detail in the next stage of policy development. Specifically, a more detailed proposal should include specification of the components of both revenue and costs included in the gross margin calculation (e.g., revenues associated with ancillary services). Also, to the extent that the ISO uses forecast data such as gas costs or forward electricity prices, the ISO should clearly specify how this information would be used in the calculation. Furthermore, the ISO's proposal should also clearly state how it accounts for run-time, downtime, ramp rate, initial conditions, starts-per day, multi-stage generator optimization and other operational parameters in its calculation of optimal dispatch.

Most of the gas units with use limitations are peaking resources which can start multiple times in a day. For these units, the opportunity cost of a start could be calculated on per start basis rather than a daily basis. DMM has noted this to the ISO and MSC and they are currently considering how to adapt the model to account for this characteristic.

Units with start limitations are often subject to run-time limitations as well. DMM encourages the ISO to ensure that the opportunity cost methodology is broad enough to account for multiple limitations that occur at the same time without overestimating opportunity costs.

There may be a number of limitations that are too complex to fit into the opportunity cost structure outlined above. Delta Dispatch, which includes combined limitations on air emissions, cooling water volume and temperatures for a set of plants, is one example. The existence of such limitations does not invalidate the development of the ISO's opportunity cost approach, though the ISO should identify and evaluate these limitations during the design process to determine if the limitations are consistent with the proposed methodology.

### **Backstop procurement**

The backstop procurement aspect of the proposal requires additional clarification before constructive comments can be formed. DMM requests additional clarification and/or more explicit specification of the following issues:

- Factors that were considered in determining that the existing CPM price (typically local generic capacity) is the correct backstop price for flexible RA.
- How will compensation for flexible backstop RA recognize existing generic RA compensation while respecting the distinction between flexible and generic products? For example, does the flexible backstop resource that is RA, but has not sold flexible RA, still receive the full CPM compensation on top of their (generic capacity) RA?
- What will be the capacity basis for flexible backstop payment? Will resources that have no RA contract receive the CPM for minimum load up to a capacity that includes sufficient flexibility to meet the requirement or will the capacity basis be based only on the flexible portion of the resources capacity needed to meet the requirement?
- What specific incremental costs (related to capacity provision) is the proposal referring to in the statement from the most recent presentation “incremental costs from economic bidding should be included in energy bids.”<sup>1</sup> DMM is concerned that a potential pricing inaccuracy or inefficiency in the proposed backstop mechanism is being forced into the energy market where it can have a much broader impact on market efficiency and cost. The only costs that are appropriate to include in a competitive energy spot market are those that are incremental to energy production. If these

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<sup>1</sup> See ISO presentation “Flexible Resource Adequacy Criteria and Must Offer Obligation” p. 38 at <http://www.caiso.com/Documents/Presentation-SecondRevisedStrawProposal-FlexibleResourceAdequacyCriteriaMustOfferObligation-8113.pdf>

incremental costs referred to in the presentation are marginal to energy production the ISO should make clear the specific nature of these costs.

### **Standard flex capacity product and availability incentive**

The proposal applies equal weights to offer obligations in the day-ahead and real-time markets in determining compliance with the economic bid portion of the must offer requirement. DMM is concerned that this does not adequately penalize non-provision of flexibility and may undermine the effort to increase flexibility in real-time. For example, if a resource bids all of its flexible capacity in the day ahead, and then self schedules all this capacity in real time, the resource would be deemed 50% compliant. This is better than crediting the resource for 100% compliance, but it is not clear that the resource has provided any flexibility to the system with those actions. Given the very open nature of what the ISO considers an “economic bid” (essentially any bid with a price, so any price between the soon-to-be floor of -\$150/MWh and the ceiling of \$1,000/MWh is considered an “economic bid” ) the need to self-schedule should be small, and will most likely represent capacity that is not actually flexible. DMM recommends that the proposal count any MW of capacity that is self-scheduled in either the day-ahead or real-time markets as not in compliance (e.g. 0% compliance factor).

