UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	)	**Docket No. ER16-2023-000**

MOTION FOR LEAVE TO ANSWER AND ANSWER TO COMMENTS AND PROTEST

The California Independent System Operator Corporation (CAISO) hereby respectfully moves for leave to file an answer and submits its answer to the comments and protests filed in this proceeding on July 15, 2016.[1] This proceeding concerns the CAISO's filing of proposed modifications to the CAISO tariff to implement a flexible ramping product. None of the intervening parties, not even the protestors, object to the Commission's acceptance of the proposal. In response to concerns in comments filed regarding implementation and performance of the new product, the CAISO notes that it will follow its normal software deployment process, which includes the opportunity for a robust market simulation, which will commence August 16, 2016. If any significant issues materialize, the CAISO will delay implementation of the flexible ramping product, subject to appropriate filings made with the Commission.

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[1] The CAISO files this answer pursuant to Rules 212 and 213 of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.212, 385.213. The CAISO requests waiver of Rule 213(a)(2), 18 C.F.R. § 385.213(a)(2), to permit it to make an answer to the protests. Good cause for this waiver exists here because the answer will aid the Commission in understanding the issues in this proceeding, provide additional information to assist the Commission in the decision-making process, and help to ensure a complete and accurate record in this case. *See, e.g.*, *Equitrans, L.P.*, 134 FERC ¶ 61,250, at P 6 (2011); *California Independent System Operator Corp.*, 132 FERC ¶ 61,023, at P 16 (2010); *Xcel Energy Services, Inc.*, 124 FERC ¶ 61,011, at P 20 (2008).

The protesters ask that the Commission not approve the flexible ramping product as a permanent replacement of the existing flexible ramping constraint, and ask that the Commission condition the approval of the flexible ramping product on the inclusion of the ability to bid in the product, either immediately or six months after implementation. Contrary to representations made by the protesting parties, the CAISO's decision to not make the product biddable was the outcome of a robust and lengthy stakeholder process and not the outcome of a unilateral decision by the CAISO. Indeed, the CAISO carefully vetted proposals to make the flexible ramping product a biddable product and determined, in consultation with all stakeholders, including the CAISO's Department of Market Monitoring (DMM) and the Market Surveillance Committee (MSC) that making the product biddable poses significant market risks and is likely not even feasible, while not adding any additional value to providers of the product. The Commission should reject the protest, which raises no issue that call into question the justness and reasonableness of the CAISO proposal.[2]

I. Background and Introduction

On June 24, 2016, the CAISO filed proposed modifications to the CAISO tariff provisions tariff amendment to implement the flexible ramping product.[3] The

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2 For the rate design proposal to be acceptable, it need be neither perfect nor even the most "desirable"; it need only be reasonable. *See New England Power Co*., 52 FERC ¶ 61,090 at 61,336 (1990), *reh'g denied*, 54 FERC ¶ 61,055, aff'd *Town of Norwood v. FERC*, 962 F.2d 20 (D.C.Cir. 1992); *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C.Cir. 1984), *cert. denied*, 469 U.S. 917 (1984)(utility need establish that its proposed rate design is reasonable, not that it is superior to alternatives*); OXY USA, Inc. v. FERC*, 64 F.3d 679, 692 (D.C.Cir. 1995) ("[T]he Commission may approve the methodology proposed in the settlement agreement if it is 'just and reasonable'; it need not be the only reasonable methodology or even the most accurate.").

3 The CAISO submits this filing pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d. References to specific sections are references to existing sections in the current

flexible ramping product replaces the existing flexible ramping constraint that the CAISO applies in its real-time market, including the Energy Imbalance Market. The CAISO developed the flexible ramping product to manage the ramping capability necessary for meeting changes in net demand—both forecasted net demand changes and unexpected net demand changes—which has become more challenging with the increased participation of variable energy resources.

