UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	))	**Docket No. ER18-____-000**

PETITION FOR LIMITED TARIFF WAIVER AND REQUEST FOR EXPEDITED CONSIDERATION

The California Independent System Operator Corporation (CAISO) respectfully requests that the Federal Energy Regulatory Commission ("Commission") issue an order by May 9, 2018, granting limited waiver of certain provisions in sections 34.1.5.2 and 34.1.5.4 of the CAISO tariff to avoid unintended adverse consequences to Powerex Corp. (Powerex) in connection with its voluntary participation in the CAISO's western energy imbalance market (EIM). Granting of this petition for tariff waiver will benefit the EIM as a whole.[1]

Powerex began participation in the EIM on April 4, 2018, pursuant to Commission-approved agreements that recognize its status as a Canadian EIM entity. During parallel operations conducted prior to April 4, the CAISO and Powerex identified an unintended consequence arising out of mitigation of Powerex's aggregated participating resource with implications that are contrary to the intention of Powerex's EIM agreements with the CAISO. Specifically, when the CAISO applies its market power mitigation to Powerex's aggregated participating resource and identifies potential market power in the import

[1] The CAISO submits this petition for limited waiver pursuant to Rule 207 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.207. Capitalized terms not otherwise defined herein have the meanings set forth in the CAISO tariff.

direction, even though it does not identify potential market power in the export direction, the mitigation of the import causes Powerex's flows to reverse, and its resource is dispatched to export at a mitigated bid price—effectively forcing Powerex to make sales at mitigated prices in the intervals when Powerex's submitted bids were economic to make purchases. Powerex has begun to mitigate the impact of this condition by restricting transfers into the EIM to protect itself against the unintended consequence of bid mitigation, which limits the benefits that can accrue to the EIM from Powerex's participation.

The CAISO has developed, with Powerex's input, an interim solution to address this condition, reducing the frequency with which Powerex must restrict its exports into the EIM. This solution will avoid the situation described above. The interim solution consists of an automated process by which Powerex's EIM transfers will be restricted only during intervals in which this condition occurs, as well as limiting mitigation of Powerex's aggregated participating resource to the market interval in which the mitigation of that resource is triggered. The CAISO seeks a limited tariff waiver to implement the interim solution fully, which will apply solely to Powerex's aggregated participating resource operating under the unique Canadian EIM entity arrangements.[2]

This petition satisfies the Commission's requirements for granting a tariff waiver. This requested tariff waiver is of limited scope because it applies only to the specific tariff provisions listed above and resolves a unique issue that

[2] As explained below, the CAISO does not believe that it requires a waiver in order to implement the automated process component of the solution, but it does require a waiver in order to limit mitigation of Powerex's aggregated participating resource to the market intervals in which mitigation is triggered.

Powerex faces as the only Canadian participant in the EIM under the aggregated participating resource model. Further, the waiver will be of limited duration, and will only remain in place for up to eighteen months after the Commission issues the requested order (*i.e.*, until November 9, 2019), while the CAISO works to resolve this issue in conjunction with an upcoming EIM stakeholder initiative concerning negotiated default energy bids. At the completion of the stakeholder process, the CAISO will make any appropriate filings necessary to reflect the resolution of the identified issue.

This tariff waiver petition addresses a concrete problem presented by enabling the CAISO to implement the full solution for limiting Powerex's exports only under certain scenarios in a manner that supports maximizing Powerex's participation and benefits the EIM as a whole. Lastly, this tariff waiver petition has no undesirable consequences because the tariff provisions the CAISO seeks to waive facilitate use of the interim solution and thus maximize Powerex's participation in the EIM, which benefits the EIM as a whole, without any harm to any market participant because the tariff provisions the CAISO seeks to waive were not intended to apply to resources, such as Powerex's, that do not experience ramp constraints across the intervals.

For all these reasons, good cause exists for the Commission to grant this petition for limited waiver.

I. Background

A. Powerex's Arrangements to Participate in the EIM

The EIM enables entities outside the CAISO balancing authority area to participate in the CAISO-administered real-time market for imbalance energy.[3] Since the CAISO implemented the EIM in 2014, a diverse number of entities throughout the Western Interconnection have joined the EIM.[4]

Powerex is a Canadian corporation and an independent, wholly owned subsidiary of British Columbia Hydro & Power Authority (BC Hydro), a Provincial Crown Corporation. Powerex markets the residual capability of the BC Hydro system and participates in United States wholesale electricity markets, including the CAISO's markets, under market-based rate authorization granted by the Commission. Powerex's activities help balance the BC Hydro system efficiently and yield trade revenues that benefit BC Hydro. BC Hydro acts as a balancing authority, generation owner, transmission owner, transmission operator, and transmission service provider in the Province of British Columbia under the regulatory authority of the British Columbia Utilities Commission.

