Comments of Powerex Corp. on Reliability Services Initiative

Submitted by	Company	Date Submitted
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Powerex appreciates the opportunity to comment on CAISO's October 22, 2014 Second Revised Straw Proposal in the Reliability Services Initiative.

In the Second Revised Straw Proposal, CAISO sets out a broad outline of how it plans to assess the extent to which 15-minute dispatchable intertie resources can meet flexible capacity needs.[1] CAISO states that it expects this issue will be completed in Phase II of the initiative, but recognizes that resolution of this issue "will require a significant amount of time and data collection before the ISO can develop proposals to address them."[2] As its next step, CAISO states that it plans to conduct an analysis of the difference between the 15-minute and five-minute granularity of net load variations, including an evaluation of continuous ramping needs, load-following needs, ramp rate needs, and minimum load burden.[3] CAISO further states that it is "seeking stakeholder input on how the ISO might assess intertie resources for flexible capacity."[4]

Powerex strongly supports CAISO's decision to begin considering this important issue as part of Phase I of this proceeding. Powerex believes that a large portion of the CAISO's ramping needs can reliably and efficiently be met by 15-minute dispatchable intertie resources. However, Powerex submits these comments to highlight two matters for CAISO's consideration as CAISO starts to evaluate the future role of intertie resources in meeting the system's need for flexible capacity.

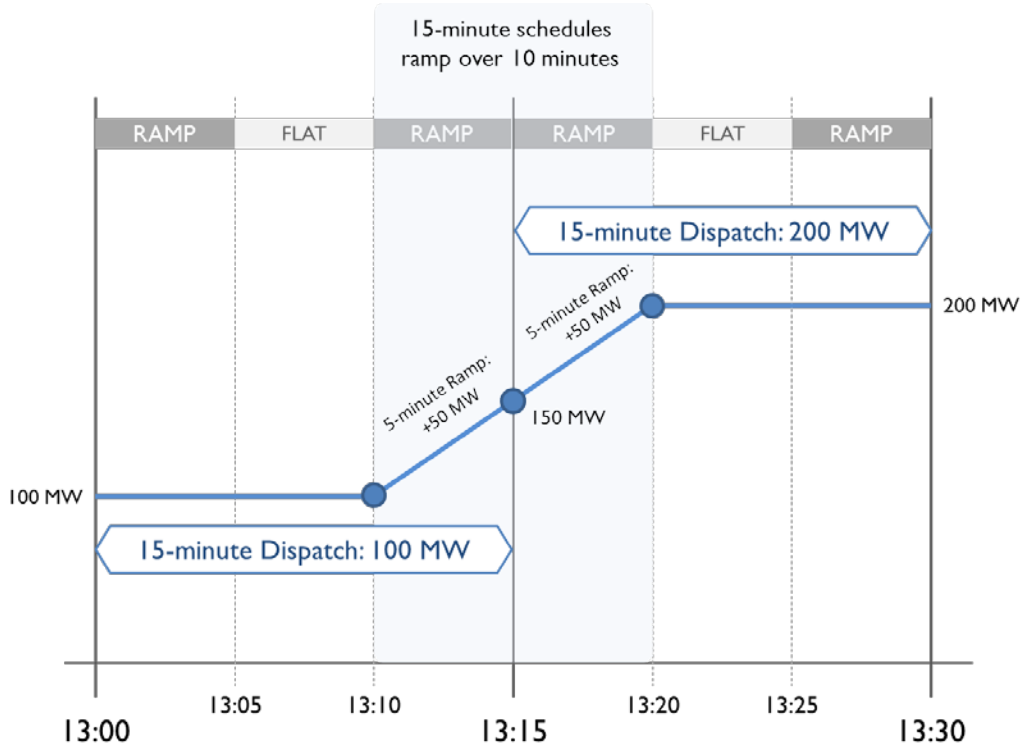
1. **CAISO Should Consider the Ramping Capability of Intertie Resources in Assessing the Ability of Such Resources to Meet System Needs**

Powerex believes that any analysis of the potential for 15-minute intertie resources to provide flexible capacity must take into account the ability of such resources to contribute to meeting system needs when such resources ramp between 15-minute intervals.

This can be illustrated using a simple example. Take a 15-minute dispatchable intertie resource that is dispatched at 100 MW for the first 15-minute interval of hour ending 14. Assume that CAISO then dispatches the resource to increase its output to 200 MW for the second 15-minute

[1] Second Revised Straw Proposal at 18.
[2] Second Revised Straw Proposal at 18.
[3] Second Revised Straw Proposal at 19.
[4] Second Revised Straw Proposal at 19.

interval of hour-ending 14. The 100 MW change in dispatch will occur over the 10-minute period spanning the last five minutes of the first 15-minute interval and the first five minutes of the second 15-minute interval. During this ramping period, the resource will increase its output at a rate of approximately 10 MW per minute. As shown in the illustration below, the resource will increase its output by 50 MW between 13:10 and 13:15, and by an additional 50 MW between 13:15 and 13:20. Thus, even though the intertie resource is dispatchable on a 15-minute basis, CAISO's dispatch of that intertie can be used to provide 50 MW of ramping capability during two discrete *five-minute* intervals. This reflects the nature of 15-minute schedules, which include only one five-minute interval actually at the scheduled value and the other two five-minute intervals moving *between* scheduled values (*i.e.*, ramping).



As the above example illustrates, the extent to which a resource can contribute to meeting the CAISO's flexible capacity needs depends on more than just whether a resource receives a five-minute rather than a 15-minute dispatch signal. Instead, the CAISO must also consider the ramp rate and trajectory of a resource.