The flexible ramping product has two components. First, the flexible ramping product will compensate resources for ramping capability provided through the scheduling and dispatch process, which the tariff designates as "forecasted movement." Each run of the CAISO's markets provides a binding dispatch for an upcoming interval and nonbinding, "advisory" dispatches for multiple subsequent intervals. The forecasted movement represents the change in schedule or dispatch between the first advisory schedule or dispatch and the binding schedule or dispatch of that market run. The CAISO will either compensate or charge resources for this forecasted movement at a flexible ramping up price or flexible ramping down price, depending on the direction of the total ramp relative to the resource, load, or intertie schedules forecasted movement. Second, the CAISO will issue uncertainty awards, which address the fact that the forecasts for the advisory intervals have a potential for error that may materialize in a subsequent market run when the interval is financially binding. The CAISO will determine the uncertainty requirement based upon the probability

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CAISO tariff ("existing tariff sections"), or to tariff sections as revised ("revised tariff sections") or proposed ("new tariff sections") in this filing, unless otherwise indicated.

that the uncertainty materializes in the financially binding interval error using historical and other relevant data. The CAISO will then procure additional ramping capacity in the form of uncertainty awards to meet the uncertainty requirement using a procurement curve to ensure that the total cost of the uncertainty awards will not exceed the expected cost of the power balance violations absent the uncertainty awards. Participants will not submit separate bids for the flexible ramping product as is done for ancillary services capacity, and instead, the CAISO will use energy bids for optimizing procurement of the uncertainty awards.

Twenty parties submitted motions to intervene.[4] Five parties submitted supportive comments.[5] Only Suppliers filed a protest.

II. Answer

A. Comments

Four of the parties supporting the CAISO's amendment request that the Commission accept the proposal subject to certain conditions. The California Energy Storage Alliance is concerned that current -$150 bid floor may insufficiently promote downward ramping in some periods. It also believes that

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[4] Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities); Arizona Public Service Co.; Bonneville Power Administration; California Energy Storage Alliance; California State Department of Water Resources; Calpine Corporation; Electric Power Supply Association, Modesto Irrigation District; Northern California Power Agency; NRG Power Marketing LLC and GenOn Energy Management LLC; NV Energy, Inc.; Pacific Gas and Electric Company; Pacificorp; Portland General Electric Co.; Powerex Corp.; Public Utilities Commission of California; Puget Sound Energy, Inc.; City of Santa Clara; Southern California Edison Co.; and Western Power Trading Forum, Electric Supply Association, and Independent Energy Producers (Suppliers).

[5] California Energy Storage Alliance; Pacific Gas & Electric Co.; Six Cities; Powerex Corp.; Southern California Edison Co.

the existing asymmetry between the $1000 bid cap and the bid floor (-$150) may produce more frequent downward ‘price spikes’ than upward ones, forcing the CAISO to ‘lean on’ other balancing authorities, or regulation capacity. It asks the Commission to direct the CAISO to lower the bid floor to -$300 with the ability to consider a further lower bid floor, such as -$1000.[6]

The Commission should not order the CAISO to lower its bid floor to $300/MWh in this proceeding because there is a lack of evidence that the floor should be lowered and if so, to what level. The lowering of the bid floor has implications to the CAISO markets that go beyond the downward ramping flexibility the CAISO is addressing with the flexible ramping product. For example, it affects the price the CAISO settles load’s imbalance energy when actual load is different than day-ahead scheduled load. However, the CAISO does not disagree that it may be appropriate to lower the bid floor. The CAISO is already considering this issue in a stakeholder process and will submit a separate tariff if it determines the floor should be lowered.[7] The Commission should let that stakeholder process complete so that the CAISO and stakeholder can carefully consider the just and reasonableness of the bid floor and the CAISO can provide evidence sufficient for the Commission to make an informed decision.

Pacific Gas and Electric Company (PG&E) requests that the Commission require that the CAISO provide a report that reviews the performance of the

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[6] California Energy Storage Alliance Comments at 4-5.

[7] *See* page 7, Issue Paper: Stepped Constraint Relaxation Parameters, May 5, 2016. http://www.caiso.com/Documents/IssuePaper-SteppedConstraintParameters.pdf

flexible ramping product six months after its implementation to evaluate the effectiveness of the design parameters, impacts on the total cost of dispatch, and reductions in number of ramp shortages.[8] The CAISO does not object to preparing and posting such a report every six months for the first year through the existing regular reports it makes to market participants in its monthly performance reports and in the monthly market performance meetings. The information requested by PG&E can be appropriately provided through these forums and there is no reason why these reports need to be filed with the Commission. After the first year, the CAISO plans on providing similar reports and information through its monthly market performance meetings.

