Western Power Trading Forum Comments on Flexible Resource Adequacy Criteria and Must-Offer Obligation Phase Two Framework Proposal

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December 13, 2017

Section 1: About the Western Power Trading Forum

The Western Power Trading Forum (WPTF) is a California nonprofit, public benefit corporation. It is a broad-based membership organization dedicated to enhancing competition in Western electric markets while maintaining the current high level of system reliability. WPTF supports uniform rules and transparency in order to facilitate transactions among market participants. The membership of WPTF includes load serving entities, energy service providers, scheduling coordinators, generators, power marketers, financial institutions, and public utilities, all of which participate actively in the California market and other such markets in the West and across the country.[1]

Section 2: Comment Summary

WPTF appreciates the ability to comment on the FRAC MOO 2 Framework proposal. WTPF broadly supports proposal's direction, but agrees with the CAISO that significant additional design detail is needed to move forward. Multiples times during the stakeholder meeting held on November 29, 2017 the CAISO staff asked stakeholders to provide suggestions for different design elements. WPTF describes a few design elements for consideration below, but also believes that many designs are workable and that stakeholders suggestions, including WPTF's, should be considered against meeting the objectives of the flexible RA product.

As noted by WPTF's previous comments[2], there are some outstanding questions on the objective of the new flexible RA program, and we have sought clarity on the CAISO's thoughts on the specific intent of the flexible RA product. The Draft Framework Proposal posted on November 11, 2017 did not so much propose a framework for the design, as simply put forth a summary of CAISO needs and potential requirements to meet these needs. WPTF believes this is why stakeholders were left confused as to the role of the energy market versus the RA market in meeting the CAISO's identified needs during the November 29 meeting.

Similar to comments made by other stakeholders, WPTF is still struggling to understand what the CAISO wants to get out of the flexible RA product. That said, given the encouragement from CAISO staff for stakeholders to make concrete suggestions, the comments herein take a more proactive approach and propose objectives for the flexible RA design. We encourage the CAISO to use this or a similar framework to determine whether any flexible RA design in part or in whole will be successful.

In this vein, WPTF encourages the CAISO to follow through on their urging stakeholders to suggest design elements. Ideally, this would include allowing stakeholders to present their ideas at a Working Group and the CAISO specifically responding to each idea in the next paper draft

[1] A member list can be found here and these comments do not necessarily represent individual member views.
[2] Please see a list of questions for the CAISO in our October 11, 2017 Comments.

by noting how the idea has been incorporated in the design or doesn't further the objective of the flexible RA program.

Section 3: Proposed Flexible RA Objectives

In this section WPTF suggests the core objective of flexible RA and breaks this down into parts so that the high level objective can be used for evaluating the efficacy of flexible RA design options.

A. Core Objective

WPTF agrees with Powerex's articulation in their May 22, 2017 comments; the core objective of the flexible RA program is *to facilitate the efficient procurement of sufficient flexible capacity to ensure reliability*. Implicit in this definition is that the flexible RA program should achieve this objective within the context that flexible RA is only one piece of entire RA program, and the RA program in turn is only one piece in overall LSE procurement of resources. Putting flexible RA procurement in context is vital to understanding how well a flexible RA market design achieves the core and measurable objectives.

B. Measurable Objectives

This section defines the measureable objectives that WPTF highly encourages the CAISO and stakeholders to use when evaluating the flexible RA design. WPTF notes that to-date the CAISO has provided no data on the supply-side of flexible picture. Without understanding both operational needs AND how suppliers are currently meeting (or not meeting) these needs, it will be impossible to assess whether the future flexible RA design will meet any of these objectives.