Importantly, the ramping rates that can be achieved on an intertie dispatched in 15-minute increments often greatly exceed the ramp rates of individual generating units internal to the CAISO. Thus intertie resources can significantly expand the options available to CAISO to meet its ramping needs, even though the dispatch operating point of the internal resource can change on a five-minute basis. In fact, the *granularity* of the dispatch interval (*i.e.*, five-minute vs. 15-minute) may be less important than the difference in lead time for five-minute RTD dispatches (which are executed 7.5 minutes prior to the start of the interval) and 15-minute RTD dispatches

(which are executed 37.5 minutes prior to the start of the interval). CAISO's analysis should therefore examine how much of its ramping needs are known approximately one hour[5] prior to being needed as opposed to how much of the ramping needs are known only closer to the time they must be provided. Fifteen-minute intertie resources can be highly effective at meeting the former, but the latter will need to be met by resources that can be dispatched with shorter lead times (*e.g.,* dynamically scheduled intertie resources and CAISO internal generation).

2. CAISO Must Develop Performance Requirements that Reflect the Unique Characteristics of Intertie Resources

While it is clear that intertie resources can provide significant flexible ramping capability to the CAISO grid, it is also clear that new and robust measures need to be developed to ensure that intertie resources that receive flexible capacity awards actually provide that service. Powerex urges CAISO to begin developing the necessary framework of performance requirements, verification procedures, and financial incentives for flexible intertie resources as part of the current phase of this stakeholder initiative.

Under Section 40.10.6.1 of the Tariff, the Scheduling Coordinator for a resource that has been committed to supply flexible capacity must submit an Economic Bid for Energy for the full amount of the resource's committed flexible capacity in the Day-Ahead Market and Real-Time Market during certain prescribed hours (depending on whether the resource is providing base, peak, or super-peak capacity). The purpose of this requirement is to ensure that CAISO has sufficient flexible capacity available to it to address operational challenges associated with the increased penetration of variable energy resources. Resources committed to provide flexible capacity that fail to deliver energy when called upon by CAISO undermine the purpose of establishing a flexible capacity procurement requirement and, ultimately, endanger system reliability.

There are several differences between intertie resources and internal resources that suggest that new measures may be necessary to ensure that intertie resources committed to provide flexible capacity meet applicable must-offer and delivery obligations:

- First, unlike internal resources, CAISO's current tariff and market processes do not require participants submitting bids from intertie resources to identify the specific physical generating source of the supply at the time the bids are submitted.

- Second, while an internal resource generally is available to deliver energy into the CAISO grid so long as it is not on a forced or planned outage, a resource located outside the CAISO grid can only deliver energy to CAISO if it has secured transmission service from the resource to the specified CAISO intertie. CAISO's current tariff and market

[5] The RTUC run is executed 37.5 minutes before the start of the binding 15-minute FMM interval, though the ramp will begin 5 minutes earlier. Hence 15-minute intertie resources begin ramping 32.5 minutes after the RTUC run is executed. Since the RTUC runs every 15 minutes, however, up to an additional 15 minutes may elapse before the next RTUC runs, in which case the start of the ramp period for 15-minute intertie resources may not occur for up to 47.5 minutes. Ramping requirements known a full hour before they occur can therefore be met through 15-minute intertie awards.

practices do not require participants submitting bids from intertie resources to demonstrate that sufficient external transmission service has already been procured.

- Finally, while an internal generator generally must deliver any energy it produces onto the CAISO-controlled grid, external resources have a wide variety of additional commercial opportunities external to the CAISO. Currently, CAISO has little ability to determine whether a specific physical resource external to the CAISO grid has been committed to serve the needs of other balancing authorities or third parties in any given hour.

These key differences between resources that are external to the CAISO grid and those located within it suggest that external flexible capacity resources should be subject to additional performance requirements. While Powerex understands there may be reasons not to subject all intertie resources participating in CAISO's markets to enhanced performance requirements, Powerex believes that it is both appropriate and necessary to hold those intertie resources that have committed to provide flexible capacity, in exchange for compensation, to a higher standard. For that reason, Powerex believes that resources with flexible capacity commitments to be delivered at a CAISO intertie should be required to demonstrate:

1. The right—by contract or by ownership—to the output of specific physical assets, where such right must exist for the duration of the flexible capacity commitment and prior to the commencement of that commitment;

2. "First rights" to the necessary external transmission service (i.e. Firm service) to be able to deliver the output of the committed flexible assets to the designated CAISO intertie, with such service secured for the duration of the flexible capacity commitment and prior to the commencement of that commitment; and

3. Verification that both the physical generation capacity and the transmission service were actually and consistently delivered *to the CAISO* when called. That is, verification that the resource or transmission was not used to support another transaction outside the CAISO, effectively over-committing the resource and speculating that CAISO will not, in fact, dispatch that capacity.[6]

For these reasons, Powerex strongly supports the development of rigorous performance requirements and an intertie-specific verification framework that would be applicable to intertie resources committed to provide flexible capacity. In order to ensure that CAISO has adequate time to craft the necessary safeguards while ensuring that intertie resources are able to participate in meeting flexible capacity needs as soon as possible, Powerex urges CAISO to promptly solicit comments on potential measures that can ensure that intertie resources deliver energy in accordance with their must-offer and performance obligations.

[6] This would not require a blanket prohibition on utilization of the capacity. For example, the resource could be used to support sales that were recallable or interruptible, or to make sales *after* the deadline had passed for CAISO to dispatch the intertie bid supported by that resource.