The Six Cities ask that the Commission make successful completion of the CAISO's planned market simulations a prerequisite to the effectiveness of the amendment.[9] There is no need for a Commission directive in this regard because CAISO successful completion of market simulations is already a pre-condition of all market enhancements performed by the CAISO. The CAISO is starting market simulation for the fall enhancements on August 16, 2016. Stakeholders will have an opportunity to participate in structured and unstructured market simulation and the CAISO will report on the performance of flexible ramping product through that process.[10] If the CAISO experiences

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[8] Pacific Gas and Electric Company Comments at 3.

[9] Six Cities Comments at 2.

[10] The CAISO will conduct "Structured" (CAISO-developed) and "Unstructured" (market participant-controlled) scenarios during market simulation. These scenarios are published for market participant review and comment during the following touch points:

significant issues that indicate the enhancements should not be implemented, the CAISO will delay the implementation until those issues are satisfactorily resolved.

Southern California Edison Company requests that the Commission direct the CAISO to track the need for locational constraints in the procurement of flexible ramping.[11] The CAISO understands that this is a desired enhancement to the flexible ramping product. The CAISO will report on the need for locational constraints through the market performance reports it provides regularly to all market participants and stakeholders. If any market rule changes are needed to address these issues, the CAISO will work with its stakeholders through the stakeholder initiative roadmap process it conducts each year to appropriately prioritize this with all other market rule changes needs to consider each year.[12]

- Market Simulation Training Workshops are performed; discussed on conference calls with Market Participants;
- Market Simulation Phase 2 Flexible Ramping Product (FRP) Structured and Unstructured Scenarios are performed (8/9/2016 to 9/2/2016; Simulating 8/22/2016 Trade Date);
- CAISO Publishes ISO Settlement for Flex Ramp Product Charge Codes/Billing Determinants; Responds to Market Participant validation of Settlements Statement;
- CAISO continually updates its published report of outstanding Market Simulation “known issues” (both those discovered internally and reported by Market Participants;
- Go Live dates are confirmed and participant issues are reviewed in bi-weekly (twice per month) RUG (Release Users Group) calls; and
- Technical Issues are discussed in bi-weekly (twice per month) TUG calls (TUG = Technical Users Group).

[11] Southern California Edison Comments at 3-4.

[12] http://www.caiso.com/informed/Pages/StakeholderProcesses/StakeholderInitiativesCatalogProcess.aspx.

B. Protest

While acknowledging the need for flexible ramping services, Suppliers argue that the flexible ramping product should only be approved subject to the Commission directing the CAISO to make the product biddable either upon implementation or six months after its implementation. Suppliers contend that the procurement of uncertainty awards is an ancillary service and a substitute for bid-based ancillary services, and therefore should be procured in the same manner as other bid-based ancillary services. They further argue that the flexible ramping product is more valuable to grid reliability than non-contingent spinning reserves and it is therefore unjust and unreasonable to compensate the flexible ramping product at an opportunity cost while compensating spinning reserves at an ancillary services clearing price. They also question the conclusion of the CAISO, the DMM and the MSC that the opportunity cost is the appropriate compensation for the flexible ramping product.

In the transmittal letter the CAISO explained that it and the stakeholders had determined following extensive deliberations that a bid-based procurement of the flexible ramping product would not be appropriate and that day-ahead procurement would be inefficient. None of Suppliers' arguments demonstrate that the CAISO's proposal is unjust and unreasonable.

