

**Comments of Powerex Corp. on
Reliability Services Initiative – Phase 2 and
Flexible Resource Adequacy Criteria and Must Offer
Obligation – Phase 2: Issue Paper**

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Powerex appreciates the opportunity to comment on CAISO’s June 26, 2015 Reliability Services Initiative – Phase 2 and Flexible Resource Adequacy Criteria and Must Offer Obligation – Phase 2: Issue Paper (“Issue Paper”). The Issue Paper proposes how CAISO will engage stakeholders on two independent but related issues: enhancements to the Flexible Resource Adequacy Criteria and Must Offer Obligation (“FRACMOO2”) and improvements to the Reliability Services Initiative (“RSI2”). Powerex’s comments address the first issue: CAISO’s proposed FRACMOO2 process.

The Issue Paper identifies an initial, but non-exclusive, set of three specific issues that will be addressed in FRACMOO2, including: (1) refining the definition of flexible ramping product(s) to include ramping speed; (2) procuring downward ramping flexibility; and (3) facilitating the procurement of flexible ramping capacity from static (*i.e.*, 15-minute) intertie resources. The CAISO proposes a series of three working group meetings, leading to the publication of a straw proposal in October 2015 and a target Board approval date of May 2016.

Powerex strongly supports CAISO’s efforts to refine the definition of its flexible resource adequacy (“RA”) needs as well as to expand the options it has for meeting these needs. The Issue Paper recognizes that one of CAISO’s most pressing and growing technical and reliability challenges lies not in meeting CAISO’s need for total capacity or energy, but in meeting its need to have flexible resources available in its markets to balance rapid changes in net-load. Powerex has long maintained that certain resources external to the CAISO BAA—in particular the storage hydro resources in the Northwest—are well-suited to providing the type of flexible capacity services that CAISO indicates are needed. To date, however, there has been limited economic incentive to provide the CAISO with this type of flexibility. In particular, the design of CAISO’s real-time energy market has made participation relatively unattractive at the interties as a general matter, as evidenced by the well-documented lack of economic intertie bidding in the 15-minute market. But even more importantly, the existing flexible RA product excludes 15-minute intertie resources, leaving CAISO with no market-based tool to contract for 15-minute

flexible capacity on its interties. As a result, CAISO's flexibility needs up to now have been overwhelmingly met by internal resources largely because CAISO lacks the market-based tools to procure flexibility services from resources outside its BAA.

Powerex is pleased that CAISO has identified the inability of intertie resources to provide flexible capacity as one of its foremost priorities in the FRACMOO2 process. This initiative is an important first step towards laying the critical long-term foundation for CAISO to meet its flexible capacity needs from the most economic resources in the region, whether located inside or outside its BAA. Powerex also appreciates the process that CAISO has proposed to solicit stakeholder engagement through multiple working group meetings in addition to the standard straw proposal process. Powerex looks forward to actively participating in the working group and subsequent stakeholder process on these issues.

Expanding CAISO's ability to procure flexible RA from 15-minute intertie resources raises several important issues, which Powerex recommends be explored in the working group sessions planned by CAISO. Six issues, in particular, are briefly summarized below.

- Assessing the technical capability of intertie resources to provide flexible RA
- Establishing requirements to demonstrate deliverability for flexible RA at the interties
- Ensuring real-time performance
- Integration of the flexible RA product with the CAISO's Flexible Ramping Product ("FRP")
- Procuring downward and upward flexibility; and
- Alignment of CAISO tariff provisions, business practices and protocols to encourage the participation of flexible intertie resources.

Assessing technical capability of intertie resources to provide flexible RA

A key element in expanding procurement of flexible RA to static intertie resources is a technical assessment of the extent to which 15-minute dispatchable resources can meet CAISO's flexibility needs. The Issue Paper appropriately points out that the existing framework, based around a 3-hour ramp, is too coarse to ensure that CAISO is able to meet all of its flexibility needs, which cover a range of different timeframes. For example, it is clear that CAISO will require that a portion of its flexible capacity be from fast-ramping resources that can respond to 5-minute dispatches (with minimal lead-time) to meet changes in net load that cannot be met with 15-minute dispatchable resources. What is not clear, however, is how large this portion is and what portion of CAISO's needs can be met through intertie resources. Additional analysis is clearly necessary.

One potential approach to assessing CAISO's needs would be to perform flexibility commitment analyses for various representative test days under both a 15-minute process (*i.e.*, treating both intertie and internal resources as 15-minute resources using net-load information as of T-37.5) and a subsequent 5-minute process (*i.e.*, including only internal or dynamic intertie resources based on 5-minute granularity and with net-load information as of T-2.5). The 5-minute process would capture the additional flexible capacity required to meet the changes in the net-load

forecast that develops after T-37.5, as well as any flexibility needs that are more granular than 15-minutes in duration. For example, the 15-minute process would commit resources with an assumed ramp-in period of 10 minutes centered at the start/end of each 15-minute interval, meeting the forecast 15-minute net-load requirement. This implies that all supply resources are ramping during the first and last 5-minute intervals, but are static during the middle interval. Any changes in net-load during this middle 5-minute interval would need to be met exclusively by resources capable of responding to 5-minute dispatch instructions.

