Comments of Powerex Corp. on System Market Power Analysis Workshop

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Powerex appreciates the CAISO's efforts to initiate robust stakeholder dialogue by convening the July 15 Workshop on System Market Power Analysis ("Workshop"), as well as the opportunity to submit comments on the Workshop presentations and discussion.

As a starting point, the Workshop discussion appeared to reflect general agreement among stakeholders that the CAISO grid is experiencing tight supply conditions in an increasing number of hours. More specifically, the capacity that is committed on a forward basis to serve CAISO load (*i.e.,* Resource Adequacy supply) is frequently less than the capacity that is actually needed during peak load events. And while historically the CAISO grid has been able to rely on procuring additional uncommitted supply through the CAISO's short-term energy markets, particularly from external resources, this practice is unlikely to be workable in the future as grid conditions tighten throughout the west. There are multiple efforts by both the CAISO and the California Public Utilities Commission ("CPUC") to strengthen California's Resource Adequacy framework such that sufficient physical resources are committed on a forward basis to reliably meet the needs of the CAISO grid. Powerex supports these efforts.

While the Workshop indicated general agreement that grid conditions are tightening—and that there is an urgent need to address California's Resource Adequacy challenges—there appeared to be divergent views on whether these conditions raise concerns regarding seller market power at the system level. Powerex appreciates both the CAISO's and CAISO Department of Market Monitoring's ("DMM") analyses and ongoing dialogue on this topic, which provide a valuable starting point for examining the system-level structure of supply to the CAISO grid. In particular, Powerex appreciates that both CAISO and DMM staff recognize that the examination of system market power is closely related to System Resource Adequacy issues, and that Resource Adequacy challenges are a key contributor to the more frequent elevated prices that are being witnessed on the CAISO grid.

Powerex is concerned, however, that certain Workshop presenters assert *as demonstrated fact* that the CAISO grid faces significant system-level market power. On the back of this assertion, two presenters put forward their preferred prescriptions for administrative pricing interventions based on inappropriately extending existing <u>local</u> market power mitigation measures. As proposed, these new administrative pricing interventions would override the offer prices of voluntary supply—including voluntary

supply from resources located outside the CAISO grid—in both the day-ahead and real-time CAISO markets, as well as in the EIM.

Powerex believes that it is inappropriate for a California load-serving entity that has failed to secure sufficient capacity and/or fixed price firm energy on a forward basis to meet its customers' peak demand—***despite the fact that both capacity and fixed price firm energy has regularly been made available from external regions on a forward basis at prices far below the cost of new development***—to now push for measures that would suppress short-term energy prices during periods of scarcity. Such actions have created opportunities to avoid substantial Resource Adequacy procurement expenses and potentially billions of dollars of new build by leaning on the capacity, flexibility, and energy voluntarily made available through CAISO's short-term markets to "bridge the gap." Now that the market is approaching capacity constraints more frequently—a direct consequence of this under-investment and tightening supply conditions across the west—entities that have "bridged the gap" by leaning on CAISO spot markets are proposing that CAISO suppress the price of energy and capacity made available by others in the spot markets—in lieu of contracting for it on a forward basis. Such a position in this proceeding should be recognized as an effort by entities that have elected to "go short" capacity and/or fixed price energy to suppress spot energy prices in order to facilitate continued leaning on the un-contracted for capacity of other regions.

More troubling still, certain Workshop presenters argue for the mitigation of energy offers from external resources ***even when there is no constraint on the CAISO balancing authority area ("BAA") to receive additional imports***. Such a proposal goes far beyond mitigating prices <u>in</u> the CAISO BAA, and would effectively put the CAISO in charge of judging whether bilateral markets *outside* the CAISO BAA were sufficiently competitive, and thereafter determining the just and reasonable prices for voluntary energy supplies sourced throughout the Western Interconnection. Moreover, a multi-statemitigation framework, as proposed, would undoubtedly raise significant questions regarding whether the CAISO's current governance framework is adequate for resolving such west-wide, inter-regional, wholesale market pricing issues, as well as whether the CAISO would be acting outside the scope of its authority under the CAISO Tariff.

As explained in greater detail in the following four sections, Powerex believes four fundamental principles should drive any further discussions:

I. Tightening grid conditions indicate the need for additional supply in the CAISO grid at a system level. Efficient market design should result in competitive prices that are consistent with this need for new entry.

II. Objective evidence does not indicate that there is currently a seller "system market power" problem in the CAISO BAA. In particular, annual wholesale market revenues—including revenues from the sale of System Resource Adequacy capacity—remain far below the cost of new entry. This is occurring despite a clear and compelling need for the new entry of capacity resources in the years ahead. *Furthermore*, the frequent availability of import transmission capacity into the

CAISO BAA, even during periods of high prices, strongly indicates that CAISO prices appropriately reflect the value of supply elsewhere in the west, rather than being the product of the exercise of seller market power by suppliers within the CAISO BAA.

