

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

California Independent System Operator
Corp.

Docket No. ER19-538-000

MOTION OF POWEREX CORP. TO INTERVENE AND COMMENTS

Pursuant to Rules 212 and 214 of the Federal Energy Regulatory Commission's ("Commission") Rules of Practice and Procedure, 18 C.F.R. §§ 385.212, 214 (2018), Powerex Corp. ("Powerex") hereby moves to intervene and submit comments concerning the California Independent System Operator Corp.'s ("CAISO") proposed changes to its tariff clarifying the authority of CAISO and other balancing authorities participating in the Western Energy Imbalance Market ("EIM") to manually adjust load forecasts used in CAISO market processes.¹

**I.
CORRESPONDENCE AND COMMUNICATIONS**

All correspondence and communications in this proceeding should be directed to the following persons:

Mike Benn
Energy Trade Policy Analyst
Powerex Corp.
666 Burrard Street, 13th Floor
Vancouver, British Columbia
Canada V6C 2X8
Phone: (604) 891-6074
Fax: (604) 891-7012
mike.benn@powerex.com

Deanna E. King
Bracewell LLP
111 Congress Avenue,
Suite 2300
Austin, Texas 78701
Phone: (512) 494-3612
Fax: (512) 479-3912
deanna.king@bracewell.com

¹ *Cal. Indep. Sys. Operator Corp.*, Tariff Amendment to Enhance Detail on Load Forecast Conformance, Docket No. ER19-538-000 (filed Dec. 12, 2018) ("Filing").

Stephen J. Hug
Tracey L. Bradley
Bracewell LLP
2001 M Street NW, Suite 900
Washington, D.C. 20036
Phone: (202) 828-5800
Fax: (800) 404-3970
stephen.hug@bracewell.com
tracey.bradley@bracewell.com

Powerex requests that the foregoing persons be placed on the official service list for this proceeding and respectfully requests waiver of Rule 203(b)(3) of the Commission's regulations, 18 C.F.R. § 385.203(b)(3), in order to permit designation of more than two persons for service in this proceeding.

II. MOTION TO INTERVENE

A. Interest Of Powerex

Powerex is a corporation organized under the *Business Corporations Act* of British Columbia, with its principal place of business at Vancouver, British Columbia, Canada. Powerex is the wholly owned power marketing subsidiary of the British Columbia Hydro and Power Authority ("BC Hydro"), a provincial Crown Corporation owned by the Government of British Columbia. Powerex sells power at wholesale in the United States, pursuant to market-based rate authority originally granted by the Commission on September 24, 1997.² Powerex sells

² See *British Columbia Power Exch. Corp.*, 80 FERC ¶ 61,343 (1997); *British Columbia Power Exch. Corp.*, Docket No. ER97-4024-012 (Sept. 12, 2000) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-002 (Oct. 30, 2003) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-007 (July 26, 2007) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-018 (Oct. 29, 2010) (unpublished letter order); *Powerex Corp.*, Docket Nos. ER10-3297-003, *et al.* (Aug. 29, 2014) (unpublished letter order); *Powerex Corp.*, Docket Nos. ER17-704-000, *et al.* (Jan. 25, 2018) (unpublished letter order).

power from a portfolio of resources in the United States and Canada, including Canadian Entitlement resources made available under the Columbia River Treaty, BC Hydro system capability, and various other power resources acquired from other sellers within the United States and Canada.

Powerex is an active participant in the CAISO day-ahead and real-time markets, including the EIM. Powerex participates in the EIM through aggregate resources representing the capability of non-emitting hydroelectric resources and load located in the system of BC Hydro. Powerex represents the first entity to participate in the EIM using the capability of resources and loads located wholly outside the United States.

B. Motion To Intervene

As an active participant in the CAISO markets, including the EIM, Powerex has a direct, immediate, and substantial interest that cannot be adequately represented by any other party and will be directly affected by any Commission action in this proceeding. Powerex's intervention is in the public interest, and it therefore moves for leave to intervene in this proceeding.

III. BACKGROUND

In the Filing, CAISO explains that it is proposing to revise its tariff to memorialize “practices for conformance of load forecasts in the balancing authority areas that participate in the CAISO markets.”³ In particular, CAISO explains that there may be situations where CAISO and other balancing authority areas (“BAA”)

³ Filing at 1.

within the EIM may need to “conform” the load forecast used in the CAISO market optimization to ensure that the forecast accurately reflects system conditions and needs.⁴ CAISO proposes to revise its tariff to acknowledge the use of this practice by CAISO and other BAAs participating in the EIM and to outline the factors that system operators may consider when they determine there is a need to conform the load forecast.

