

Stakeholder Comments

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

Submitted by	Company	Date Submitted
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The Center for Energy Efficiency and Renewable Technologies (CEERT) hereby submits comments on the Flexible Resource Adequacy Criteria and Must-Offer Obligation Second Revised Straw Proposal of July 25, 2013, and issues discussed during the stakeholder meeting on August 1, 2013.

At the outset, CEERT expresses strong support for the process that led to this Second Revised Straw Proposal. It represents a significant step forward from the earlier Revised Straw Proposal of June 13, 2013, and clearly reflects a genuine openness on the part of the CAISO to incorporate stakeholder comments in this critical program design effort. At the same time, CEERT strongly believes that the process would benefit from at least one more round of Straw Proposal(s) before diving into the gritty details of developing tariff language and specific procurement protocols. In CEERT’s view, the following issues stand out for resolution at the conceptual level before proceeding to the next phase of program/product development:

- How to remain connected to the ongoing RA procurement process at the CPUC as the Straw Proposal evolves away from the Joint Parties Proposal that forms the basis for the latest CPUC RA Decision¹ and the 2014 RA procurement cycle.
- How to account for a “third way” to supply needed flexibility to the grid other than (a) FRACMOO resources explicitly procured forward and subject to ISO dispatch under a must-offer obligation in real time, and (b) load modifications such as targeted Energy Efficiency programs that act to reduce the projected daily ramp and thus the forward procurement target. CEERT believes that a significant “missing resource” principally involving imports/exports, self-scheduled price responsive generation and price responsive demand remains unaccounted for anywhere in the FRACMOO process.
- How to appropriately deal with curtailment of renewable resources AND other currently “must-take” resources as a potential partial solution to the flexibility problem.

We address each of these issues in turn.

Coordination of FRACMOO Development with CPUC RA Procurement Process

¹ Decision Adopting Local Procurement Obligations for 2014, A Flexible Capacity Framework, and Further Refining the Resource Adequacy Program, CPUC June 27, 2013

When the Joint Parties made their proposal in the fall of 2012, the word “interim” was prominently featured. When the CPUC essentially adopted that proposal (as modestly revised to allow hydro resources to count for flexible RA), it explicitly labeled the decision as “interim” for the next three years. Unfortunately, it does not appear that the Proposal will survive unscathed for three months, much less three years. As the discussion proceeded at the August 1 workshop, two issues of significant departure from the Joint Parties Proposal became clear.

First, we are mixing apples and oranges by including projected daily ramps together with contingency operating reserves in the same equation defining the forward capacity procurement target. This mix complicates all aspects of planning, procurement, cost allocation and program evaluation. Resources required to address the daily ramps will be dispatched “often,” have relatively few locational constraints, and can and should have a portfolio of specific characteristics including variable start up/notification times, ramp rates, ramp duration, and availability metrics. There is no established procurement and deployment experience anywhere in the world to draw on. All of these metrics are “under development” and are likely to evolve over several years as experience is gained.

On the other hand, resources required to address operating reserves have existing well-developed, relatively stable metrics and spot markets with a long history of real time use in numerous venues around the world. They will be dispatched “rarely,” but must meet a high bar for availability and assured performance when they are called. In general, there will be a strong locational component to the procurement process. The issue of how to include non-traditional “preferred resources” to provide this existing ancillary service is relatively narrow but gets very confusing when considering “dual use” for mitigating daily ramps.

Cost causation for these very different products have little in common. To the extent that we have decided that, in the future, grid reliability would be enhanced by explicitly procuring at least 50% of the total operating reserve requirement on a year ahead forward basis, we should simply do that as a separate but simultaneous RA procurement with appropriate backstop and monthly true up provisions unique to this product.

Second, as we develop appropriate resource specific counting conventions and must-offer obligation protocols on a comparable but not identical basis for the various “flexible resource” categories, the need to conduct a differentiated procurement and subsequent portfolio analysis becomes clear. As SCE, a principal author of the Joint Parties Proposal, stated in the August 1 workshop, “We need to rethink the use of MCC buckets.” CEERT strongly agrees. As events have evolved, we see no rational way other than to use the concept of MCC buckets as originally proposed by the CPUC Energy Division, estimate ranges of bucket sizes for the various resource categories in advance to guide a differentiated but simultaneous procurement process, and then conduct a post-procurement portfolio assessment to ensure that grid operators have, in sum, the appropriate tools to deal with the real time implementation issues. This issue needs to be addressed immediately in the CPUC RA proceeding quite apart from the FRACMOO program development timeline. Fortunately, the 2014 RA year flexibility needs are widely acknowledged as being relatively modest, so that there is room for significant uncertainty and experimentation without compromising grid reliability.