### **Unit operating characteristics**

To ensure that resources being relied upon to provide operational flexibility are fully available, unit characteristics used by the ISO market software must reflect the actual full operational flexibility of resources. This will likely require changes and clarifications to the ISO’s current tariff, BPM and policies/practices to ensure adherence to these requirements. One such change is removing the option for resources to bid-in their ramp rates. Ramp rates are a physical characteristic of resources more appropriately recorded in the ISO Master File and only altered through SLIC if limited by actual temporary physical conditions. The ISO has included this in its corrective capacity initiative.<sup>2</sup>

DMM strongly recommends that the ISO implement similar changes and clarifications for other unit characteristics, including start-times, minimum load levels, minimum up times, and minimum down times. Section 4.6.4 of the current ISO tariff indicates that “All information provided to the CAISO regarding the operational and technical constraints in the Master File shall be accurate and actually based on physical characteristics of the resources except for the Pump Ramping Conversion Factor, which is configurable.” However, DMM is concerned that in some cases unit characteristics submitted to the current Master File do not reflect the actual feasible or optimal physical characteristics of units, and instead reflect values that result from economic considerations. For example, if a unit is not staffed

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<sup>2</sup> See DMM’s comments on the revised straw proposal for the contingency modeling enhancements, Aug 1, 2013, <http://www.caiso.com/Documents/DMM-CommentsContingencyModelingEnhancements-RevisedStrawProposal.pdf>

adequately, the start time for the unit may be extended well beyond the units actual feasible start time. This is an economic issue rather than an actual physical characteristic.

DMM recommends that the ISO implement any changes and clarifications to the ISO's current tariff, BPM and policies/practices it believes are necessary to ensure that these Maser File values represent the actual feasible or optimal physical characteristics of units. In addition, rules should prevent use of one set of unit characteristics in the ISO Maser File for evaluating flexible ramping capacity (i.e. ramp rates, start times and minimum operating level), which can then be changed to values that would result in less operational flexibility in the actual market. If these rule changes or clarifications are not made as part of this initiative, there should be an explicit acknowledgement and commitment to implement these changes as part of another initiative or process since these represent a critical part of the foundation of any must-offer obligation for flexible capacity.

### **Other Comments**

- At the last two stakeholder meetings, market participants have brought up the possibility of counting imports toward meeting the flexible RA requirement. However, the proposal does not include discussion of this issue. The volume of imports that would potentially be eligible to count against a flexible requirement (presumably in the context of the 15-minute market per FERC Order 764) is significant and could have a very pronounced impact on procurement and pricing of flexible capacity from internal resources. DMM suggests clarification be provided regarding the role of imports in meeting the flexible capacity requirements and whether or not resources that can be dispatched in the 15-minute market but not in the 5-minute market are eligible to provide flexible capacity.
- The proposal suggests that storage may count as flexible RA by bidding into the regulation market. The proposal and discussions at stakeholder meetings have indicated that the flexible capacity requirement is specifically to provide "load following" service. This is counter to the purpose of Regulating Reserve, which is not to be intentionally used as a load-following service. DMM does not support counting storage resources that only provide regulating reserve to meet flexible RA requirements.
- The ISO is proposing that only resources that can start up in 90 minutes or less will have their minimum load capacity counts as flexible capacity. It was not clear in the proposal or stakeholder discussions what factors were considered in determining the 90 minute threshold. Flexible capacity is defined relative to a three hour ramp. The 90 minute threshold appears to convey a different definition of flexible capacity (at least in the upward direction). DMM suggest that additional clarification be provided regarding determination of the 90 minute threshold for start-up time. For example, if the goal is to measure the actual maximum amount of capacity that could be provided in 3 hours, this could be directly measured by the total level which the unit could reach in three hours (including minimum load energy), taking into account its start-up time and ability to ramp above minimum load after being started up and on-line. However, if the goal is for this to serve as a proxy

for the type of shorter term flexibility needed to meet the flex-ramp product and corrective capacity constraints in the spot market, it might be appropriate to use a shorter start-up time.

- DMM also requests clarification on how capacity from hydro resources will count toward meeting the flexible capacity requirement. The ability of hydroelectric resources to provide ramp depends on many factors including the type of water year (high, low, etc.), time of year (runoff season v. recharge season), environmental restrictions on flow, etc.. There is a considerable amount of hydro capacity in California and the extent to which it can count toward and actually provide flexible capacity can, as with imports, have a very pronounced effect on procurement and pricing. Further, if the counting rules for flexible capacity from hydro resources are not sufficiently dynamic to account for high v. low hydro years and the seasonal differences in output and flexibility then the consequences of a bad hydro year could be more severe.