CAISO also explains that it is proposing to revise its tariff to reflect the application of the imbalance conformance limiter, which “ensures the system operator-initiated conformances to load forecasts that enter the market optimization do not exceed the actual market ramping capability and are consistent with actual system needs.”⁵ CAISO states that it currently is pursuing enhancements to improve the accuracy of imbalance conformances and plans to sunset the application of the imbalance conformance limiter feature in the real-time markets in approximately two years.⁶

IV. COMMENTS

A. CAISO Should Continue To Explore Enhancements To Reduce The Frequency Of Imbalance Conformance

Powerex supports the use of imbalance conformance by grid operators to ensure that the market solution reflects the most accurate and up-to-date

⁴ Filing at 1. For the purpose of these comments, Powerex uses the term “imbalance conformance” to refer to the operational practice at issue in this proceeding. This practice also is referred to as “load biasing” and may be referred to as such in some of the materials referenced herein.

⁵ Filing at 8-9. As noted above, Powerex participates in the EIM. However, Powerex does not operate a BAA and does not engage in imbalance conformance.

⁶ Filing at 21.

information possible regarding grid conditions. Powerex recognizes that current limitations inevitably lead to situations where the best available information regarding anticipated grid conditions is not reflected in the market inputs generated through automated system processes. Powerex therefore agrees that market operators should have the ability to make manual adjustments to the load forecasts where necessary to more accurately reflect system needs. Allowing CAISO and other market operators to manually adjust the forecast to improve its accuracy is far more likely to lead to just and reasonable rates than operating a market based on inaccurate and out-of-date information regarding system conditions.

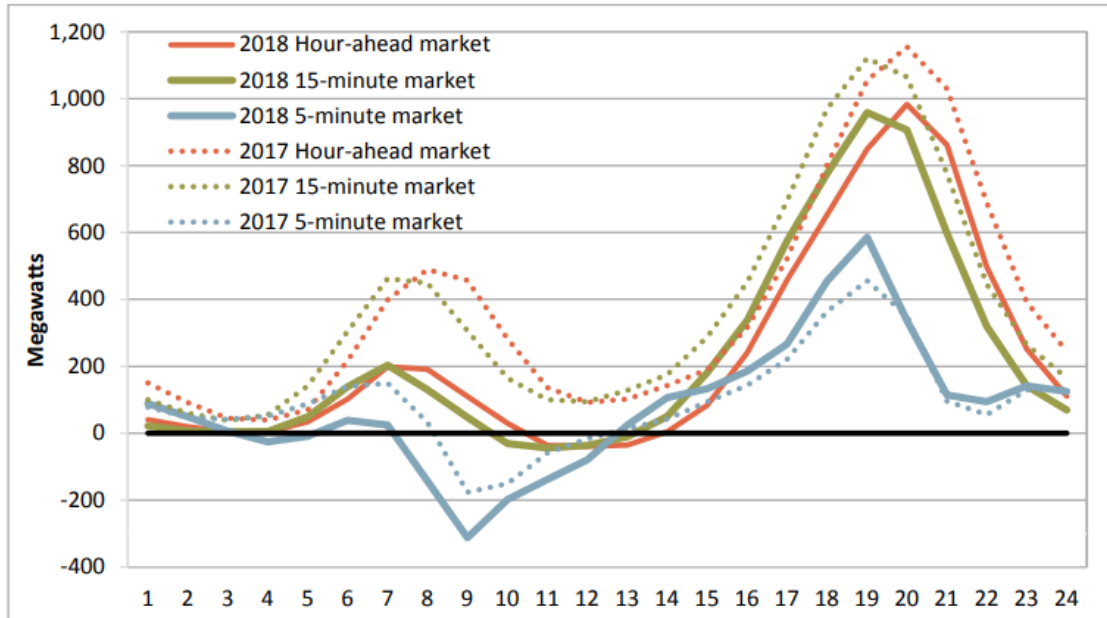
While Powerex recognizes the need to engage in imbalance conformance in certain situations, Powerex believes that the ultimate goal should be to develop objective, data-driven *automated* tools that ensure that grid conditions are accurately reflected in market processes each interval in order to minimize the need for imbalance conformance and other operator interventions. Powerex thus appreciates CAISO's commitment to take steps to enhance its markets to minimize the frequency with which operators are required to rely on imbalance conformance to ensure an accurate market solution.