Powerex began participating in the EIM as the first Canadian EIM participant on April 4, 2018. Powerex is participating with an aggregated participating resource that reflects the residual capability of hydroelectric facilities located in British Columbia. Powerex acts as its own scheduling coordinator and

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[3] The CAISO provisions applicable to the EIM are generally set forth in section 29 of the CAISO tariff and implementation detail regarding those provisions is set forth in the business practice manual for the EIM.

[4] The entities currently participating in the EIM are PacifiCorp, NV Energy, Puget Sound Energy, Arizona Public Service Company, Portland General Electric, Idaho Power Company, and Powerex Corp.

its aggregated resource is available at all times, and its bids into the EIM are not generally constrained by ramping requirements. In order to facilitate its participation in the EIM, Powerex voluntarily makes available transmission rights to support EIM transfers, with the ongoing right to determine the amount of transmission capacity it makes available to the EIM. Powerex executed a number of jurisdictional agreements in 2017 to enable its participation in the EIM, which the Commission accepted.[5] These agreements address the unique jurisdictional and regulatory considerations related to Powerex's participation in the EIM consistent with the rights and obligations of Powerex and BC Hydro under British Columbia law.[6]

As an EIM scheduling coordinator, Powerex submits EIM base schedules to the CAISO for use in the real-time market and may submit energy bids in the real-time market in accordance with the same tariff rules that apply to non-EIM energy bidders.[7] The real-time market consists of processes that include the

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5 *See Cal. Indep. Sys. Operator Corp.*, 160 FERC ¶ 61,058 (2017) (accepting an EIM Implementation Agreement between the CAISO and Powerex); *Cal. Indep. Sys. Operator Corp.*, Commission Letter Order, Docket Nos. ER18-251-000, *et al.* (Feb. 14, 2018) (accepting four agreements between the CAISO and Powerex that set forth the legal obligations and operational rules that will govern Powerex's participation in the EIM, and a Data Sharing Agreement between the CAISO and BC Hydro).

6 The agreements reflect the following understandings: the resources, transmission, and loads that will support Powerex's EIM participation are located wholly outside of the United States; Powerex will be the Canadian EIM Entity participating in the EIM; BC Hydro will not participate in or undertake any commercial activities in the EIM; the EIM area will not extend into Canada; and Powerex's participation in the EIM will be subject to United States law and Commission jurisdiction, as its sales and purchases into the United States are today, while BC Hydro will continue to operate as a wholly Canadian provincial governmental entity performing its current functions on behalf of the BC Hydro system. As defined in appendix A to the CAISO tariff, the EIM area means the combined CAISO balancing authority area and all EIM entity balancing authority areas.

7 Tariff sections 29.34(b) and 29.34(h). An EIM base schedule is an hourly forward energy schedule that does not take into account dispatches from the real-time market. Tariff appendix A,

fifteen-minute market (FMM)[8] and the 5-minute real-time dispatch (RTD).[9] Powerex is also subject to tariff provisions governing limits on and modeling of EIM transfers, *i.e.*, the transfer of energy in real-time between an EIM entity and the CAISO balancing authority area, or between EIM entities, using transmission capacity made available to the real-time market through the EIM.[10]

As an aggregated participating resource, Powerex submits a single bid set in the EIM for both supply and demand (*i.e.*, sales and purchases) of energy. The CAISO, through its DMM, and Powerex have also negotiated a default energy bid for Powerex.[11] When the CAISO mitigates Powerex's aggregated EIM participating resource in a given interval, it mitigates Powerex's entire energy bid curve for both supply and demand to a single default energy bid.[12]

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definition of "EIM Base Schedule". References to section numbers herein are references to sections of the CAISO tariff unless otherwise stated.

[8] The FMM is part of the real-time market and is conducted throughout the operating day in 15-minute increments prior to the real-time dispatch, in order to clear bids for energy and ancillary services from imports and exports, internal supply and the CAISO's forecast of CAISO demand. Tariff appendix A, definition of "Fifteen Minute Market".

[9] The RTD consists of the security constrained economic dispatch and security constrained unit commitment software the CAISO uses to determine which ancillary service and imbalance energy resources to dispatch and to calculate locational marginal prices. Tariff appendix A, definition of "Real-Time Dispatch". In its normal operating mode (called the real-time economic dispatch), the RTD runs every 5 minutes starting at approximately 7.5 minutes prior to the start of the next dispatch interval and produces binding dispatch instructions for energy for the next dispatch interval and advisory dispatch instructions for multiple future dispatch intervals through at least the next trading hour. Tariff sections 34.5 and 34.5.1.

[10] Tariff section 29.17(f); tariff appendix A, definition of "EIM Transfer".

[11] The CAISO tariff allows a scheduling coordinator to choose and rank among three options for calculating default energy bids. Tariff section 39.7.1. Powerex's ranking among the available options includes the use of a negotiated default bid option in certain circumstances.

