RDRR Bidding Enhancements

Issue Paper / Straw Proposal

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1. Executive Summary

In this Issue Paper and Straw Proposal the CAISO explores enhancements to Reliability Demand Response Resource (RDRR) bidding options in three areas:

- Aligning RDRR real-time bidding with FERC Order No. 831 by proposing that RDRRs must bid at least 95% of the hard energy bid cap ($1,900/MWh) when the conditions are satisfied to raise the soft energy bid cap to $2,000/MWh.[1]
- Exploring RDRR Minimum Load and Minimum Load Costs.
- Understanding if modifying the cap of RDRR discrete dispatch options would better reflect RDRR capabilities.

2. Introduction and Background

On June 24, 2010, in D.10-06-034 the CPUC approved a multi-party settlement in its demand response proceeding (R.07-01-041) that required investor-owned utilities to transition their CPUC-approved retail emergency-triggered demand response programs into a CAISO reliability demand response product. The settlement specified the minimum operating and technical requirements for retail emergency-triggered demand response resources. The CPUC settlement also required these resources be made available for dispatch earlier under CAISO emergency operating procedures.

Consistent with the terms of the CPUC settlement, the CAISO developed the RDRR product. On October 26, 2010, the CAISO Board of Governors authorized the RDRR product. The Board of Governors memorandum approving the RDRR product specifically noted that it would enable the CAISO "to dispatch these emergency-triggered programs when and where they are needed and, appropriately, reflect their value in the [CA]ISO market."[2]

In response to findings from the Final Root Cause Analysis that RDRRs were manually dispatched by CAISO system operators,[3] the CAISO in its Summer Readiness initiative modified its tariff to dispatch RDRRs in real-time pre dispatch (RTPD) so they could be optimally dispatched within a longer horizon to increase the efficiency of the market dispatch. The CAISO also updated its tariff to allow RDRRs to register as 5-, 15-, or 60-minute dispatchable to better reflect their parameters. Resources registered as 15-minute dispatchable are now allowed to set the marginal energy price in the fifteen-minute market whether they are registered as continuous or discrete. Resources registered as 5- minute dispatchable are now allowed to set the marginal energy price in RTD. This change was accomplished by reflecting discrete resources as discrete in the scheduling run, but treating them as continuous in the pricing run.

[1] The CAISO will develop cost justification methodology for demand response resources (including RDRRs participating economically in the day-ahead market) and energy storage resources bidding above $1,000/MWh through a separate stakeholder process.
[2] CAISO Memorandum. Decision on the Reliability Demand Response Product. October 26, 2010. http://www.caiso.com/Documents/101101DecisiononReliabilityDemandResponseProduct-Memo.pdf
[3] Final Root Cause Analysis: Mid-August 2020 Extreme Heat Wave, January 13, 2021, available at: http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf

Continuous RDRR's bid curve submitted by the scheduling and pricing runs allows RDRR to set the price. RDRRs registered as 60-minute dispatchable that clear in HASP will receive a fifteen-minute market schedule and will settle at the corresponding locational marginal price during each fifteen-minute market interval.

Subsequently, stakeholders raised concerns about their ability to accurately represent their demand response programs within the CAISO market and the costs associated with these programs. These concerns relate to their ability to represent minimum load costs, bidding rules under the FERC Order No. 831 paradigm, and size limitations on the discrete RDRR option. This initiative seeks to address these stakeholder concerns.

3. RDRR Bidding Enhancements Straw Proposal

3.1 RDRR Real-Time Bidding Alignment with FERC Order No. 831

In 2016, the Federal Energy Regulatory Commission (FERC) issued FERC Order No. 831, which required Independent System Operators and Regional Transmission Organizations (ISOs/RTOs) to revise their tariffs to raise the energy bid cap from $1,000/MWh to $2,000/MWh, and generally required suppliers that submit bids above $1,000/MWh to base those bids on verifiable costs. The rule changes in Order No. 831 created a structure where internal supply offers above $1,000/MWh are effectively mitigated to an amount equal to a supplier's expected or actual costs.

Order No. 831 required that ISOs verify the costs underlying these cost-based offers above $1,000/MWh before an offer could be used to calculate energy prices. If an ISO could not verify the costs underlying the offer before the market clearing process begins then that offer may not be used to calculate energy prices.

Building on the CAISO's Order No. 831 Compliance Filing made in September 2019[4], the FERC Order No. 831 – Import Bidding and Market Parameters initiative[5] was the CAISO's formal stakeholder process to propose various tariff revisions and system updates to accommodate bidding flexibility above the $1,000/MWh soft energy bid cap. On February 22, 2021, the CAISO received FERC approval[6] for these changes that were activated in June 2021.