Powerex is concerned, however, that the frequent and persistent use of imbalance conformance is currently masking systematic and material underlying market design and/or operational issues in CAISO's real-time markets, particularly in the CAISO BAA, as opposed to addressing random inaccuracies or gaps in automated inputs of grid conditions. If imbalance conformance was being used exclusively for the purpose of compensating for inaccuracies or gaps in the

automated market solutions, one would expect that the use of imbalance conformance would be infrequent, limited in magnitude, and unpredictable. In practice, however, imbalance conformance has been anything but infrequent, small, or random.

To the contrary, it appears that CAISO operators' use of imbalance conformance falls into predictable patterns. Specifically, it appears that CAISO operators routinely make large upward adjustments in both the hourly and 15-minute markets, particular during the morning and evening hours when the need for ramping capability is greatest. This pattern of persistent and frequent imbalance conformance in the CAISO BAA is depicted in Figure 1.26, taken from the CAISO Department of Market Monitoring's Q3 2018 Report on Market Issues and Performance.⁷ This figure shows that the use of imbalance conformance falls into a consistent and persistent pattern, with CAISO operators making large upward adjustments to load in the hour-ahead and 15-minute markets in excess of 800 MW *on average* during the evening peak and approximately 200 MW *on average* during the morning ramp in 2018. The figure also shows that the use of imbalance conformance in the 5-minute markets exhibits strong and persistent patterns across the day. CAISO operators' use of imbalance conformance followed similar patterns in 2017 as well.

⁷ Cal. Indep. Sys. Operator Corp., Q3 2018 Report on Market Issues and Performance at 47 (Nov. 1, 2018), *available at* <http://www.caiso.com/Documents/2018ThirdQuarterReportonMarketIssuesandPerformance.pdf>.

Figure 1.26 Average hourly load adjustment (Q3 2018 – Q3 2017)

It is unclear what factors are responsible for this pattern of imbalance conformance by CAISO operators; however, the predictable use of this practice indicates that this tool is not being used to compensate for random and unpredictable errors in automated inputs of grid conditions. Instead, it appears that CAISO operators may be using imbalance conformance to compensate for shortcomings in existing market processes that necessitate regular upward adjustments to the load forecast to meet system needs in specific hours of the day. While Powerex recognizes the need for grid operators to enter manual load adjustments where necessary to bring the market solution closer to actual system needs, it is important to also recognize that the regular use of sizeable imbalance conformance in the same direction in particular hours of the day may potentially be masking market design flaws or informational limitations that are impairing the efficient operation of the market.

The persistent use of imbalance conformance has significant implications for the operation of the CAISO markets, both within California and within the expanded footprint of the EIM. CAISO's load forecast is a critical input that affects the CAISO markets in fundamental ways, including not only directly impacting price formation, resource dispatch and compensation, but also the application of CAISO's EIM resource sufficiency framework. For instance, the decision of CAISO to make significant upward adjustments to the load forecast used in its market will necessarily increase the amount of internal generation resources dispatched within the CAISO and will also result in an increase in imports from other EIM Entity areas.

The use of imbalance conformance also has the potential to undermine Commission-approved mechanisms designed to ensure resource sufficiency. For example, if the flexible resource sufficiency test applied to the CAISO BAA is consistently run in the peak hours of the day using an understated load forecast and/or overstated resource capabilities, thereby understating actual system needs, then there can be no assurance that passing the test means that the CAISO has sufficient flexible capacity to avoid leaning on transfers from other areas participating in the EIM. As discussed further below, this is made even more problematic by the application of the imbalance conformance limiter, which has the effect of suppressing prices paid for imports from other EIM Entities to the CAISO BAA.

In short, Powerex believes that the frequency, magnitude and pattern of imbalance conformance by CAISO operators points to underlying market design

challenges that are having systematic impacts on the performance of the CAISO markets, including the EIM. For that reason, Powerex encourages CAISO to convene a stakeholder proceeding that is focused on holistically evaluating the underlying causes driving the frequent use of imbalance conformance within the CAISO markets, particularly as applied to the CAISO BAA, and recommending short-term and long-term improvements to reduce the frequency and magnitude of imbalance conformance. Powerex believes that CAISO's clarification of its authority under the tariff should be accompanied by an ongoing commitment to minimize the need for manual interventions in the first place.