[12] The tariff defines a default energy bid as the energy bid curve used in local market power mitigation (discussed below). Tariff appendix A, definition of "Default Energy Bid". The energy bid curve is defined as the bid component that indicates the prices and related quantity at which a resource offers energy in a monotonically increasing staircase function, consisting of no more than 10 segments defined by 11 pairs of megawatt operating points and dollars per megawatt-

The CAISO uses default energy bids to mitigate bids for energy above the minimum load of resources subject to the local market power mitigation provisions set forth in the tariff. The purpose of the local market power mitigation provisions is to mitigate the market effects of any conduct that could substantially distort competitive outcomes. Each of the real-time unit commitment (RTUC)[13] runs of a given binding run includes two passes: the local market power mitigation pass and the actual market dispatch. The local market power mitigation pass market software includes a dynamic competitive path assessment that tests whether binding transmission constraints are competitive or non-competitive for the real-time market, including for the FMM and the RTD.[14]

Based on the results of the local market power mitigation pass, the CAISO determines which bids to mitigate by decomposing the congestion component of each locational marginal price (LMP) determined in the market power mitigation process into competitive congestion and non-competitive congestion components.[15] The competitive congestion component of each LMP is calculated as the sum of the product of the shift factor and the shadow price for

hour, which may be different for each trading hour of the applicable bid time period. Tariff appendix A, definition of "Energy Bid Curve".

[13] The RTUC is the market process in which the CAISO conducts conductions 15-15-minute real-time unit commitment and clears the FMM for a binding interval. The RTUC commits fast start units and medium start units using the security constrained unit commitment to adjust from day-ahead schedules, EIM base schedules, and hour-ahead scheduling process advisory schedules. Tariff appendix A, definition of "Real-Time Unit Commitment"."

[14] Tariff section 39, *et seq.* The real-time local market power mitigation provisions apply to the EIM with some EIM-specific modifications as described in the tariff. Tariff section 29.39.

[15] The LMP at any pricing node is comprised of three marginal cost components: (1) the system marginal energy cost, (2) marginal cost of losses, and (3) marginal cost of congestion. Tariff section 27.1.

all competitive transmission constraints, and the non-competitive congestion component of each LMP is calculated as the sum of the product of the shift factor and the shadow price for all non-competitive transmission constraints.[16] These calculations factor in the power balance constraint for an EIM entity's applicable balancing authority area.[17]

If the non-competitive congestion component of an LMP calculated in the market power mitigation process is greater than zero, then a resource dispatched in that market power mitigation process is subject to local market power mitigation. To the extent that the bid of a resource such as Powerex's aggregated EIM participating resource exceeds the competitive LMP at the resource's location, the bid will be mitigated to the higher of the resource's default energy bid or the competitive LMP at the location for use in the real-time market.[18]

The tariff provisions for the FMM and RTD include rules requiring that: (1) if a bid is mitigated in the market power mitigation process for the first FMM interval for a trading hour, the mitigated bid will be used for all market applications for that first FMM interval; and (2) if a bid is mitigated in one FMM or

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16 Tariff appendix C, at section D. As reflected in the Powerex Canadian EIM Entity Agreement, Powerex is not a balancing authority, but participates in the EIM through aggregate resources and load reflecting residual capability of the BC Hydro system. For the purpose of Powerex's participation, references to an EIM entity balancing authority area shall be read to refer to the BC Hydro balancing authority area as modeled by CAISO. However, BC Hydro does not participate in the EIM and the BC Hydro balancing authority area does not constitute part of the EIM Area.

17 Tariff appendix C, at section D.

18 Tariff sections 34.1.5 *et seq.* (cross-referencing the bid mitigation methodology set forth in section 31.2.3 of the tariff).

RTD interval, the bid mitigation will automatically continue into subsequent intervals. As discussed below, the CAISO requests waiver of these tariff rules with regard to the Powerex aggregated participating resource.[19]

B. Issue Related to Powerex's EIM Participation

On March 2, 2018, the CAISO submitted to the Commission an informational readiness certification (Readiness Certification).[20] It stated that the CAISO, in consultation with Powerex, has determined that the CAISO and Powerex have met all EIM readiness criteria set forth in the tariff, following market simulation and an adequate period of parallel operations that preceded the start of Powerex's participation in the EIM on April 4.

In the March 2 EIM readiness certification, the CAISO identified an issue regarding the application of the local market power mitigation provisions to Powerex's aggregated participating resource during parallel operations. Based on experience gained in parallel operations, Powerex was concerned that the following sequence of events might occur:

(1) Pursuant to the local market power mitigation provisions, when the shadow price of the power balance constraint calculated by the CAISO for the BC Hydro balancing authority area is positive, this indicates there are binding transmission constraints that limit imports of energy from the CAISO balancing authority area to the BC Hydro balancing authority area or to a geographic area formed by a group of balancing authority areas (*e.g.*, the BC Hydro and Puget Sound Energy balancing authority areas).