III. Extending the application of the existing local market power mitigation measures on a system-wide basis can be expected to be ineffective, as it directly undermines the price signals that are the sole tool for the CAISO grid to attract voluntary supply participation. The mitigation of import offers also raises acute equity concerns between California and ratepayers in external regions, as it effectively seeks to perpetuate California's historical leaning on external resources to meet its capacity needs while administratively suppressing the short-term energy market prices paid for those suppliers.

IV. To the extent CAISO contemplates future measures to address seller system market power concerns, such measures must be based on a clear articulation of efficient competitive outcomes under evolving grid conditions in California and across the west, in which new entry (and/or retention of supply) is necessary. Mitigation based on short-run marginal costs—which is the concept underlying Default Energy Bids—is entirely inapplicable under such conditions. Instead, the CAISO should explore frameworks that would ensure that, over time, prices in its markets are not elevated above levels consistent with long-run marginal costs.

I. Any Evaluation Of Market Performance Must Recognize That The CAISO BAA Is In Need Of New Entry

There is ample evidence that the CAISO BAA is facing increasingly tight supply conditions due to a forward procurement framework that consistently has failed to procure sufficient capacity and flexibility on a forward basis to meet peak system needs. Table 1, below, shows that the estimated System Resource Adequacy requirement was insufficient to cover the actual peak system needs plus unit outages during most summer months in the past three years.

Table 1

		CEC 1-in-2 Forecast Peak[1] (MW)	*plus* 15% PRM (MW)	**RA Target[2] (MW)**	Actual Peak Hourly Load[3] (MW)	Required Contingency Reserve[4] (MW)	**Total Capacity Required (MW)**	RA Surplus (Deficiency) (MW)	Unit Outages[5] (MW)	**Resource Adequate?**
2016	June	39,625	5,944	**45,568**	44,454	2,590	**47,044**	(1,476)	(7,152)	***No***
	July	44,364	6,655	**51,018**	45,981	2,716	**48,697**	2,322	(6,222)	***No***
	August	46,848	7,027	**53,875**	43,812	2,548	**46,360**	7,515	(5,944)	***Yes***
	September	42,388	6,358	**48,747**	42,810	2,460	**45,270**	3,477	(7,309)	***No***
2017	June	41,834	6,275	**48,109**	44,184	2,659	**46,843**	1,266	(9,454)	***No***
	July	45,259	6,789	**52,048**	45,374	2,627	**48,001**	4,047	(7,088)	***No***
	August	45,967	6,895	**52,862**	47,297	2,778	**50,075**	2,787	(6,151)	***No***
	September	45,489	6,823	**52,312**	49,909	2,871	**52,780**	(468)	(5,885)	***No***
2018	June	37,596	5,639	**43,235**	37,803	2,594	**40,397**	2,838	(7,228)	***No***
	July	43,080	6,462	**49,542**	46,487	3,026	**49,513**	29	(4,780)	***No***
	August	44,923	6,738	**51,661**	45,021	2,734	**47,755**	3,907	(6,181)	***No***
	September	42,579	6,387	**48,966**	38,536	2,374	**40,910**	8,056	(5,275)	***Yes***

1 2016 monthly values are from CPUC 2016 RA Report, Tbl. 3 (for CPUC-jurisdictional LSEs only) scaled to "Total CAISO Coincident Peak" for 2016 from final CEC Mid-Baseline Mid AAEE Savings forecast in 14-IEP-1
2017 values from https://www.caiso.com/Documents/AgendaandPresentation_2018AnnualReviewofAvailabilityAssessmentHoursJun6-2017.pdf (at 32);
2018 values from http://www.caiso.com/Documents/Presentation-CapacityProcurementMechanismSignificantEvent.pdf (at 4, "CAISO-RA")

2 Equal to CEC 1-in-2 peak forecast plus PRM; does not reflect reductions due to demand response or other factors, and hence may exceed the System RA that LSEs are required to show.

3 From CAISO OASIS, "CAISO Demand Forecast" for "Actual" process and "CAISO-Total" region.

4 From CAISO OASIS, "AS Requirements" of Spin and Non-Spin for "AS_CAISO_EXP" region during hour of peak load for respective month. Does not include Reg-Up, which is approximately 350 MW during peak hours.

5 From CAISO report "Curtailed and Non-Operational Generators in California" on day of peak load in respective month. http://www.caiso.com/market/Pages/OutageManagement/UnitStatus.aspx.