B. The Imbalance Conformance Limiter Should Be Eliminated As Soon As Possible

Over the past two years, CAISO and stakeholders have had extensive discussions about the application of the imbalance conformance limiter on the CAISO markets, including the impact of the limiter on pricing. As CAISO explains in its filing, the imbalance conformance limiter is an automated tool that ensures that operator adjustments to load forecasts entered into the market optimization do not exceed the supply available in the market to meet imbalance needs. In effect, the imbalance conformance limiter allows manual adjustments to the load forecasts used in the CAISO markets to effectively exhaust available supply without triggering the application of shortage pricing.

Powerex appreciates the significant effort that CAISO made to discuss these issues with stakeholders and consider potential enhancements to the existing imbalance conformance limiter. Powerex remains concerned, however, that CAISO's application of the imbalance conformance limiter interferes with the

appropriate application of shortage pricing and is inconsistent with sound price formation principles.

The Commission has repeatedly emphasized the importance of shortage pricing in ensuring just and reasonable rates and has mandated that all RTOs apply shortage pricing in any interval in which a shortage of energy or operating reserves occurs, regardless of the duration or cause of the shortage at issue.⁸ As the Commission has explained, the application of shortage pricing during such periods helps maintain just and reasonable rates

by providing appropriate incentives for market participants to follow commitment and dispatch instructions, maintain reliability, provide transparency of the underlying value of the services so that operational and investment decisions are based on prices that reflect the actual marginal cost of serving load and the operational constraints of reliable system operation, and encourage efficient investments in facilities and equipment.⁹

Powerex believes that the application of the imbalance conformance limiter runs counter to these objectives by preventing scarcity from appropriately triggering shortage pricing where an operator adjustment exposes a supply shortage in the market. This is a product of the fact that the application of the imbalance conformance limiter has nothing to do with whether an operator's adjustment resulted in a forecast that more accurately reflected system needs or not. As designed, the imbalance conformance limiter will enable an operator adjustment to effectively exhaust all available supply, while limiting it just enough

⁸ *Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 825, 155 FERC ¶ 61,276 (2016).

⁹ *Id.* at P 163.

to prevent it from *exceeding* the available resources offered in the market—even if the forecast adjustment resulted in a more accurate forecast of system requirements. At the same time, the imbalance conformance limiter does nothing to prevent an adjustment to a load forecast from eliminating a supply shortage, even if the adjustment is *inaccurate*. In other words, the imbalance conformance limiter does not serve to identify or correct for erroneous operator adjustments; its sole function is to reduce the frequency with which the CAISO market applies shortage pricing, without regard to whether a shortage exists or not.

CAISO states that the imbalance conformance limiter is necessary to reduce the risk that “coarse” adjustments can “create false scarcity signals.”¹⁰ The issue, however, is not whether an operator adjustment is “coarse,” but whether the adjustment results in a more accurate forecast of actual system needs or not. If an operator adjustment makes the load forecast more accurate and, in so doing, exposes scarcity in the market, then there is no justification for allowing the imbalance conformance limiter to prevent the application of shortage prices. If scarcity exists, then Commission policy requires that shortage pricing be applied regardless of whether the shortage was exposed through automated load forecasts or an operator adjustment. As the Commission has recognized, failing to apply shortage pricing in such situations “distorts price signals that are designed to elicit increased supply and to compensate resources for the value of the services they provide when the system needs energy or operating reserves.”¹¹

¹⁰ Filing at 9, 19.

¹¹ Order No. 825 at P 105.

Powerex acknowledges that it would be inappropriate to allow inaccurate operator adjustments to undermine efficient dispatch or distort pricing. There is no basis to conclude, however, that the application of the imbalance conformance limiter is necessary to prevent inaccurate operator interventions from undermining efficient dispatch or pricing. Importantly, the imbalance conformance limiter does not have any effect on the dispatch or commitment of resources, as it is applied solely to determine the calculation of market prices and not to schedule resources. Thus, the imbalance conformance limiter does nothing to prevent inaccurate adjustments from impacting the scheduling and commitment of resources. In addition, application of the imbalance conformance limiter is not necessary to achieve the objective of preventing erroneous operator interventions from skewing market prices, as CAISO already has ample authority under its tariff to correct prices to address the impact of erroneous adjustments (e.g., “fat finger” errors).