(2) The dynamic competitive path assessment for the FMM or for an advisory interval of the RTD identifies the situation described above as non-competitive, which triggers bid mitigation for Powerex's

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[19] Tariff sections 34.1.5.2 and 34.1.5.4.

[20] The CAISO submitted the Readiness Certification in Docket No. ER15-861-000, including a notation of the condition addressed by this waiver.

aggregated EIM participating resource.

(3) As a result, the CAISO's market software replaces the Powerex resource's bid in the EIM with Powerex's negotiated default energy bid in the market run of the FMM or the next binding RTD interval. This means the CAISO mitigates the entire energy bid curve above the competitive LMP for both supply and demand from the aggregated Powerex resource to the default energy bid.

(4) Mitigating the energy bid curve to Powerex's default energy bid causes the flow of energy transfers between the EIM area and the BC Hydro balancing authority area to reverse (*i.e.*, flip) from imports (northbound EIM transfers at the British Columbia-United States border) to exports (southbound EIM transfers at the British Columbia-United States border).

In this specific situation where the shadow price of the power balance constraint for the calculated BC Hydro balancing authority area is positive in the local market power mitigation run (*i.e.*, the flows identified in the locational market power mitigation run are constrained in the import direction to the BC Hydro balancing authority area), mitigation is applied to Powerex's offers to sell and to purchase energy, even though there are no market power concerns in this scenario. The resulting reversal of the flows at the mitigated price is problematic because the Powerex aggregated participating resource is forced to sell at a mitigated bid price even though there were no market power concerns present.

The CAISO further understands this is particularly problematic for Powerex because Powerex has indicated that its default energy bid is not sufficiently flexible to accurately reflect Powerex's opportunity costs (i.e., the opportunity costs associated with releasing water from an external multi-facility hydro system with long-term storage). Powerex has informed the CAISO that this situation would result in the inefficient use of its available residual hydroelectric capability that creates a financial disincentive for Powerex to participate in the EIM, and would be contrary to the intent of Powerex's participation as contemplated in its EIM agreements.

In the Readiness Certification filing, the CAISO explained that the application of market power mitigation to Powerex's aggregate resource in some circumstances appeared contrary to governing principles set out in Powerex's Implementation Agreement and to the intent of Powerex's EIM participation agreements. The Implementation Agreement specifies eight principles that form the basis of Powerex's participation in the EIM.[21] One of those principles is that "[a]ny local market power mitigation framework to be applied will . . . provide Powerex with sufficient flexibility to reflect the opportunity costs associated with the use of an external multi-facility hydro system with long term multi-year storage capability."[22] The Readiness Certification explained that Powerex had informed the CAISO that the issue identified in parallel operations meant that Powerex's default energy bid did not satisfy that principle and that Powerex planned to reduce its participation in the EIM when bid mitigation would result in uneconomic dispatch of its resource:

> Notwithstanding satisfaction of all applicable readiness criteria, one of the eight principles set out in CAISO and Powerex's Implementation Agreement has not yet been achieved. . . . Powerex remains concerned of the impacts the use of the interim default energy bid may have on its participation in the EIM based on its observations when mitigation was applied during parallel operations. The CAISO understands that Powerex expects it will materially reduce its participation in the EIM during certain hours, or on certain days, when it anticipates mitigation will result in the

21 EIM Implementation Agreement at section 14.

22 *Id.* at section 14(g).

> uneconomic dispatch of its aggregate participating resource. This remedial action is likely to persist until the default energy bid is resolved and will result in a lower overall initial participation level than Powerex had originally expected.[23]

The CAISO stated in the Readiness Certification that it understands that Powerex anticipates addressing this final implementation issue as part of a stakeholder process on EIM offer rules that is scheduled to begin in the second quarter of 2018. Further, the CAISO and Powerex concluded that the issue would not affect Powerex's readiness to start participating in the EIM on April 4, 2018.[24]

This issue has manifested itself both during parallel operations and in the first few days of Powerex's actual participation in the EIM that began on April 4. For the first few days of actual operations going from April 4 through April 8, Powerex has been mitigated on average on 67 percent of the hours in the FMM and about 35 percent of the hours in the RTD.

In order to avoid being forced to sell at a bid price that Powerex has found does not represent its opportunity cost, and after conferring with the CAISO, Powerex has exercised its right to reduce the amount of transmission available to support EIM transfers to the CAISO balancing authority area and the remainder of the EIM area in intervals when Powerex anticipates this sequence of events will occur. Since April 4, 2018 when it went live, Powerex has been reducing its EIM transfers in early hours of the day (hour ending 1 through hour ending 6) and midday hours (hour ending 8 through hour ending 17).