1. The Flexible Ramping Product Is Distinct from and Not a Substitute for Capacity-based Ancillary Services.

Suppliers first argue that the flexible ramping product meets the definition of an ancillary service in the FERC glossary and the CAISO tariff because the CAISO has acknowledged it cannot rely upon the multi-interval optimization to meet net load and because the flexible ramping product is necessary for the reliability operation of the grid.[13] Although the flexible ramping product may for these reasons meet the definition of ancillary services, it does not follow that the flexible ramping product is analogous to the ancillary services that the CAISO procures through the ancillary services markets. Western Power Trading Forum (WPTF) ignores the important distinction. The CAISO's ancillary services markets concern *capacity* ancillary services: regulation, spinning reserve, and non-spinning reserve. These services represent "standby" unloaded capacity available to meet net system demand deviations from assumed levels in the same trading interval. In contrast, the unloaded capacity represents *energy that is withheld from the real-time market*.

The flexible ramping product is not a capacity product for which capacity is withheld from the market; rather it is a mechanism adjusting energy dispatch that does not result in energy dispatch without regard to energy bid price or continuously withhold energy from the real-time dispatch without regard to energy bid price as regulation, spinning reserve, and non-spinning reserve do. The CAISO dispatches energy from capacity reserved for regulation services to maintain reliability after the real-time dispatch through automatic generation control, not through economic bids. The CAISO dispatches energy from capacity reserved as operating reserves to maintain reliability through the real-time contingency dispatch only after a defined contingency event occurs. The CAISO market procures operating reserves primarily in the day-ahead market and

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[13] Suppliers Protest at 10.

procures incremental operating reserves in the fifteen-minute market. The market withholds day-ahead procured operating reserves from being scheduled for energy in the fifteen minute market and withholds operating reserves procured in the fifteen-minute market from being dispatched for energy in the five-minute real-time dispatch regardless of the resource's energy bid price. In contrast, the CAISO market optimizes uncertainty awards with energy awards in the fifteen-minute market and re-optimizes them in the five-minute real-time dispatch and compensates resources for any opportunity costs or uneconomic dispatch based on a resource's energy bid price.

As described above, the CAISO only dispatches operating reserves only after a defined contingency event, which occurs infrequently. Suppliers may incur an additional cost, which may be recovered through a separate bid price, for lining up natural gas supply that they will need if dispatched for operating reserves but will likely not use because operating reserves are infrequently dispatched. The situation is different with uncertainty awards. They are much more likely to be dispatched for energy because the five-minute real-time market re-optimizes them with energy in each five-minute market run. Also, the net load variations from forecast for which the CAISO will procure uncertainty awards occurs much more frequently than contingency events for which the CAISO dispatches contingency reserves so suppliers do not have the same risk of lining up gas supplies that they may not use. Any remaining risk is no greater than that associated with submitting an energy bid because the capacity associated with energy awards is dispatched for routine energy needs, not contingency events.

Uncertainty wards are different. With uncertainty awards, the CAISO dispatches energy not from reserved capacity, but rather out of economic order in order to preserve ramping ability necessary to maintain reliability. That the flexible ramping product may meet the definition of an ancillary service does not require that the CAISO procure it in the same manner as capacity-based ancillary services. For example, the CAISO does not operate markets for other non-capacity ancillary services, like voltage support and black start.

Suppliers also contend that flexible ramping product is a substitute for regulation and operating reserves because the CAISO noted that it could rely upon regulation or spinning reserves to meet ramping needs, but this would be economically inefficient.[14] Suppliers misstate the CAISO's position. To the contrary, the CAISO stated, "Although regulation services address forecast uncertainties, they are *not* a sufficient solution to address the ramping needs identified above."[15] The CAISO explained that it uses regulation services to address deviations that arise *during* the trading interval and compensates. Procuring additional regulation to address deviations that arise before the trading interval would mean that the additional capacity reserved for regulation would not be available for dispatch as imbalance energy, reducing the quantity of resources available for real-time dispatch and potentially leading to more power balance violations. Further, although the CAISO noted it could obtain additional ramping capability by procuring spinning reserves, it not only explained this would be

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[14] *Id.* at 11.

[15] Transmittal Letter at 7. (Emphasis added.)

overly expensive, but also that the products *are different*. The CAISO dispatches spinning reserves to respond to a contingency; ramping capability is available independent of a contingency. The CAISO also noted that there is no downward contingency reserve product for which the flexible ramping product could substitute.

