Comments of Powerex Corp. on
Import Bid Cost Verification Issue Paper and Straw Proposal

Submitted by	Company	Date Submitted
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Powerex appreciates the opportunity to submit comments respecting the CAISO's Import Bid Cost Verification Issue Paper and Straw Proposal ("Straw Proposal"), which proposes to establish a framework for verifying that import offers above $1,000/MWh reflect a supplier's expected or actual short-run marginal costs.

Overview

As explained more fully below, Powerex does not support the Straw Proposal as it believes the suggested approach is unworkable and ill-suited to the over-arching objective of encouraging competitive supply from imports. Moreover, after reviewing the specific language of FERC Order No. 831, and confirming that other organized markets have declined to apply cost verification requirements to import offers in their markets, Powerex is not convinced that *any* limitations or requirements on import bids between $1,000/MWh and $2,000/MWh are necessary or appropriate in the CAISO markets. At the very least, any such requirements must be designed in a manner that does not suppress prices during conditions of actual scarcity on the CAISO grid and/or in external regions outside the CAISO.

Powerex is particularly concerned that this initiative—along with the CAISO's separate initiative on System Market Power Analysis—appears to represent a fundamentally misguided effort to administratively restrict pricing in CAISO's short-term energy markets during periods of supply scarcity. Such periods of actual scarcity can be expected to occur periodically in the CAISO Balancing Authority Area ("CAISO BAA") as a result of the long-standing and significant gaps in California's Resource Adequacy program. These gaps include forward procurement requirements that persistently fall short of what is necessary to reliably meet peak demand, resource qualifications requirements that do not reflect historical outages or resource performance, and contract durations and lead times that are too short. ***The result of these gaps is that the CAISO grid now relies on several thousand megawatts of imports to be voluntarily made available*** in its day-ahead and real-time markets in order to maintain reliability during periods of high demand. For instance, the CAISO's 2019 Summer Loads and Resources Assessment

assumes that up to 12,000 MW of imports will be available every hour.[1] In reality, however, less than 5,000 MW of import supply is typically committed under Resource Adequacy contracts during the summer months.[2] The inescapable conclusion is that the CAISO BAA has to effectively "lean" on as much as 5,000 MW to 7,000 MW of capacity from neighboring regions, through voluntary short-term market imports, during periods of very high demand.

Importantly, the only compensation being provided by California purchasers to the suppliers of these voluntary short-term imports is the limited market revenues that are earned in the CAISO's short-term energy markets in excess of each supplier's marginal costs. Such "surplus revenues" – and their related contribution to the fixed capital costs of the external capacity that is being leaned on - are quite limited during the vast majority of hours within a year, as short-term energy market prices generally reflect the marginal cost of the marginal resource. Thus, ensuring that short-term energy market prices in the CAISO BAA thus rise to relatively high levels during those infrequent hours of actual supply scarcity is critically important, as it encourages (i) additional voluntary short-term market supply offers into the CAISO BAA at intertie locations, (ii) internal and external resources to perform to the best of their ability during these critical hours, and (iii) California purchasers to forward contract for sufficient internal and/or external supply to meet their peak demand, rather than continuing to lean on the CAISO's short-term energy markets.

The longer-term solution is clearly to strengthen California's Resource Adequacy program, and Powerex supports several of the measures being proposed and developed by CAISO in this regard in the CAISO's Resource Adequacy Enhancements stakeholder process. Comprehensive reforms, developed and implemented by the CAISO *and by the California Public Utilities Commission* ("CPUC"), will be necessary to ensure that sufficient resources are committed on a forward basis to ensure reliability of the CAISO grid, regardless of how much additional supply is voluntarily made available in the short-term energy markets. Any such reforms will take time, however, and in the interim CAISO faces periodic short-term market conditions in the CAISO BAA that increasingly are characterized by limited supply during periods of high demand.

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[1] CAISO *2019 Summer Loads and Resources Assessment* at 9, n. 5 ("The base case assessment assumed that imports up to the highest level seen during 2017, 11,701 MW, could occur during any hour of 2019. Availability of sufficient imports during high peak load conditions is critical to ensuring system reliability and the maximum import capability assumption has a large impact on the modeling results."), available *at*: http://www.caiso.com/Documents/2019SummerLoadsandResourcesAssessment.pdf.