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23 Readiness Certification at 4-5.

24 *Id.*

C. The CAISO's Interim Solution to Partially Address the Identified Issue

Until the default energy bid issue described above can be resolved in conjunction with the EIM offer rules stakeholder initiative, the CAISO will implement a solution it has developed with Powerex's input that is consistent with Powerex's participation in the EIM as contemplated in the agreements, ensures the application of local market power mitigation does not create adverse unintended consequences, and provides an incentive for Powerex to participate to its maximum extent in the EIM. The interim solution involves the CAISO using an automated process through which, pursuant to Powerex's instructions, the CAISO will limit EIM transfers by restricting net exports and flexible ramping up capacity sourced from the BC Hydro balancing authority area under certain circumstances, thereby reducing the need for Powerex to proactively limit its EIM transfers as a whole.[25]

Specifically, if the market power mitigation pass of the RTUC for a given binding interval identifies the Powerex resource as being subject to market power mitigation when the sum of supply resources is dispatched or scheduled *below* Powerex's EIM base schedule (*i.e.*, with a negative schedule deviation), then in the actual market pass of that binding RTUC interval the CAISO will limit the net EIM transfer in the export direction. This will ensure that when the local market power mitigation is triggered due to constraints limiting transfers from the EIM Area, Powerex's EIM exports into the EIM Area will be restricted to avoid the

[25] Attachment A to this waiver petition contains a hypothetical example illustrating how the interim solution will work.

unintended adverse consequences to Powerex identified above where the Commission does have jurisdiction.

Similarly, if the local market power mitigation pass is not triggered in the RTUC, but the local market power mitigation is triggered for the advisory interval of a binding RTD interval, when the sum of the supply resources in the aggregation is dispatched *below* the aggregate base schedule, then in the next binding RTD interval the CAISO will limit the net EIM transfer in the north-to-south direction at the British Columbia-United States border to the corresponding FMM schedule, thereby not allowing additional EIM exports beyond those cleared in the FMM.

If, on the other hand, the local market power mitigation pass results in mitigation of the Powerex aggregate participating resource when the sum of supply resources is dispatched or scheduled *at or above* their EIM base schedule (*i.e.*, with a zero or a positive schedule deviation), the CAISO will not restrict the net EIM transfer in the north-to-south direction across the British Columba-United States border in subsequent market runs, other than to apply the relevant scheduling limits. This will ensure that when local market power mitigation is triggered for flows into the CAISO or other EIM balancing authority areas, the CAISO will not limit the exports. In these cases, the implications of the market power tests are relevant for other EIM balancing authority areas and the CAISO and Powerex agree that those flows should not be restricted and should be mitigated if they occur.

In developing this interim solution, the CAISO also identified that because this process would result in limiting exports in a binding interval, any flexible ramping up capacity procured from Powerex in the prior interval would be stranded in the binding interval. As designed, the FMM will procure flexible ramping up capacity from Powerex's aggregate participating resource for the ramp requirement from the binding to the advisory interval. The FMM may procure flexible ramping up in excess of the flexible ramping up requirement for Powerex to meet flexible ramping up requirements in other EIM balancing authority areas. However, if the EIM transfers from Powerex will be limited in the next FMM binding interval due to this measure the additional flexible ramping up procured from Powerex will be rendered useless and will result in a shortfall for the EIM area.

This could work to the detriment of other EIM balancing authority areas because the CAISO would have avoided procuring flexible ramping up from other balancing authority areas, assuming the capacity was available from Powerex, only to find it could not rely on that capacity. To prevent this adverse outcome, if in the local market power mitigation pass of a given advisory interval the schedule of Powerex's aggregate participating resource in the advisory interval is negative, then in the subsequent FMM pass of that advisory interval, the CAISO will limit the flexible ramping up procurement from Powerex to not exceed the flexible ramping up requirement calculated by the CAISO for the BC Hydro balancing authority area plus the net EIM transfers in the south-to-north direction across the British Columbia-United States border.

The CAISO does not require tariff changes or waiver of existing tariff provisions to implement the interim measures described above in this section, because the tariff provides sufficient flexibility to incorporate these measures in the business practice manuals. Specifically, section 29.17(f)(2) of the CAISO tariff states that the EIM entity scheduling coordinator will determine the EIM transfer limit made available for use in the real-time market through interchange transmission rights and communicate that limit to the CAISO prior to the start of the next dispatch interval in accordance with the procedures and timelines for submission and acceptance in the business practice manual. Therefore, by instructing the CAISO to limit transfers pursuant to the automated methodology described above, Powerex will be merely invoking its right under section 29.17(f)(2) to determine the EIM transfer limit made available for use in the real-time market. Consistent with section 29.17(f)(2), the CAISO will revise the submission procedures and timelines in the business practice manual for the EIM in order to implement this solution.