Within the Compliance Filing,[7] the CAISO proposed that RDRRs would maintain their bidding structure in the real-time market by bidding at least 95% of the soft energy bid cap ($950/MWh). Therefore, when the energy bid cap is raised from $1,000/MWh to $2,000/MWh, the hard

[4] The CAISO's September 2019 FERC Order No. 831 Compliance Filing is available at Microsoft Word - Tx letter for filing to comply with Order No. 831 (caiso.com)
[5] More information on the CAISO's stakeholder initiative on FERC Order No. 831 is available at California ISO - FERC Order 831 - Import bidding and market parameters (caiso.com)
[6] The FERC Letter accepting the CAISO's FERC Order No. 831 policy is available at Feb22-2021-LetterOrderAccepting-FERCOrderNo831-ER21-1164.pdf (caiso.com)
[7] Proposed tariff changes to sections 30.6.2.1.2.1 and 30.6.2.1.2.2 are available on page 37 of Microsoft Word - Tx letter for filing to comply with Order No. 831 (caiso.com)

energy bid cap, RDRRs are unable to submit bids above $1,000/MWh unless there is a pre-market manual reference level change request submitted indicating these resources have higher operating or fuel costs.

To address concerns that RDRRs are restricted from bidding greater than $1,000/MWh when the energy bid cap is raised to $2,000/MWh, the CAISO proposes that RDRRs must bid at least 95% of the hard energy bid cap ($1,900/MWh) when the conditions are satisfied to raise the bid cap to $2,000/MWh.[8] The CAISO believes this proposal is consistent with the intent of the RDRR settlement and the CAISO's RDRR design, which dispatches RDRRs under emergency conditions with little supply remaining. Without enabling RDRRs to bid close to the hard energy bid cap, RDRRs may suppress real-time prices during scarcity events, thereby interfering with the economic signal the CAISO would otherwise send to supply.

As illustrated in the Business Practice Manual (BPM) for Market Instruments, the CAISO will communicate to Scheduling Coordinators in the bidding platform SIBR, when the energy bid cap has been raised from $1,000/MWh to $2,000/MWh for each hour. Scheduling coordinators will have the opportunity to revise their bids to reflect the change in bid cap. However, because of the tight time constraints in the real-time market, it is not feasible to keep the bidding window open past the typical real-time market close for each hour.[9]

This proposal provides alignment with FERC Order No. 831 and maintains that in the real-time market, RDRRs are treated as emergency response resources and are only released for dispatch when a Warning Notice is issued.[10] This underscores the intent of the proposal to value RDRRs when the conditions are satisfied to raise the soft energy bid cap to $2,000/MWh without requiring additional cost-justification support to substantiate their bids. Further, the CAISO proposes to preserve the existing bidding structure for RDRRs when the $1,000/MWh soft energy bid cap is in place.

[8] The conditions to raise the energy bid cap from $1,000/MWh to $2,000/MWh are outlined on pages 14 and 15 FinalProposal-FERCOrder831-ImportBidding-MarketParameters.pdf (caiso.com).
[9] BPM for Market Instruments Attachment P
https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Instruments
[10] System Emergency (caiso.com)

3.2 RDRR Minimum Load and Minimum Load Costs

The minimum load cost is the "$/hour" for a resource to operate and provide energy at its minimum load. For a generator, minimum load—commonly referred to as Pmin—is the generator's minimum sustained operating level at which it can operate continuously. For an RDRR, minimum load is the smallest discrete load reduction possible. An RDRR's minimum load cost, therefore, is the cost in $/hour at which the RDRR can provide its minimum load reduction. As RDRRs often have a Pmin of zero, and are currently prohibited from having a non-zero minimum load cost,[11] the resource appears to have zero commitment costs.[12] RDRR operators have identified challenges to appropriately define minimum load costs. This can be a barrier to the effective use and participation of their RDDRs. This area of the RDRR bidding enhancements initiative seeks to define RDRRs' minimum load costs and explore how best to reflect them in the market.

The CAISO in its Summer Readiness initiative modified its tariff to dispatch RDRRs in RTPD so they could be optimally dispatched within a longer horizon to increase the efficiency of the market dispatch. Market dispatch is impacted by the Pmin registration of a RDRR coupled with the minimum load costs. If the Pmin of an RDRR is at or near the Pmax, and minimum load costs are zero, the resource is viewed as a zero cost resource available for dispatch. Alternatively, an infeasible dispatch could occur if the Pmin of a RDRR is at zero without a minimum load cost resulting in the resource committed as a zero cost resource. Allowing resources to represent their minimum load cost could enable resources that have also represented the operational capabilities of their resource as their Pmin near their Pmax, to receive compensation and appropriate dispatch. Specific to resources registered as continuous, the minimum load cost could represent the minimum curtailment capability and their cost. The CAISO seek information from stakeholders regarding if minimum load costs exist and if or how to best represent these costs.

Stakeholder Feedback Requested:

- Do RDRR have actual minimum load costs from a physical and/or program perspective?
- If so, do stakeholders have proposals for calculating their minimum load costs?
- If there was a default RDRR minimum load cost, are there recommendations stakeholders have on how these default costs should be calculated?
- Do stakeholders believe these costs should be included?
- Do any of these answers vary based on if the resource is bidding economically in DA in lieu of bidding in real time?

[11] CAISO Tariff Section, 30.6.2.1.2. Real-Time Dispatch Options. "A Reliability Demand Response Resource that is subject to either the Marginal Real-Time Dispatch Option or the Discrete Real-Time Dispatch Option shall have a Default Minimum Load Bids of zero (0) dollars registered in the Master File."
[12] Commitment costs consist of start-up and minimum load costs.