[2] *See, e.g.,* CAISO Department of Market Monitoring *Import Resource Adequacy*, at 1. ("Imports were used to meet an average of around 3,600 MW (or around 7 percent) of system resource adequacy requirements during the peak summer hours of 2017. In the summer of 2018, this has increased to an average of around 4,000 MW (or around 8 percent) of system resource adequacy requirements."), *available at*: http://www.caiso.com/Documents/ImportResourceAdequacySpecialReport-Sept102018.pdf.

Industry best practices, FERC policy, and the market designs of other organized market in the United States recognize that short-term energy prices must rise to relatively high levels to reflect scarcity conditions in order to drive efficient market outcomes. By reflecting scarcity conditions, relatively high short-term energy prices provide critical incentives for resources within an RTO to be maintained and be available, for additional external resources to be offered voluntarily into the RTO, and for all internal resources and RTO imports to make best efforts to perform according to dispatch instructions. For this reason, other organized markets are seeking to improve and strengthen short-term energy price formation to reflect scarcity and shortage conditions.[3] Similarly, other organized markets have generally limited administrative pricing interventions to narrowly-defined circumstances, principally related to concerns about *local market power*.

Powerex notes that all other FERC-jurisdictional organized markets have responded to FERC Order No. 831 by raising their offer price cap to $2,000/MWh, without creating new cost verification requirements for imports. Moreover, while organized markets apply a range of different local market power mitigation approaches, Powerex is not aware of any other RTO pursuing bid mitigation at a system-wide level. The Straw Proposal and CAISO's System Market Power Analysis initiative thus represent the exception to the prevailing trend of improved scarcity pricing and other market enhancements that limit and/or reduce administrative pricing in organized markets. In the face of more frequent and genuine scarcity conditions in its short-term energy markets, ***CAISO's recent initiatives would have the effect of blunting the critical price signals that other organized markets are moving to strengthen***.

The proposed expanded use of administrative pricing by CAISO would not only be an inefficient response to infrequent, but critical scarcity events on the CAISO grid, it is also almost certain to be counterproductive. The voluntary short-term import supply on which the CAISO grid increasingly relies is under no obligation to offer into the CAISO's short-term energy markets; moreover, this supply has numerous alternative markets into which to sell its available output. This means that the primary effect of expanded bid mitigation or price restrictions on imports into the CAISO BAA will not be to reduce the price at which this supply is made available, but rather to make the CAISO uncompetitive in attracting that voluntary supply into the CAISO BAA in the first place. The proposed administrative price restrictions will render the CAISO markets least able to attract voluntary external supply during those infrequent but critical times of tight conditions across the west, when CAISO will need to compete with other destination markets for a limited amount of available surplus capacity and associated energy. Such an outcome will exacerbate reliability challenges, and may actually lead to higher costs to California consumers (due to more frequent periods of scarcity in the CAISO BAA resulting in more frequent application of penalty prices during shortages). Furthermore, a day-ahead market in which administrative pricing interventions suppress the short-term energy price signals

[3] *See, e.g., PJM Interconnection, L.L.C.,* Enhanced Price Formation In Reserve Markets of PJM Interconnection, L.L.C., Docket No. EL19-58-000 (filed Apr. 29, 2019).

associated with resource inadequacy clearly benefits those entities and regions that have not procured sufficient forward capacity and flexible capacity and does not appear to be a workable design for a potential future regional day-ahead organized market consisting of differently-situated regions and entities.

Powerex therefore urges CAISO to reconsider its response to the increasingly tight conditions in its short-term energy markets. A critical first step would be for CAISO to directly acknowledge the extent of the resource inadequacy problem the CAISO BAA faces due to the insufficient forward procurement of resources under the California Resource Adequacy program. Powerex believes CAISO should also clarify that the CAISO BAA does not fundamentally face a system-wide market power problem, as might arise following extensive seller consolidation and substantially increased market shares.