Similarly, section 44.2.4.1 of the tariff states that the CAISO will determine the uncertainty requirement for each real-time market run, by each balancing authority area and for the EIM area overall.[26] The CAISO will continue to comply with this requirement in setting the requirement for the EIM area. The CAISO will describe in the business practice manual how that uncertainty requirement in the EIM area is constrained to ensure that flexible ramping up capacity procured from Powerex is limited as discussed above.

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[26] The tariff defines the uncertainty requirement as flexible ramping capability to meet the requirements specified in tariff section 44.2.4. Tariff appendix A, definition of "Uncertainty Requirement".

The CAISO will apply this measure only to Powerex because of the unique facts and circumstances of Powerex's participation as a Canadian EIM entity under the agreements accepted for filing by the Commission.[27] In addition, as discussed below, the CAISO seeks waiver of three tariff provisions as they apply to Powerex in order to ensure that the interim solution that restricts Powerex's activity in the EIM can be used as sparingly as possible.

II. Petition for Limited Tariff Waiver

A. Tariff Provisions for Which the CAISO Requests Waiver

The CAISO requests waiver of three tariff provisions solely as they concern Powerex's participation in the EIM. Sections 34.1.5.2 and 34.1.5.4 of the tariff include provisions that require the continuation of existing bid mitigation in the FMM and RTD. With regard to the FMM, section 34.1.5.2 states that "[i]f a Bid is mitigated in the MPM [Market Power Mitigation] process for the first fifteen (15) minute interval for a Trading Hour, the mitigated Bid will be utilized for all market applications for that first fifteen (15) minute interval." Section 34.1.5.2 also states that "[f]or each Trading Hour, any Bid mitigated in a prior fifteen (15) minute interval of that Trading Hour will continue to be mitigated in subsequent intervals of that Trading Hour and may be further mitigated as determined in the MPM runs for any subsequent fifteen (15) minute interval." With regard to the RTD, section 34.1.5.4 includes a provision stating that "[i]f a Bid is mitigated in the MPM process for the first five (5) minute interval for an applicable fifteen-

[27] The CAISO has not executed and the Commission has not accepted any such agreements with other parties.

minute (15) RTUC [Real-Time Unit Commitment] interval, the mitigated Bid will be utilized for all the corresponding RTD intervals in that fifteen-minute (15) RTUC interval."

The CAISO requests waiver of these three quoted provisions because pursuant to these provisions, the CAISO is generally required to apply mitigation for the remaining horizon of the applicable trading hour and therefore its restriction on Powerex's southbound EIM transfers would apply in those remaining intervals of the applicable hour as well. This means that the limitation on Powerex's southbound EIM transfers would continue to apply during those subsequent intervals whether or not market power mitigation would independently trigger in those intervals. It is possible that in the subsequent intervals when tested, the Powerex aggregate participating resource would not trigger market power mitigation; in such intervals, limiting the export would be unnecessary and it may be economically efficient for Powerex to export. It is also possible that in those subsequent intervals, there may be binding transmission constraints with implications which extend to other EIM balancing authority areas. As discussed above, the CAISO should apply mitigation and not limit Powerex's southbound EIM transfers in the latter circumstance.[28]

Continuing to apply these three tariff provisions to Powerex during the period that the interim solution is in effect would make less power available to the EIM and make bidding into the EIM less competitive, which would tend to

[28] Pursuant to the waiver, the market power mitigation process will determine whether bid mitigation will apply to the Powerex resource for each 15-minute interval of the FMM, with each such determination being made independently of the determination made for a subsequent interval.

increase bid prices and decrease EIM efficiency. However, granting the requested waiver of the tariff provisions would have the opposite effects: it would provide an incentive for Powerex to maximize its EIM participation, make more power available to the EIM, make the bidding into the EIM more competitive, lower bid prices, and increase EIM efficiency. Thus, granting the requested waiver will benefit the EIM as a whole.

Waiving the application of the three tariff provisions to Powerex's participation in the EIM will also have no adverse effect on the CAISO's ability to mitigate the potential exercise of market power by the Powerex aggregate participating resource. The purpose of the three provisions is to mitigate the exercise of intertemporal market power based on a resource's ramping constraints from one interval to another. Granting the requested waiver will not undermine that purpose. In the EIM, the CAISO models the Powerex resource without ramping constraints. Thus, it is not possible for the Powerex resource to exercise intertemporal market power, and the Powerex resource is available to the EIM without regard to these constraints. The CAISO will conduct the market power mitigation run in each interval to ensure that, if there is market power in that interval, the CAISO appropriately mitigates the resource. As a result, waiving the quoted provisions with regard to Powerex's participation in the EIM will have no unintended consequences and will not undermine the CAISO's market power mitigation process.[29]