Development of the Forward Procurement Target

Today, there is no real time “flexibility” must-offer obligation, yet adequate flexibility to ensure reliability is available to the grid operator. There is near universal belief (or at least reluctant acceptance) that, at some point in the future, but within the planning horizon, this will change. From the beginning of these discussions, CEERT has consistently shared this belief. Reliability will be enhanced if the grid operator can be assured, through some form of must-offer obligation, that a sufficiently robust real time dispatch stack will be available to provide “flexibility” to meet a changing net load shape as traditional “dispatchable” fossil resources are retired and replaced with preferred resources -- many of which are

non-dispatchable and variable. Further, there is a near consensus that forward procurement of this capability involving capacity payments in return for accepting the must-offer obligation is warranted.

On the other hand, no one really believes that the *only* source of real time flexibility now or at any time in the future will be the real time dispatch stack. Efforts to increase the supply of flexible resources available to the CAISO by appropriately defining the metrics required to meet the must-offer obligation and to have those resources economically bid in the real time dispatch stack on a resource specific basis are a welcome development. This Second Revised Straw Proposal is testimony to that effort. However, there will always be significant flexibility available without an explicit must-offer obligation outside of the real time dispatch stack.

The process outlined by the CAISO in this initiative and by the CAISO and CPUC in the Joint Reliability Framework have a prominent place for examining on an ongoing basis the must-offer obligation protocols to expand the range of resources capable of receiving an effective flexible capacity (EFC) value and, thus, potentially becoming eligible to receive flexible RA payments. The process also contemplates a robust ongoing annual process to develop the net load projection including the role of programs such as targeted Energy Efficiency, in modifying that load shape and thereby reducing the overall demand for flexibility.

However, there is no place in the proposed process to record how flexibility was actually rendered in real time, how that compares with year-ahead projections of the demand for flexibility, and what the role of the must-offer obligation actually was in supplying flexibility. Without this critical feedback loop, opportunities for program redirections based on experience will be lost. Cost allocation schemes will not be evaluated for unintended consequences. In this FRACMOO forum and in the RA proceeding at the CPUC, CEERT has advocated the flexible use of epsilon, or the “error term” in the equation used to develop the forward procurement target. CEERT believes that rather than a small “clean-up” term to capture “forecast errors,” epsilon is actually very large and has a negative algebraic value. This negative value is necessary to capture the expected contribution to grid flexibility of at least the following resource categories:

- Imports/exports from/to the CAISO grid from other WECC balancing authorities. Estimates of the potential magnitude of this category were referenced at the recent FERC Technical Conference² by Michael Milligan of the National Renewable Energy Laboratory.³
- Resources that have an EFC value but fail to clear in the forward procurement process, and thus have no must-offer obligation and receive no flexible RA payments. But they nevertheless bid energy into real time markets and/or self-schedule with the daily ramp to take advantage of real time price variations.
- Resources that have no EFC value and either cannot or will not submit economic dispatch bids but self-schedule with the ramp.
- Actively managed price responsive demand.

CEERT believes that the contribution of these resources is significant and at least as reliable as resources with a must-offer obligation. The role of these resources can dramatically grow over time if nurtured and encouraged, and if barriers to passing through real time market prices to individual resources are systematically reduced. The CAISO tariff needs to be scrubbed of cost allocation metrics that reward adherence to scheduled deliveries even when non-dispatched resources could contribute flexibility by going long on the schedule in times of shortage and going short on their schedule in times of surplus. The tariff needs to reward this behavior and punish the opposite behavior rather than require by rote adherence

² Flexible Capacity Needed for Reliability in the California Wholesale Electric Market Conference, July 31, 2013

³ See, *Capacity Requirements to Support Inter-Balancing Area Wind Delivery*, (2009) NREL Report No. TP-550-46274; and *Markets to Facilitate Wind and Solar Energy Integration in the Bulk Power Supply: An IEA Task 25 Collaboration*, (2012) NREL Report No. CP -5500-56212

to schedule in spite of its negative impact on the grid. The CPUC needs to reexamine retail rate designs and ensure that electric consumers can contribute flexibility in real time and be rewarded for this voluntary behavior. These efforts will by their nature be incremental and take some time to implement. The annual FRACMOO update process needs to be expanded to include an analysis of progress in this area. Meanwhile, the epsilon term can be adjusted annually to recognize this ongoing effort and thus avoid systemic over-procurement of FRACMOO resources.