Since the challenges facing the CAISO BAA are not the result of an underlying system-wide supply concentration or market power problem, the implementation of additional administrative measures focused on market power is not the answer and is likely to be highly counterproductive. For that reason, Powerex believes CAISO should continue to work with the CPUC and stakeholders and advocate for a significantly more robust Resource Adequacy program. At the same time, CAISO should pursue industry best practices regarding short-term energy price formation, including robust scarcity pricing, in its day-ahead and real-time markets.

I. No Other Organized Markets Have Sought To Impose Cost Verification On Imports

In Order No. 831, FERC directed RTOs to increase their offer caps to $2,000/MWh out of concern that the existing offer caps employed by RTOs – typically $1,000/MWh – was preventing resources from recovering their costs and reducing market liquidity by acting as a disincentive for resources to offer their supply into the market.[4] Initially, the Commission proposed only to increase the offer cap for internal resources. Ultimately, however, the Commission found that maintaining the prohibition on import offers above $1,000/MWh "could discourage imports at times when they are most needed" and that "[i]mports benefit the market because they offer additional supply and increase competition."[5]

Notably, while the Commission directed that each RTO establish a framework for verifying the costs of *internal* resources that submit offers in excess of $1,000/MWh, the Commission found that verification should not be required for import offers. In particular, the Commission found that several factors weighed against requiring verification for imports:

[4] *Offer Caps in Markets Operated by Regional Transmission Organizations and Independent System Operators,* Order No. 831, 157 FERC ¶ 61,115 at P 34 (2016).

[5] *Id.* at P 193.

- First, the Commission noted that it may not be feasible to accurately quantify the costs of external resources supporting import offers. "Unlike incremental energy offers from internal resources, import offers are often not resource specific and, thus, it is difficult – some . . . say impossible – to ascertain the underlying costs of most import offers."[6]

- Second, the Commission noted that import offers generally do not raise market power concerns. In particular, the Commission stated that "it is difficult for external resources in an adjacent market to withhold [supply]" or "exercise market power in the importing RTO/ISO."[7]

Thus, the Commission found that verification of import offers above $1,000/MWh would not be required, although the Commission stated that it would be willing to consider individual RTO proposals to establish a framework for verification of import offers on a case-by-case basis.[8]

Following the issuance of Order No. 831, each of the FERC-jurisdictional RTOs – except CAISO – submitted compliance filings increasing the offer cap on resources to $2,000/MWh. As shown in Table 1, however, ***no organized market has proposed to require verification of import offers above $1,000/MWh***.

Table 1: Overview of RTO Import Offer Caps and Verification

	SPP	MISO	PJM	NYISO	ISO-NE
Offer Cap	$2,000	$2,000	$2,000	$2,000	$2,000
Import Verification Required?	No	No	No	No	No

Alone among other organized markets, the Straw Proposal would give CAISO the right to audit a seller that submitted an import offer between $1,000/MWh and $2,000/MWh to ensure that the offer reflected the seller's expected or actual short-run marginal costs. To the extent that "CAISO determines the supplier's documentation does not support its submitted bid above $1,000/MWh, the CAISO will prohibit the supplier from bidding at the interties for a specified amount of time and potentially refer the behavior to [FERC]."

Powerex does not support CAISO's proposal to require the verification of import bid costs. As discussed further below, Powerex believes there are key distinctions between external

[6] *Id.* at P 195.

[7] *Id.* at P 196.

[8] *Id.* at P 197.

and internal resources that make verification unnecessary and generally unworkable in the case of external resources.

II. CAISO Should Not Require Cost Verification For Imports

Consistent with the approach that has been taken in other RTOs, Powerex believes that CAISO should move forward with increasing the offer cap to $2,000/MWh without requiring verification of import offer prices. In particular, Powerex believes that there are critical distinctions between internal and external resources that make CAISO's proposal to require verification of import offer prices above $1,000/MWh inappropriate.