The table above highlights that System Resource Adequacy requirements have been set too low, resulting in California load-serving entities ("LSE") collectively being required to procure too little forward capacity to meet peak system needs. Compounding this problem, however, are at least three deliberate business strategies currently available to California LSEs that can exacerbate their exposure to prices in the short-term markets operated by the CAISO.

- First, California LSEs can choose to meet a portion of their requirements with "paper capacity" that can be obtained at a significant discount to procuring genuine physical capacity but that makes little contribution to ensuring that there is supply available in the CAISO day-ahead and real-time markets.
- Second, California LSEs may simply choose to fail to meet their System Resource Adequacy requirement, opting instead to pay the CPUC penalty and risking an allocation of the costs of procuring backstop capacity through CAISO's Capacity Procurement Mechanism.
- Third, even California LSE's that procure sufficient physical capacity to meet their System Resource Adequacy requirements may fail to procure sufficient fixed-price ***energy*** to meet their anticipated needs, thus choosing to be exposed to prices in the CAISO day-ahead and real-time markets.

Accordingly, in addition to inadequate System Resource Adequacy requirements, the deliberate economic choices of some California LSEs to under-procure capacity or under-procure fixed-priced energy—or both—can leave these LSEs financially exposed to the CAISO market prices that, in turn, may become elevated as a result of the collective capacity shortfall of the CAISO grid.

Traditionally, the reliance of the CAISO grid as a whole, and of California LSEs individually, on the short-term markets operated by the CAISO has not raised significant reliability or economic concerns. CAISO has been able to bridge the gap left by insufficient forward procurement by relying on energy voluntarily made available in the CAISO's day-ahead and real-time market from resources with no contractual obligation to supply power to California. Fundamental changes in the resource mix within California—including the growth in variable energy resources and the retirement of significant portions of California's conventional generation fleet—have resulted in a reliance on voluntary supply from resources located *outside* California. For instance, CAISO's 2019 Summer Loads and Resource Assessment assumed "base case" imports from neighboring regions would be nearly 12,000 MW—equal to the *highest* level seen in 2017—but identified significantly higher reliability risks if imports were limited to 9,309 MW, a level still far above the average or median quantity of imports during high demand hours.[1] As CAISO has recognized, "system reliability depends on the certainty of a certain range of net imports from neighboring balancing authority areas, particularly during CAISO system peak hours."[2]

Critical changes to the resource mix outside of California, however, are significantly reducing the "certainty … of net imports from neighboring balancing authority areas" and making it increasingly unlikely that the volume of uncommitted supply voluntarily made available through the short-term markets will be sufficient to allow CAISO to meet system needs in peak hours. Like California, other states and provinces throughout the west are increasingly experiencing their own capacity and flexibility challenges due to the retirement of significant quantities of fossil-fueled resources at the same time that states and provinces are seeking to increase their reliance on renewable generation. The result is growing competition to secure forward commitments of the limited available surplus capacity and flexibility that exists in the west, with numerous LSEs and states outside the west already taking steps to enter into long-term commitments in anticipation of planned resource retirements. As available surplus capacity and flexibility is increasingly committed to meet the reliability requirements of LSEs outside of California, the quantity

[1] Cal. Indep. Sys. Operator Corp., 2019 Summer Loads & Resource Assessment at 9-10 (May 8, 2019), *available at*: http://www.caiso.com/Documents/Briefing-2019-SummerLoads-Resources-Assessment-Report-May2019.pdf.

[2] *Id.* at 13-14.

of residual capacity and flexibility that is made available to California through the short-term markets can be expected to decrease.

Now, as supply in the CAISO markets is becoming increasingly tight and short-term energy prices are beginning to rise, certain entities—including some of the very same entities that have benefitted from historically relying on short-term energy purchases—are arguing that CAISO should take steps to impose new mitigation measures to address seller "system market power." These entities point to measures of structural competitiveness, such as the residual supply index ("RSI"), and higher market prices during certain hours as evidence that there is a seller system market power issue that requires the imposition of new administrative bid mitigation measures to ensure that prices remain just and reasonable.

Powerex believes that these arguments are misguided and mischaracterize the nature of the problems facing the CAISO. As an initial matter, given the widely acknowledged supply constraints facing the CAISO, it is unsurprising that the CAISO markets are "failing" the RSI test in an increasing number of hours. In reality, tighter supply conditions will necessarily lead to increased failures of the RSI and other structural measures of competitiveness. This does not mean, however, that the market is actually uncompetitive during these periods or that there is a seller market power issue that needs to be resolved. To the contrary, a low RSI value can be either due to high levels of concentration of resource ownership or control (*i.e.,* seller market power concerns) or due to a general lack of adequate supply in the market as a whole (*i.e*., resource adequacy and/or scarcity conditions). As Powerex noted in its earlier comments in this proceeding, this distinction can be illustrated by comparing a situation where there is high supplier concentration, with sufficient total supply, and a situation where there is low supplier concentration, but inadequate supply in the market:

- In the former situation, there is adequate supply available in the market, but a large percentage of this supply (*e.g*., 40%) is controlled by a single supplier that may have the ability and incentive to raise prices above competitive levels. In this scenario, it may be appropriate and necessary to take steps to prevent the supplier from using its control over a significant portion of the market to inefficiently increase prices.