Curtailement

Limited curtailment of renewable resources as a potential mitigation measure has arisen in several forums in other CAISO and CPUC studies. The subject was broached in this Revised Straw Proposal and introduced in the last few minutes of the August 1 Workshop. CEERT believes it is time to bring this subject to a head. Although much detailed work would need to be done, CEERT believes that a simple but critical modification to the Straw Proposal will make voluntary curtailment of otherwise must-take resources, including variable energy resources, a viable option. All that is required is to marry the Straw Proposal's treatment of use-limited resources with the proposed treatment of variable energy resources.

There is virtually no way that any project financed variable energy resource could accept an open-ended curtailment obligation under FRACMOO, regardless of the size of the flexible RA payments it might earn. There is no viable bidding strategy that could, by itself, mitigate the financial exposure that would be acceptable to project lenders. However, if there was an ability to nominate a fixed number of hours per year of curtailment exposure analogous to the hard stop allowed for use limited resources with a fixed number of starts or a maximum number of run hours in its air permit, plus the ability to include, e.g., foregone revenues from loss of the Production Tax Credit in the calculation of opportunity costs, many variable energy resources could participate in FRACMOO and offer voluntary limited curtailment in exchange for RA payments just like any other "use limited" resource.

CEERT understands that the CAISO has taken a preliminary look at the value of curtailment to deal with at least "tail events" that, if unmitigated, would result in significantly expanding the forward procurement target under FRACMOO, but would rarely be initiated. It is time to bring this information into this FRACMOO forum and work through the details of how to integrate this mechanism into the portfolio.

CEERT's responses to the specific questions in the Template are given below.

- 1. The ISO has proposed a process by which an annual flexible capacity requirement assessment would be conducted. Please comment.**

See general comments above

- 2. The ISO has outlined a methodology to allocate flexible capacity requirements to LRAs.**

CEERT does not believe that simply allocating costs to LRAs instead of LSEs solves any of the serious issues of *any* cost allocation scheme that attempts a cost causation protocol at this point in FRACMOO development. CEERT remains supportive of quickly working towards that goal, but strongly believes that the uncertainty is simply too large, the risk of unintended consequences too great, the level of detail too much, and the near term benefits too small to risk holding up the

entire FRACMOO program over resolution of this issue. Where money changes hands, the leap from ground zero to tariff language is simply too high.

CEERT believes that the productive discussions on this point should continue, and any draft resolution for the 2014 RA year should be given a trial as a shadow cost allocation scheme, examined for unintended consequences in real time, and compared to the load ratio share methodology using actual data before proceeding with tariff language/CPUC protocol development.

3. The ISO has proposed must-offer obligations for various types of resources.

As noted above, CEERT strongly supports the new resource specific accommodations in the Second Revised Straw Proposal. We believe that this step is critical and totally in keeping with established FERC principles of comparability. Although CEERT's specific interest is in the appropriate treatment within FRACMOO of preferred resources such as Demand Response and storage, the resource specific accommodations for other categories, such as use limited, are important as well.

Other than the curtailment discussion above about the marriage of accommodations for use limited resources and variable energy resources, CEERT, at this time, leaves detailed comments on this issue to those resource developers and grid operators with hands-on real world knowledge of the cost/benefit tradeoffs and with skin in the game. At this point, CEERT is comfortable that the process will be allowed to proceed to an outcome acceptable to most parties, and reserves specific comments until later in the process.

CEERT also believes, as also noted above, that there is a broad spectrum of flexibility characteristics within each resource category. Regardless of where the must-offer obligation line is ultimately drawn for each resource type to calculate an EFC value, there will be significant amounts of "flexibility" left on the table that will not qualify for Flexible RA payments in any forward procurement process. The CAISO will obviously account for the impact of these resources in its real time dispatch process. It is critical that these "left over" resources be also accounted for in the planning process, and that their contribution to grid flexibility is allowed to affect the size of the forward procurement target. Again, CEERT proposes to use the epsilon term as a mechanism to deal with this effect during the "interim" process.

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.

CEERT agrees in principle with the inclusion of a backstop procurement provision especially in light of the proposed portfolio nature of the forward procurement "front stop." CEERT has no comments on the specifics of the mechanism at this point in the proposal development process

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.

CEERT agrees in principle with the use of an availability incentive mechanism in lieu of bid validation rules to enforce must-offer obligations. We are not categorically opposed to some

limited bid validation rules in special circumstances, and leave further development of this concept to market participants with skin in the game at this point in the FRACMOO program development.

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

No