Summary of Flexible RA Product WPTF Suggested Objectives

1. Meets CAISO day-ahead and real-time operational needs
    a. Meets ramping requirements in the day-ahead and real-time markets
    b. Enables the energy market optimization to solve with limited reliance on penalty factors or out-of-market interventions
2. Influences LSE short and medium-term procurement
    a. Sends market signal to LSEs and suppliers that influences fleet flexibility (orderly retirement)
    b. Sends market signal to LSEs and suppliers that influences resource flexibility (efficient procurement)
3. Functional Market Items
    a. Non-discriminatory
    b. Administrable by CAISO and LRAs, particularly the CPUC
    c. Navigable by small LSEs, i.e. not overly complex
4. Other CAISO/Stakeholder defined objectives not included in 1-3

Objective Descriptions

1. Meets CAISO day-ahead and real-time operational needs

The first objective is a way to measure whether a flexible RA design will lead to LSE procurement of flexible capacity sufficient for the CAISO to meet their market operational needs. This objective breaks down the last part of the core objective in order to define what "ensuring reliability" means in a practical, measurable context.

There has been significant discussion and confusion surrounding whether over-generation leads to reliability concerns, and therefore whether the flexible RA design should consider over-generation. WPTF suggests that the way to address the connection between over-generation and reliability is to acknowledge that the CAISO can reliably curtail energy during over-generation up to a point- and that point is when the CAISO begins to consistently run out of economic offers.

The CAISO market, really all ISO/RTO markets, were designed to ensure reliability through a market outcome. In order for this to occur the CAISO needs suppliers to indicate their willingness to supply energy at different MW amounts through economic offers. The CAISO can still operate the grid after all economic offers are used; however, the CAISO then begins to use penalty parameters to dispatch and curtail resources. Because penalty parameters no longer rank which resources have a willingness to supply over other resources, the CAISO optimization begins to solve solely based on congestions costs, losses, and a predetermined rank of resource priority. A fundamental reliability issue with operating on penalty parameters is that these parameters do not distinguish between which resources are physically unable to curtail and which resources simply do not want to curtail for economic reasons.[3] Therefore, while there is no inherent reliability issue with occasionally operating the grid using penalty parameters, persistent reliance on penalty parameters will decrease efficiency, increase manual interventions, and *in totum*, degrade reliability.

Therefore, WPTF asserts that any flexible RA design should be based on a requirement that ensures sufficient flexible capacity with economic offers to prevent excessive renewable self-scheduled curtailment.

WPTF does not believe it is appropriate to measure whether a flexible RA proposal meets the net load ramping requirements using the CAISO's proposed definition of net load (load minus wind minus solar) and that it is fitting to discuss alternative methodologies in a Working Group. The CAISO has stated that their proposal for flexible RA is to enable the CAISO to meet operational needs. Going forward wind and solar resources are more likely to economically offer into the market than self-schedule, so there is not an operational need for flexible