Demonstrating deliverability for inertia flexible RA

Providing flexible RA on the interties will require clear measures to ensure that inertia flexible RA is not merely sold as a speculative product with no physical resources behind it. That is, a provider of flexible RA should not be required merely to submit a bid into CAISO's energy markets in the applicable hours, but should also be required to take steps to demonstrate that it has both the generation and transmission service necessary to ensure a high level of physical performance. Questions that should be explored include:

- Should the source BAA and source generation be identified ahead of time?
- Should such a demonstration be required at the time that LSE's contract for flexible RA or should it occur at a time after contracting but before the flexible RA delivery period begins?
- Should flexible RA be required to be delivered on firm transmission, similar to ancillary services?

Ensuring real-time performance

In addition to ensuring that flexible RA represents *bona fide* external physical resources that are committed ahead of time for this purpose, there will need to be consequences for actual performance or non-performance. Given that external resources have multiple potential opportunities for real-time transactions across the region, measures will be necessary to ensure that external resources perform on their flexible RA commitments, even at times that more profitable opportunities may arise in other markets.

Unfortunately, it is not feasible to completely prevent failures to deliver from a flexible RA committed resource in all circumstances. For that reason, it is essential that performance requirements strike the correct balance between recognizing genuine *physical* factors that are inherent to interchange transactions that may prevent performance—including reliability emergencies at the source BA or physical transmission outages/de-rates—without being so diluted as to make performance an *economic* option for the supplier. While it is important that speculative bidding be deterred, insisting on resource deliverability “no matter what” would likely severely restrict external resources from being able to provide flexible RA.

Integration with the Flexible Ramping Product

The flexible RA product can logically be viewed as the forward procurement of flexible capacity. The natural extension of this product into the short-term timeframe is the FRP, which is currently under consideration in a separate stakeholder process. There may be strong complementarity between these two initiatives, and greater coordination or even consolidation should be considered.

For example, CAISO may use day-ahead and/or real-time procurement of FRP both to procure additional flexible capacity (beyond what has been committed through the flexible RA process) but also to obtain flexible capacity in the event that it has been informed that some flexible RA resources are unavailable. The suppliers of flexible RA that notify CAISO of their inability to perform would be charged the cost of procuring alternative FRP in the day-ahead or real-time markets. The cost of other FRP procurement (*i.e.*, to meet net-load requirements that exceed the forward flexible RA requirement) would be allocated consistent with cost causation principles.

Procuring downward and upward flexibility—one product or two?

It is not clear from the Issue Paper whether CAISO intends for downward flexible RA to be procured separately from upward flexible RA. A symmetrical flexible RA product would give CAISO the option to position schedules, through energy awards in the Integrated Forward Market, to achieve its desired optimal mix of upward and downward flexibility.

For example, a resource with 100 MW of upward-only flexible RA obligation may offer 100 MW into the day-ahead market. Every MW that CAISO awards in the day-ahead market to this resource effectively reduces the upward flexibility available in real-time. But if flexible RA were bi-directional, then every MW that CAISO awards in the day-ahead market to this resource also creates a MW of *downward* flexibility available in real-time. In other words, the flexible RA commitment is satisfied by providing a bid range capable of the requisite ramping speed, but it is up to CAISO to optimize where within that flexible range it schedules a resource. Powerex recommends that the working group consider whether upward and downward flexibility should be separate RA products, or whether there should simply be a bi-directional flexibility requirement and CAISO determines whether a resource provides upward or downward flexibility in each interval based on where it positions that resource within the bid range in the previous market run.

Alignment with other CAISO rules

As stated previously and in other contexts, certain of CAISO's market rules discourage flexible resources from participating in CAISO's real-time markets. If these rules are not addressed, the cost of providing flexible RA will be higher than necessary, and some suppliers may avoid selling flexible RA altogether. For example, an intertie resource that adjusts a day-ahead schedule in the real-time market may be exposed to the CRR settlement rule, which treats the volume of the schedule change as a "virtual bid" and seeks to "claw back" any CRR payments

potentially affected by the original day-ahead physical award. Powerex strongly supports the need for rules to prevent the use of market transactions to improperly benefit a CRR position. However, the current methods used in pursuit of this objective necessarily reduce sellers' willingness to modify a physical day-ahead award in real-time, even if it is efficient to do so. Refinements or alternatives to the existing CRR settlement rule should be explored to both provide effective deterrence against improper market activity without undermining efficient and independent real-time flexibility from physical resources. A second example of a rule hampering real-time participation is the application of the Wheeling Access Charge—of approximately \$10/MWh—to all export schedules. This effectively becomes a tax that works against CAISO's objective of economically disposing of excess generation in its BAA. Uplift charges applied to exports pose a similar economic barrier to participation, and are compounded by significant uncertainty regarding the magnitude of the charges.

While these issues, as well as others, merit consideration by CAISO on their own, they are directly relevant to CAISO's ability to procure flexible capacity on the interties. Powerex therefore recommends, at a minimum, that the working groups consider mechanisms for these rules and charges to not be applied for real-time transactions associated with intertie resources performing on their flexible RA obligations. Such protections are important to avoid needlessly increasing the cost (and reducing the willingness) to provide flexible RA on the interties—a cost that will ultimately be borne by CAISO load.