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[29] As explained above in section I.C of this waiver petition, the revisions to the business practice manual for the EIM to implement the interim solution will be consistent with tariff sections 29.17(f)(2) and 44.2.4.1. The CAISO believes it does not need to seek waiver of these tariff

B. Good Cause Exists to Grant the Requested Waiver

Good cause exists for the Commission to grant a limited waiver of the three provisions in tariff sections 34.5.1.2 and 34.5.1.4 quoted above solely with respect to Powerex's participation in the EIM. The Commission has previously granted requests for tariff waivers where (1) the applicant acted in good faith; (2) the waiver was of limited scope; (3) the waiver addressed a concrete problem; and (4) the waiver did not have undesirable consequences, such as harming third parties.[30] This waiver petition meets all four conditions.

The CAISO acted in good faith because the issue that prompted the development of the interim solution did not become apparent until the CAISO applied the local market power mitigation provisions to Powerex's aggregated EIM participating resource during parallel operations. The CAISO noted the issue in the Readiness Certification it filed with the Commission on March 2 and began looking for ways to mitigate the issue immediately.

The waiver is of limited scope because it applies to only three provisions in the CAISO tariff and concerns a unique issue that Powerex faces as a Canadian entity participating in the EIM. Further, the waiver is limited in duration and is intended to remain in place for only 18 months, *i.e.*, until November 9,

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sections, because the interim solution that Powerex supports will determine EIM transfer limits in accordance with the procedures and timelines for submission and acceptance set forth in the business practice manual. However, if the Commission were to find that waiver of tariff sections 29.17(f)(2) and 44.2.4.1 is necessary, the CAISO respectfully requests waiver of those tariff sections to ensure that the interim solution operates as intended.

[30] *See, e.g.*, *Cal. Indep. Sys. Operator Corp.*, 158 FERC ¶ 61,072, at P 5 (2017); *N.Y. Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,061, at P 19 (2014); *PJM Interconnection, L.L.C.*, 146 FERC ¶ 61,041, at P 5 (2014); *ISO New England, Inc.*, 134 FERC ¶ 61,182, at P 8 (2011).

2019. In the intervening time, the CAISO will work to resolve the issue in conjunction with the EIM offer rules stakeholder initiative scheduled to begin in the second quarter of 2018.[31] The CAISO will submit a subsequent filing in this proceeding to notify the Commission that the issue has been resolved. The CAISO estimates that eighteen months is sufficient time for the CAISO to complete the stakeholder process for this initiative and if it ends sooner, the CAISO will make any necessary tariff amendment filings to implement the resulting resolution prior to that time.

The waiver addresses the concrete problem that the CAISO requires waiver of the quoted provisions in sections 34.5.1.2 and 34.5.1.4 in order to avoid restricting EIM transfers into the EIM Area during those intervals when either (1) Powerex has no ability to exercise market power in the applicable interval(s) and restricting exports in the subsequent interval(s) would be economically inefficient and would harm the EIM as a whole; or (2) Powerex has potential ability to exercise market power in the EIM Area, but CAISO's freeze of exports in subsequent intervals would prevent appropriate application of local market power mitigation and potentially necessary sales at potentially mitigated prices into the EIM Area.[32]

Lastly, the waiver will have no undesirable consequences. To the

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[31] In the unlikely event that the stakeholder initiative turns out to be unproductive, the issue will be resolved through some alternative means to be determined at that time.

[32] There is no Commission requirement that the concrete problem addressed by a petition for tariff waiver must be a large-scale problem. For example, the Commission has previously granted a petition for tariff waiver to extend a procedural deadline in order to prevent the interconnection request of a single interconnection customer from being deemed terminated and withdrawn from a generator interconnection queue. *Jordan Creek Wind Farm LLC*, 162 FERC ¶ 61,001, at PP 9-11 (2018).

contrary, the waiver facilitates use of the interim solution and thus maximizes the potential benefits of Powerex's participation in the EIM. As a result, the EIM benefits as a whole. The waiver will not harm any market participant.

For these reasons, good cause exists to grant the CAISO's request for limited waiver of the quoted provisions in sections 34.5.1.2 and 34.5.1.4.

III. Request for Shortened Comment Period and Expedited Consideration

To ensure that the interim solution can be effectively implemented as soon as practicable, the CAISO respectfully requests that the Commission establish a shortened comment period for this proceeding and issue an order granting the requested waiver petition by May 9, 2018. Because the issue involved in the waiver is straightforward and the waiver only affects three tariff provisions and involves a unique issue that Powerex faces as the only Canadian EIM participant, the CAISO believes this schedule will provide sufficient time for stakeholder comment and Commission review.

IV. Service

The CAISO has served copies of this filing on the California Public Utility Commission, the California Energy Commission, and all parties with Scheduling Coordinator Agreements under the CAISO tariff.