In their final argument regarding ancillary services, Suppliers contend that the set of resources that can provide the flexible ramping product is at least equal to, if not greater than, the generating capacity able to provide ancillary services. The CAISO does not disagree. Suppliers, however, do explain why this fact necessitates or even favors a bid-based product. The Commission should therefore not give weight to this argument.

2. It Is Neither Unjust nor Unreasonable to Compensate the Flexible Ramping Product Differently than Non-Contingency Reserves.

Suppliers next argue that the flexible ramping product an enhanced non-contingent spinning reserve product that operates both upward and downward and is therefore more valuable to grid reliability than non-contingent spinning reserves.[16] Therefore, Suppliers, it is unjust and unreasonable to compensate the flexible ramping product at an opportunity cost while compensating spinning reserves at an ancillary services clearing price.

As an initial matter, the CAISO is not clear why a product that is more valuable than a bid-based product must also be bid-based. Voltage support, for

[16] This argument is, of course, inconsistent with the argument that the flexible ramping product is a substitute for ancillary services.

example, is more valuable to grid reliability than non-contingent spinning reserves, but it has never been a bid-based product in the Commission approved CAISO tariff.

Even accepting Suppliers' premise, however, their conclusion does not follow. The distinction that Suppliers attempt to make is in this regard irrelevant because the opportunity cost paid for uncertainty awards is in fact based on a clearing price—the energy clearing price. It is determined by the energy market in the same manner as the ancillary services prices are determined by the ancillary services market. The fact that the flexible ramping product provider does not submit a separate bid does not mean that market-based uncertainty award compensation is less compensatory than the market-based ancillary services award compensation.

3. The CAISO Correctly Described the Opportunity Costs of Providing the Flexible Ramping Product.

In the transmittal letter, the CAISO observed that "absent procurement in the day-ahead, there is no need for a separate bid, because there are no costs incurred in the real-time market that need to be recovered through a bid- in price."[17] Suppliers contend that the fact the CAISO staff has an opinion regarding generator costs is not a sufficient basis that suppliers should not be able to bid. According the Suppliers, "it is not up to the CAISO to determine a generator's costs of providing a service or whether there is a need for a certain level of compensation."[18]

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[17] Transmittal letter at 13.

[18] Suppliers Protest at 13-14.

The CAISO, however, is not "determining" a generator's costs. It is making an observation, based not only on the experience of its staff, but also upon the conclusions of its MSC[19] and its DMM. As the DMM stated:

> [T]here are not any direct marginal costs of providing flexible ramping product that a separate [flexible ramping product] bid would represent. The flexible ramping product price in the ISO's proposal is determined by resources' energy bids. Units with energy bids below their locational energy price may have their capacity held for [flexible ramping product]. The foregone energy sale profits would result in an opportunity cost for these units. The market clearing [flexible ramping product] price will equal or exceed the opportunity costs for each unit providing [flexible ramping product] capacity. Therefore, this [flexible ramping product] price is sufficient to cover the opportunity costs of providing [flexible ramping product] capacity.
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> A separate flexible ramping product capacity bid would be appropriate only if it represented a marginal cost of providing [flexible ramping product] capacity. The ISO and stakeholders could not demonstrate a specific cost that a separate capacity bid would represent. Furthermore, the ISO's Market Surveillance Committee could not find real-time marginal costs that a separate capacity bid would cover. [20]

Suppliers' only rebuttal to the conclusions of the MSC and the DMM is a statement that the WPTF, during the stakeholder process, brought up the concern that the provision of the flexible ramping product may increase fuel penalty risk given the increased likelihood of changes made to their day-ahead schedule.[21] This concern, however, is nothing more than conjecture. Although the flexible ramping product will, indeed, produce dispatches that are different than without it, there is no basis—and Suppliers identify none—for concluding

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19 Transmittal Letter, Attachment J.

20 Transmittal Letter, Attachment H at 10.

21 Suppliers Protest at 14.

that deviations from day-ahead schedules will be any greater. Supplier thus offer no basis for rejecting the opinions of the MSC and DMM.