First, unlike internal resources, external resources do not have easily verifiable marginal costs. In the case of internal resources, which have few, if any, alternatives to selling their output into the CAISO market, the primary determinant of the specific internal resource's marginal cost is its variable cost of production (*i.e.*, fuel cost). In contrast, the marginal cost for external resources is not limited to the variable cost of producing energy; instead, the marginal cost of an external resource generally includes the opportunity cost of selling its output to the CAISO rather than pursuing other alternative market transactions. In other words, the marginal cost of an external resource is driven in part by the seller's expectations of the myriad commercial opportunities that exist outside of the CAISO. Quantifying the expected value of each of these potential opportunities is a complex task requiring numerous judgments based on information about potential market conditions across the west, and numerous other factors, with the estimated value of these opportunities subject to considerable uncertainty, continuous change, and ongoing refinement.

This is particularly true in the case of the large hydroelectric resources with significant storage found in the Pacific Northwest. The opportunity cost of these resources is driven not only by the opportunity cost associated with making sales in a different market in the current hour, but also the opportunity cost of foregoing benefits that could be obtained by using water to generate energy in a future period. In particular, the primary opportunity cost of a hydroelectric storage facility reflects the resource owner's expectation of potential market prices across all relevant future periods – in the various geographic markets available to it – as well as its forecast of future hydrology conditions, system constraints, and domestic service requirements. This assessment is highly subjective and can vary considerably even over short periods of time. As a result, precise verification by the CAISO of the costs of the resources supporting an offer to import energy is simply not feasible, as it would require a case-by-case ongoing examination of the complex, dynamic, and subjective opportunity costs of each hydroelectric resource or system.

Second, unlike internal resources, imports are not part of a limited subset of supply resources capable of supplying energy into a constrained region where market power concerns may be most acute. Rather, external offers come from a generally large potential group of external resources, each of which offers additional supply to meet system-wide needs, thereby increasing system-wide competition. That is, while an

internal resource may be located in a load pocket where only a limited number of other internal resources are capable of serving load and maintaining reliability, imports into the CAISO market can be supplied from a large number of different external resources, are delivered to an intertie scheduling point, and meet system-wide market needs. In addition, any CAISO market participant can seek to import energy from adjacent regions to meet system needs. As FERC acknowledged in Order No. 831, this makes it far more difficult for an external supplier to exercise market power in the importing RTO.[9]

The Straw Proposal overlooks these critical distinctions between internal and external resources, and instead suggests that imposing verification requirements is necessary given growing evidence of system market power concerns in the CAISO BAA. Powerex believes, however, that the fact that there have been periods in recent years when supply has been tight in the CAISO BAA in the short-term markets is not evidence of growing market power concerns, but of underlying shortcomings of California's Resource Adequacy program, as well as CAISO market design and price formation issues. Collectively, these issues are impairing the ability of the bilateral forward resource adequacy markets and the CAISO's short-term markets to ensure that CAISO has sufficient resources available to meet system needs. More specifically, as explained in detail in Powerex's System Market Power Analysis comments,[10] the tight supply conditions identified by the CAISO and CAISO's Department of Market Monitoring are symptomatic of a resource adequacy problem resulting in periodic system-wide scarcity conditions in the CAISO BAA, not an underlying system market power problem. Recognizing the distinction between a market power issue and a resource adequacy problem is critical to identifying enhancements that can effectively address the issues confronting the CAISO markets. The best way to address a resource adequacy issue that is resulting in system-wide scarcity is to pursue modifications to the California Resource Adequacy program and to CAISO's short-term market rules to *encourage* additional suppliers to voluntarily make their resources available to the CAISO BAA.

The shortcomings in the California Resource Adequacy program and ongoing challenges on the western grid related to natural gas supply, which together result in periodic high prices observed in the CAISO BAA, reflect infrequent, short-term ***capacity and/or energy shortages***, ***not a sustained energy deficit***. Such infrequent, short-term supply shortages can be expected to produce high prices during acute scarcity periods resulting from very high demand, gas supply challenges, and/or other supply issues. Although no entity that is a net purchaser likes to ever be exposed to relatively high prices, even in a limited set of hours, industry economists, FERC policy, and other organized market operators have unambiguously recognized that well-functioning markets need to reflect actual grid conditions and send the right price signals to market participants in order to elicit efficient responses to those conditions.