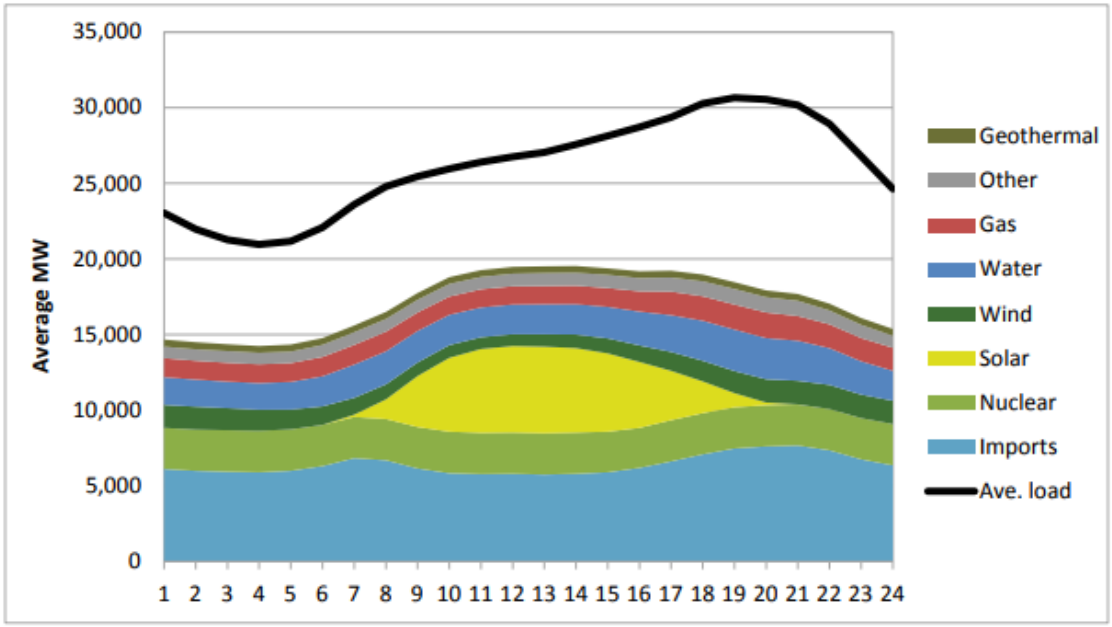
[3] The implication here is that when the market operates on penalty factors and curtails resources, these resources may or may not actually be able to respond within the needed timeframe. If this non-response occurs at the wrong time or in sufficient quantities, there are risks of CPS violations, load drop, and physical burn out of transmission elements.

capacity to account for an economically offered renewable MW. Those MWs are also likely going to be offered at a low or negative price, so already will be the final MW economically curtailed.

It is important to remember however that not only will some renewable resources continue to self-schedule, other resource types will continue to self-schedule into the market and an amount of thermal capacity may need to remain at minimum load to ensure sufficient afternoon ramping capability as renewable energy decreases. Therefore WPTF is concerned defining net load as load minus wind minus is not actually reflective of operational ramping needs.

In their May 2017 Annual Report, the Department of Market Monitoring noted that participants submitted economic bids for only about one-third of all the generation resources in the ISO area for the real-time market in 2016. Further, "[m]ost natural gas capacity was economically bid (75 percent), while almost all nuclear (99 percent) and imports (95 percent) were self-scheduled." They show that these self-schedule while in part are due to solar, overall self-schedules have a very different curve and value than mere solar and wind.

Figure 4.20 Average hourly self-scheduled generation compared to load (2016)



Source: 2016 Annual Report, page 124

Finally, WPTF believes it is worth discussing whether the flexible RA design should allow the market to procure ALL flexible needs within the market optimization. The CAISO's current design suggests that it is to ensure that *energy* ramping needs are met, but does not ensure that there is adequate ramping capacity for ancillary service products that are trade-offs with energy products such as spinning reserves and regulation.

2. Influences LSE short and medium-term procurement

The second measurable objective we propose ensures that the flexible RA market design fulfills the first part of the flexible RA core objective, and *facilitates effective procurement* of flexible capacity. If the flexible RA design does not change how LSEs procure, how resources behave, and/or how capital is allocated to increase physical resource capabilities, the design hasn't actually changed anything in the market. This second objective could also simply be, "the flexible RA design does something."

Increases in fleet flexibility can occur by having more flexible resources come onto the grid and having less flexible resources retire. This is often referred to as "Orderly Retirement" and has generally been acknowledged as a key objective of a flexible RA design. In order for there to be Orderly Retirement, resources that are less able to supply grid reliability requirements need to retire, and resources that are able to supply grid reliability needs need to be procured at sufficiently high prices for RA for them to remain in the market. Without clear market signals as to which capacity is needed for renewable integration, LSEs will not be sufficiently informed to contract with the most efficient capacity needed going forward.

Increases in fleet flexibility can also come from individual resources changing their behavior or making investments to increase their physically capability, such as lowering their Pmin or increasing their ramp rate.[4] Therefore, WPTF proposes to evaluate each market design option based on whether the design will change procurement, increase economic offers in the market absent a flexible RA product, and if it is likely to provide any market incentives to do low-cost flexibility improvements to plants.