There also is no basis for simply assuming that continued application of the imbalance conformance limiter is in the best interests of all market participants. In reality, the application of the imbalance conformance limiter inherently creates “winners” and “losers.” While net purchasers within the CAISO BAA may benefit from the suppression of real-time prices associated with the imbalance conformance limiter, those supplying energy to the CAISO BAA are undeniably worse off when the imbalance conformance limiter prevents shortage pricing from being appropriately applied.

This includes entities that supply energy to the CAISO BAA through the EIM. Notably, CAISO’s use of the imbalance conformance limiter appears to have

the greatest effect on prices during the very hours of the day in which the CAISO BAA typically receives large EIM transfers (*i.e.*, during the morning and evening net load peaks). Thus, the likely result of the imbalance conformance limiter is to suppress the prices received by EIM entities for supplying energy to California.

It is important to recognize that this is not simply a matter of the level of compensation received by suppliers. To the contrary, thwarting the application of shortage pricing mutes short-term and long-term price signals for the deployment of resources necessary to maintain reliability. For instance, as Dr. Scott Harvey explained at a May 2017 Market Surveillance Committee meeting, it appears that the application of the imbalance conformance limiter has the effect of suppressing prices during periods in which the need for flexible capacity is greatest. In particular, Dr. Harvey noted that the application of the imbalance conformance limiter “eliminated a substantial proportion of the shortages of upward ramp capability” in the CAISO real-time dispatch and directly reduced “the market value of flexible capacity during . . . high ramp hours.”¹² Powerex believes artificially suppressing prices during these periods reduces the incentive for internal and external flexible resources to be available to meet CAISO’s operational needs by preventing resources from being compensated for the resources they provide to the grid. As Dr. Harvey noted, if CAISO “needs flexible capacity and upward ramp

¹² The Load Bias Limiter, Price Formation, and the Need for Flexible Capacity, Presentation by Dr. Scott Harvey, California Market Surveillance Committee at 14 (May 5, 2017), *available at* <http://impmarketdesign.com/papers/LoadBiasLimiterandFlexibleCapacityFTIConsulting.pdf>.

during these hours, real-time prices should reflect this need and not be artificially depressed through the application of the load bias limiter.”¹³

For the foregoing reasons, Powerex believes that the imbalance conformance limiter impairs the effective application of scarcity pricing in a manner that is inconsistent with sound market design and price formation principles. While Powerex is not opposed to CAISO modifying its tariff to reflect the use of the imbalance conformance limiter, Powerex requests that the Commission only approve CAISO’s proposed changes on the condition that:

- The imbalance conformance limiter be eliminated in no more than 2 years, as proposed by CAISO; and
- CAISO submit periodic reports outlining its progress towards eliminating the limiter and providing information regarding CAISO’s application of the limiter, including the frequency of its application and the impact on market prices.

Powerex believes that approving CAISO’s proposal subject to the conditions set out above will help ensure that the imbalance conformance limiter is removed from the market as expeditiously as possible and provide the Commission and market participants with transparency into both CAISO’s progress towards achieving elimination of the imbalance conformance limiter and the impact that the limiter is having on the CAISO markets.

¹³ *Id.*

V.
CONCLUSION

Wherefore, for the foregoing reasons, Powerex requests the Commission to grant this intervention and issue an order consistent with the comments above.

Respectfully submitted,

/s/ Deanna E. King

Stephen J. Hug
Tracey L. Bradley
Bracewell LLP
2001 M Street NW, Suite 900
Washington, D.C. 20036
Phone: (202) 828-5800
Fax: (800) 404-3970
stephen.hug@bracewell.com
tracey.bradley@bracewell.com

Deanna E. King
Bracewell LLP
111 Congress Avenue
Suite 2300
Austin, Texas 78701
Phone: (512) 494-3612
Fax: (512) 479-3912
deanna.king@bracewell.com

On Behalf of Powerex Corp.

January 2, 2019

CERTIFICATE OF SERVICE

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, I hereby certify that I have this day served a copy of the foregoing on all persons designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 2nd day of January, 2019.

/s/ Stephen J. Hug

Stephen J. Hug

Document Content(s)

Powerex MTI and Comments ER19-538.PDF.....1-16