3.3 RDRR Registration

RDRRs may register their resources in two ways depending on their capabilities: continuous or discrete. Discrete registration indicates the resource has one bid segment and, when dispatched, will generate to its Pmax. Continuous (non-discrete) registration indicates that a resource can operate between its Pmin and Pmax, based on the cleared bid quantity similar to other resources. The CAISO has capped the RDRR discrete registration size to 50 MW due to previous technological limitations. There is no cap on the size of an RDRR that is registered as continuous. The designation in CAISO's Masterfile as continuous or discrete may be updated once per RDRR season.[13]

Today, a subset of RDRRs participate economically in the day ahead market and as a reliability product in real time. Any RDRR that participates economically must register as continuous. As a result, some RDRRs representing programs with greater than 50 MW of RA capacity are registered as non-discrete (continuous) as a result of bidding as economic in DA. The CAISO is concerned that some of these continuous resources do not actually have continuous capabilities. Put another way, some of these RDRRs may need to be discrete resources, but elect continuous to enable DA economic bidding. This conflict can result in infeasible dispatches in real-time when the CAISO is reliant on RDRRs' ability to meet their dispatch schedules.

The CAISO also has received stakeholder feedback that some RDRRs operate together but due to the 50 MW cap are forced to be represented separately. The CAISO's understanding is that these resources are within a sub-LAP. The CAISO would like to understand if changing the cap on discrete RDRRs would better represent RDRR capabilities.

Stakeholder feedback requested:

- Would a revision to the discrete cap on RDRR of 50 MW to a higher threshold (e.g., 100 MW) enhance RDRR representation and increase the number of RDRR MW using the discrete option?

[13] A season is a 6 month period (summer and winter). Once selected, the status shall be maintained throughout the season.

4. EIM Governing Body Role

This initiative proposes changes to three separate elements of RDRR: options for bidding RDRR in the real-time market, registration to provide RDRR, and cost representation of RDRR. CAISO staff believes that the EIM Governing Body has joint authority with the Board of Governors over each of these elements.

The role of the EIM Governing Body with respect to policy initiatives changed on September 23, 2021, when the Board of Governors adopted revisions to the corporate bylaws and the Charter for EIM Governance to implement the Governance Review Committee's Part Two Proposal. Under the new rules, the Board and the EIM Governing Body have joint authority over any

> proposal to change or establish any CAISO tariff rule(s) applicable to the EIM Entity balancing authority areas, EIM Entities, or other market participants within the EIM Entity balancing authority areas, in their capacity as participants in EIM. This scope excludes from joint authority, without limitation, any proposals to change or establish tariff rule(s) applicable only to the CAISO balancing authority area or to the CAISO-controlled grid.

Charter for EIM Governance § 2.2.1. The tariff changes to implement each of the three elements of this initiative would be "applicable to EIM Entity balancing authority areas, EIM Entities, or other market participants within EIM Entity balancing authority areas, in their capacity as participants in EIM." EIM balancing authority areas may use the RDRR model assuming they have approval from their local regulatory authority and meet the requirements of RDRR participation. Accordingly, the proposed changes to the RDRR model fall within the scope of joint authority.

This proposed classification reflects the current state the initiative and could change as the stakeholder process moves ahead. Stakeholders are encouraged to submit a response to the EIM classification of this initiative as described above in their written comments, particularly if they have concerns or questions.

5. Stakeholder Engagement Plan

Date	Milestone
10/29/2021	Publish issue paper/straw proposal
11/04/2021	Stakeholder conference call on issue paper/straw proposal
11/12/2021	Stakeholder comments due on issue paper/straw proposal
12/01/2021	Publish revised straw proposal
12/07/2021	Stakeholder conference call on revised straw proposal
12/15/2021	Stakeholder comments due on revised straw proposal
1/4/2021	Publish draft final proposal
1/11/2021	Stakeholder conference call on draft final proposal
1/18/2021	Stakeholder comments due on draft final proposal
1/28/2021	Publish final proposal and draft tariff language
2/1/2021	Stakeholder conference call on draft tariff language
2/7/2021	Stakeholder comments due on final proposal and draft tariff language
February 2022	EIM Governing Body
March 2022	Board of Governors Meeting

6. Next Steps

In this issue paper/straw proposal, the CAISO has tried to capture and describe the open issues stakeholders want resolved and the enhancements stakeholders would like to see made to the CAISO RDRR model. The CAISO will hold a stakeholder call on November 4, 2021 to review the issue paper and seek clarity on the issues or enhancements that stakeholders believe were not fully addressed or captured. The CAISO encourages all stakeholders to submit comments on the issue paper/straw proposal and any additional items that should be considered as part of RDRR Bidding Enhancements by November 12, 2021. Lastly, the CAISO requests stakeholders present their proposals, to help inform any of the identified issues detailed above or any new issues submitted through comments. Depending on if stakeholders submit RDRR bidding enhancement proposals, CAISO may consider hosting a working group meetings to allow stakeholders to discuss their own proposals on RDRR Bidding Enhancements.