3. Functional Market Items

Finally, WPTF proposes the CAISO evaluate each proposal based on basic needs for any market design. Three specific ones were suggested above, but within this broad category could include a number of "must-haves" that stakeholder believe are relevant such as the need for transparency, rationality, fairness, etc. An example of something WPTF suggests the CAISO consider is that small LSEs have different procurement challenges than large LSEs – which are often always considered within a design. For example, small LSEs are less able to cost-effectively procure multiple RA products because of their small overall RA portfolio. So if, the flexible RA program mandates too many different buckets, this can begin to be overly burdensome for all entities, particularly small LSEs.

Section 4: Flexible RA Design Components and Design Suggestions

Any flexible RA design has five general components (listed below) that must be ultimately addressed prior to policy completion. The CAISO currently has only proposed something for the first component- "Requirements". WPTF believes that the first three components cannot be considered independently from each other, but should be decided before the final two components are completed.

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[4] WPTF acknowledges that non-RA capacity and system capacity will still exist on the grid. Non-RA and System RA willingness to economically offer into the market will completely be driven by energy market incentives. This is why energy market and RA flexible product reform must move forward together.

Components of Flexible RA Market Designs

1. **Requirement(s)**- the amount of flexible RA that must be procured in total by all LSEs
2. **Resource Eligibility and Counting** – whether capacity qualifies as flexible RA and how much of the capacity counts toward the requirement(s)
3. **Must-offer Obligation and RA Availability Incentive Mechanism Rules** – the tariff obligation of when and how a resource must provide flexible RA; and when and how the RAAIM will assess the resource meeting this obligations
4. **LSE Allocation** – how the total requirement(s) will be allocated to each LSE
5. **Backstop Rules** – how the CAISO address deficiencies and allocate any backstop MWs and costs

WPTF also asserts that there are many options for each component and below suggests a few that we would like to be considered. This should not be taken as WPTF supported positions- merely items that we believe are worth transparent consideration within the process.

Design Elements for the CAISO to Consider

WPTF believes there are certain design elements that should be at least considered in the flexible RA market design process. WPTF and WPTF members offer to the CAISO that they could present these suggestions at a Working Group and compare them against the above proposed objectives for CAISO consideration.

1. Requirement
    a. Requirements defined by actual expected **operational net load** ramping needs, where net load is load minus expected non-dispatchable capacity.
    b. Requirements based on total expected ramp during the timeframe described, i.e. ramp need in the 15-minute market (15-minutes) or total day-ahead market (~8 hours).
    c. Requirements that account for the potential of forced outages.

2. Resource Eligibility
    a. Eligibility criteria that are non-discriminatory and allows resource participation as much as possible. Therefore the following resources could be allowed to participate as flexible RA, up to a point, in the CAISO's design:
        i. Imports/resource-specific out-of-state resources.
        ii. Shaped resources that are self-scheduled (shaped self-schedules could include a designation that cannot be changed within a month for the entire resource).
        iii. Participating demand.
    b. Eligibility separated into real-time and day-ahead in order to simplify the design, either as "Flexible" or "Fast-Flexible".
    c. The counting rules for each resource simplified to make it equal to the resource's NQC, i.e. either it is flexible or not in either market. This would need

to go along with a stand-alone requirement in real-time, rather than an incremental requirement, but is worth considering for simplicity.

d. Decoupled EFC from NQC. Currently this is allowed for storage up to a point. It is worthwhile to at least discuss transparently whether the NQC construct is relevant for all flexible RA products.

3. Must-offer obligation and RAAIM Rules
    a. All MOOs require economic offers or shaped self-schedules.
    b. All RAAIM penalize economic offers or shaped self-schedules that deviate from their obligation during needed operational hours.

WPTF appreciates the CAISO's consideration of these comments.