[9] *Id.* at P 196

[10] http://www.caiso.com/Documents/Powerex_Comments_System_Market_Power_Analysis.pdf

Powerex believes that imposing new administrative requirements – such as those being considered in this stakeholder process and the System Market Power Analysis stakeholder process – is likely to only exacerbate resource adequacy issues and system wide scarcity conditions by creating new commercial and regulatory risks for external suppliers that may encourage them to forego participation in the CAISO markets for other market opportunities. In particular, these administrative measures will create significant new commercial risks for sellers by increasing the likelihood that they will be periodically required to sell at prices that are uneconomic due to the implementation of mitigation measures that do not accurately take into account their opportunity costs. At the same time, these measures will present substantial new regulatory risks, as sellers that offer above $1,000/MWh will now face the prospect of potentially being referred to FERC's Office of Enforcement to the extent that CAISO disagrees with a seller's assessment of its costs. Faced with these risks, it is likely that many sellers may simply decide to sell their output on a bilateral basis outside of the CAISO, during periods of relative scarcity, rather than voluntarily offering it into the CAISO's short-term markets.

It is important to recognize that these measures also have the potential to reduce external participation in, and increase the costs of, California's Resource Adequacy program. Because sellers that contract to supply Resource Adequacy are consequently required to offer their resources into the CAISO short-term markets on a daily basis, some potential sellers may decline to enter into Resource Adequacy contracts in order to avoid taking on the additional commercial and regulatory risks associated with these proposed measures. And to the extent that sellers continue to participate in California's Resource Adequacy program, it is likely that their Resource Adequacy offer prices will reflect these increased risks, including the risk of being forced to sell energy uneconomically in the CAISO's day-ahead market as a direct result of the CAISO's new administrative pricing interventions proposed in this stakeholder process and/or the System Market Power stakeholder process.

In short, the likely result of imposing new *ex post* import offer price verification and/or offer price mitigation requirements will *not* be to reduce the price of import offers, but rather will be to reduce the *volume* of energy, capacity, and flexibility voluntarily offered to the CAISO BAA. Not only will this exacerbate the resource adequacy issues that California is already experiencing, it is also inefficient and will likely drive up costs. Ultimately, these measures are likely to discourage resources from making their supply available to the CAISO BAA, particularly during periods of high demand when it is most needed, increasing the frequency with which CAISO will be forced to relax the power balance constraint in the CAISO BAA and set prices based on the penalty price of $2,000/MWh.

III. Any Verification Framework Must Include A Safe Harbor For Sellers

Powerex reiterates that it is not convinced that *any* limitations or requirements on import bids above $1,000/MWh are necessary or appropriate. Nonetheless, to the extent that CAISO insists on moving forward with its proposal to require cost verification of import

offers, Powerex urges CAISO to at least establish an *ex ante* safe harbor offer price level below which sellers will have certainty—at the time that they submit their offers—that they will not be subject to verification or referral to FERC enforcement. This *ex ante* safe harbor offer price should allow sellers to submit offers to import energy in excess of $1,000/MWh when external market conditions clearly warrant it without undue administrative burdens or regulatory risk.

More specifically, Powerex believes that CAISO could establish a daily *ex ante* safe harbor offer price that would be published prior to the deadline for the submission of offers into the day-ahead market and that would be calculated from the day ahead market prices at certain defined and relevant trading hubs throughout the west.

In considering the level of such an *ex ante* safe harbor offer price, it is important to recognize that the prices at trading hubs located outside of the CAISO typically reflect the price of selling energy over a multi-hour period over the day (*e.g.,* on-peak prices represent transactions delivered over a 16-hour block). In contrast, a supplier that submits offers to supply energy to the CAISO may only receive a market award for as little as one hour of the day. As a practical matter, this means that setting an *ex ante* safe harbor offer price that is merely *equal* to the day-ahead multi-hour block index price at a particular hub would systematically understate the commercial opportunities available to external sellers from transacting in multi-hour products. This can be illustrated by considering a 100 MW resource, with a $50/MWh variable production cost but with substantial opportunity costs associated with different potential transaction alternatives. More specifically, the resource has the option of either (1) selling a standard 16-hour on-peak energy product at a trading hub, at $800/MWh;[11] or (2) participating in the CAISO markets, where its offers are effectively capped at (and hence it may receive a market award at) $1,000/MWh:

- If the seller enters into a commitment to supply energy at a trading hub over a 16 hour block at $800/MWh, the gross margin associated with that sale will be $1.2 million;[12]
- If the seller receives a CAISO market award for, say, 6 hours, the gross margin associated with selling into the CAISO at $1,000/MWh will only be $570,000, representing less than half of the gross margin available from the multi-hour external transaction.