V. Communications

Communications regarding this filing should be addressed to the following:

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VI. Conclusion

For the foregoing reasons, the Commission should find that good cause exists to issue an order by May 9, 2018 that grants the requested limited waiver of the above-quoted provisions in sections 34.5.1.2 and 34.5.1.4 of the CAISO tariff, solely with regard to Powerex's participation in the EIM.

Respectfully submitted,

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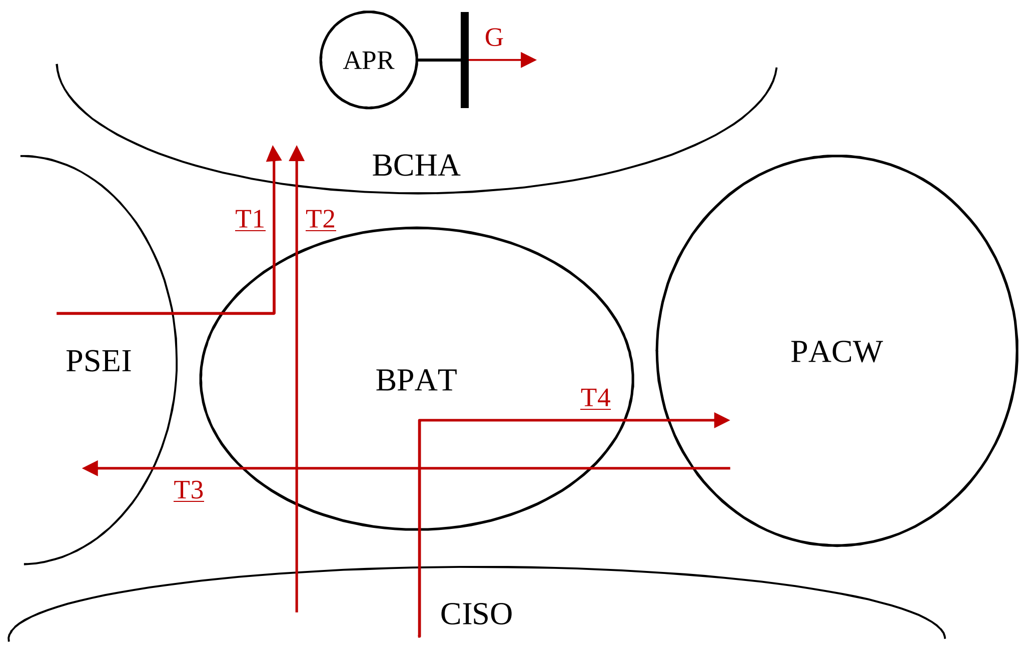
Counsel for the California Independent System Operator Corporation

Dated: April 10, 2018

Attachment A

Attachment A – Example

T1 is the transfer from the Puget Sound Energy balancing authority area (PSEI) to the BC Hydro balancing authority area (BCHA) through the Bonneville Power Administration balancing authority area (BPAT), T2 is the transfer from the CAISO balancing authority area (CISO) to BCHA, T3 is the transfer from the PacifiCorp balancing authority area (PACW) to PSEI, and T4 is the transfer from CISO to PACW. The aggregated participating resource (APR) bid is $10/MWh with a zero base schedule, its default energy bid (DEB) is $3/MWh, and the net base transfer of BCHA is 0 MW.



Case A: Aggregated participating resource is mitigated with a negative schedule

The generation bid is $2/MWh in CAISO, and $5/MWh in PSEI with a $4/MWh DEB. T1, T2, and T3 are binding at their limit in the market power mitigation (MPM) pass and the APR has a negative schedule. The energy price is $2/MWh in CAISO/PACW, $5/MWh in PSEI, and $10/MWh in BCHA. The generators in PSEI are mitigated to $4/MWh and the APR is mitigated to $3/MWh. In the market pass of the FMM, T1 and T2 will reverse direction. With the interim solution, T1 and T2 will be limited in the export direction to a net of 0 MW, allowing wheeling through BCHA, but not export from BCHA.

Case B: Aggregated pricing resource is mitigated with a positive schedule

The generation bid is $2/MWh in CISO and $12/MWh in PSEI with a $4/MWh DEB. T2 and T3 are binding at their limit in the MPM pass, but T1 is binding in the opposite direction, exporting from BCHA. Assuming a higher scheduling limit on T1 than T2, the APR has a positive schedule. The energy price is $2/MWh in CISO, $12/MWh in PSEI, and $10/MWh in BCHA. The generators in PSEI are mitigated to $4/MWh and the APR is mitigated to $3/MWh. In the market pass of the FMM, all transfers remain the same. In this case, T1 and T2 will not be limited in the export direction to a net of 0MW, allowing the APR to serve load in PSEI.