Suppliers also assert that other stakeholders stated during the stakeholder process that generators may want to provide an offer price for the flexible ramping product in order to express a preference for the provision of ancillary services over the flexible ramping product.[22] This, however, is not a cost, but only a preference. And, and, contrary to Suppliers' contention, this does not illustrate the lack of consensus that there was no need for a separate bid to provide flexible ramping product once the flexible ramping product was limited to real-time.[23] The fact is that Suppliers are the *only* parties arguing for a separate bid.

Finally, as to "whether additional compensation is needed," Suppliers members are free to make that determination through their energy bids. It is, however, up to the CAISO—the filing utility—to determine the market rules for providing compensation, as long as those rules are just and reasonable. Suppliers have not shown that it is not. The CAISO's market rules need not be the only just and reasonable resolution or even the best resolution. The CAISO resolution needs only be just and reasonable.[24]

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22 *Id.*

23 *See id.*

24 *See* n.2*,* supra*.*

3. There Is No Need to Procure the Flexible Ramping Product Day-Ahead

Suppliers' final argument is that the Commission should require the CAISO to procure the flexible ramping product day-ahead.[25] The CAISO explained in the transmittal letter that it had determined that the benefits of procuring the flexible ramping product in the day-ahead market were not significant enough to overcome the inefficiencies caused by different settlement and dispatch periods between the day-ahead and real-time market. These inefficiencies include significant flexible ramping product re-procurement in the real-time market.[26] Suppliers contend that there are mechanisms that the CAISO could employ to resolve these issues. Whether these measures would be effective—and the CAISO has not studied them to make that determination—is not the issue, however. The CAISO has only proposed to procure the flexible ramping product in real-time and the potential existence of mechanisms to overcome the inefficiencies of procuring the flexible ramping product day-ahead does not in any manner render the CAISO's proposal unjust or unreasonable.

Suppliers' only real argument for day-ahead procurement is that the flexible ramping product should be treated similarly "to the other ancillary services." But the CAISO has already shown above that the flexible ramping product is not a capacity-based ancillary service that is analogous to those procured day-ahead. Suppliers' desire for day-ahead procurement provides no

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[25] Suppliers Protest at 15-16.

[26] Transmittal Letter at 16.

basis for finding the CAISO's proposal not just and reasonable. Again, it suffices that a utility's proposal is just and reasonable.[27]

4. Adding bidding creates the potential to both unnecessarily complicate the implementation of the product and leads to unintended consequences that would provide inefficient outcomes.

The CAISO agrees with the conclusions reached by the MSC, that while no party has identified any costs that should arguably be reflected in bid for flexible ramping capacity, there are a number of potential inefficiencies and inconsistencies that would arise from a design that allows bidding.[28]

The MSC appropriately reported that there it would be possible for resources offering ramp with a positive bid price to not clear against the demand curve, despite the fact that their capacity and ramping capability would be available for dispatch in real-time, in both the fifteen and five minute processes. The market clearing process does not guarantee that the resources will clear for a number of reasons such as system conditions, constraints, and other available bids, including the resource's own bid price. The MSC noted that when this occurred, "the CAISO would either have to (1) not count the ramping capability on these resources as available in clearing the market despite the fact that it would actually be available, or (2) count the capacity and simply not pay the resources."

The MSC noted, if the CAISO did not account for the capacity that did not clear in fifteen minute process, it could result in the market software committing

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27 *See* n.2 *supra.*

28 Transmittal Letter, Attachment J at 11.

additional generation or schedule imports to provide additional ramp capability, even though adequate ramp was already available. This would pose a practical issue because it would require operators to confirm commitments that were inconsistent with the actual physical state of the system On the other hand, if the CAISO counted the capacity that did not clear but did not pay it, the MSC pointed out that this approach would make the offer price meaningless. If the CAISO did not count it but did pay it, the MSC pointed out that it would provide a strong incentive for resources to submit high offer prices that would distort the clearing price.

III. Conclusion

For the reasons explained above and in the CAISO's June 24, 2016 filing in these proceedings, the Commission should accept the proposed tariff revisions as filed and without condition.

Respectfully submitted,

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Dated: August 1, 2016

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the official service list for the above-referenced proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, CA this first day of August 1, 2016.

/s/ Grace Clark
Grace Clark