In this situation, even though prices within the CAISO may be higher than at the trading hub, those higher prices apply to a smaller (and uncertain) number of hours. Therefore,

[11] While FERC in Order No. 831 only revised offer caps in organized markets, it is not possible to anticipate future modifications to the price cap in bilateral markets. Nevertheless, as this example illustrates, bilateral transactions—even below the existing soft cap of $1,000/MWh—can present opportunity costs of participating in CAISO's hourly and sub-hourly markets above $1,000.

[12] 100 MW * ($800/MWh - $50/MWh) * 16 hours = $1.2 million.

the seller in this example will have a strong incentive to enter into the 16-hour bilateral transaction rather than participating in the CAISO's short-term markets.

In order for participation in the CAISO markets to be at least as attractive as entering into a multi-hour bilateral transaction, it is necessary for the CAISO prices in individual hours to be able to exceed the bilateral transaction price, which applies to all 16 hours.

Powerex therefore recommends that, if CAISO insists that a cost verification offer cap must be applied to imports, CAISO should establish an *ex ante* safe harbor offer price equal to the day-ahead on-peak index price at a given trading hub multiplied by a ratio reflecting the relationship between the 16-hour on-peak price and the single-highest hourly price within those hours. This ratio can be estimated from recent historical CAISO day-ahead market prices (*e.g.,* over the last 30 days, excluding days in which price caps applied). More specifically, for each of the last 30 days, CAISO could calculate the ratio of (1) the single highest hourly price in its day-ahead market at NP-15; to (2) the average of the hourly CAISO day-ahead market prices at NP-15 over the 16 on-peak hours. The average of this ratio over the past 30 days could then be multiplied by the day-ahead bilateral on-peak index price at Mid-Columbia for an upcoming trade day to produce the *ex ante* safe harbor offer price cap for all import offers at intertie scheduling points associated with northwest points of receipt (*e.g.,* COB, NOB). This same approach could be used for import offers at intertie scheduling points associated with southwest points of receipt (*e.g.,* Palo Verde, Sylmar LA), except the ratio would be computed using CAISO day-ahead market prices for SP-15, and applied to the bilateral on-peak index price at Palo Verde.[13]

For example, if the ratio calculated over the most recent 30-day period is 2.25 (*i.e.*, the most valuable single hour in NP-15 has averaged 2.25 times the 16-hour average NP-15 price) and the day-ahead on-peak price at Mid-Columbia for the next day is $500/MWh, then the *ex ante* safe harbor offer cap for imports at COB, NOB, and other northwest tie points would be $1,125/MWh for that day. The *ex ante* safe harbor offer cap would be limited to no greater than the FERC offer cap of $2,000/MWh. A key benefit to this approach is that the safe harbor offer cap can be calculated and published by CAISO prior to the deadline for submission of offers in the day-ahead market, as bilateral trading and associated price indices are generally known prior to 10 a.m. Knowing the safe harbor offer price cap prior to submitting bids into the CAISO day-ahead market would provide sellers with up-front certainty regarding whether their offers would be subject to cost verification (and potential referral).

To the extent CAISO determines it will impose an import verification requirement, Powerex believes that establishing an *ex ante* safe harbor offer price based on prices at relevant external hubs would help reduce the risk that imposing cost verification requirements on imports would discourage participation in the CAISO markets while

[13] A potential simplification could be to calculate the ratio based on the CAISO system marginal energy cost (SMEC) for all intertie scheduling points.

providing CAISO with greater certainty that increasing the offer cap applicable to imports only occurs during tight grid conditions in western markets.