- In the latter situation, the quantity of supply available in the market may just exceed system requirements (*e.g.,* there is only 40,500 MW of capacity available to meet a demand of 40,000 MW), but no single market participant owns a material percentage of the supply that is available. It would be inappropriate and counterproductive to characterize this situation as presenting a seller market power issue. Instead, the key issue in this situation is that the total supply available is not sufficient to ensure that the market operator is able to serve demand with a

high degree of confidence. This type of situation reflects resource adequacy challenges and short-term supply scarcity that can be addressed by increasing the level of voluntary participation in the market.

It is similarly unsurprising that tighter supply conditions are resulting in elevated prices during certain periods. While a number of stakeholders have pointed to the fact that prices have exceeded estimates of the variable production cost of the marginal unit during some periods, it would be wrong to conclude that this somehow supports the conclusion that there is a seller system market power issue. In fact, it is widely recognized—including by the Federal Energy Regulatory Commission ("FERC")—that, in a well-designed, competitive market, prices *should* rise above the short-run marginal cost of the marginal unit during periods of scarcity to reflect the value of avoiding involuntary load curtailments and ensuring that resources that contribute to meeting system needs are compensated for the services that they provided.[3]

Notably, the failure of organized markets to allow prices to rise above the short-run marginal cost of the marginal unit during periods of relative scarcity has contributed to the inability of these markets to ensure the retention and development of the resources necessary to maintain reliability. For instance, Dr. William Hogan has observed that the decision of organized markets to implement "inadequate pricing rules equating prices to variable costs even when capacity is constrained" has been a factor contributing to the "missing money" problem that characterizes organized markets.[4] The "missing money" problem refers to the fact that the revenues received through energy and ancillary services markets typically are insufficient to compensate existing resources for their fixed costs let alone provide for a return on future investment.

Thus, rather than being evidence of "market power," the factors cited by proponents of additional mitigation measures are consistent with tight supply conditions and the need for new market entry. Indeed, allowing prices to increase above the short-run marginal cost of the marginal cost unit is well understood to be *critical* to an organized market's ability to attract the voluntary participation of external resources, promote the development of new resources needed to meet system needs, and help ensure the retention of existing resources that help maintain reliability. To insist that short-term energy prices should be equal to the short-run marginal cost of the marginal unit when the CAISO market is experiencing relative scarcity is flatly incorrect and, as discussed below, will directly exacerbate the CAISO's reliability challenges.

[3] *See, e.g., Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators,* Order No. 825, 155 FERC ¶ 61,276 at P 163 (2016).

[4] Electricity Scarcity Pricing and Resource Adequacy at 2 (Feb. 27, 2014)

II. Evidence Does Not Support A Finding Of Seller System Market Power In The CAISO BAA

While Powerex believes that allowing prices to rise above the marginal cost of the marginal unit during tight supply conditions is a critical component of a well-designed market, Powerex recognizes that the need to attract new entry into the market does not necessarily provide a blanket justification for *all* pricing outcomes. The question thus becomes how to distinguish competitive pricing outcomes from outcomes that may signal a need to take additional action to ensure just and reasonable prices.

In Powerex's view, distinguishing between competitive outcomes that reflect a well-functioning market and those that signal a need to implement new mitigation measures requires an evaluation of whether there are barriers to entry that prevent a competitive response to higher prices. For example, when total capacity is abundant and there is no system-level scarcity, the typical focus is whether there are barriers that prevent existing resources from substituting for (and therefore disciplining the behavior of) other resources. Local transmission constraints are a common example of a barrier that can raise competitive concerns even though there is ample supply available in the market more generally. When local transmission constraints create a load pocket, these constraints prevent resources located outside of the constrained area from disciplining any attempt by suppliers within the local area to exercise seller market power. In this situation, the application of mitigation may be appropriate and efficient: the challenge is not the need for additional capacity, but to ensure that the existing capacity is efficiently utilized.

When supply is not abundant and capacity is limited, however, the relevant inquiry becomes whether there are barriers that might prevent new supply from entering the market. It is well recognized that if there are no barriers that prevent new supply from entering the market, then allowing prices to increase above the short-run marginal cost of the marginal unit will create the additional economic rents that can help attract the investment necessary to bring new supply to the market. As new supply is developed or made available to the market, the additional supply increases competitive pressure on prices; in equilibrium, competitive prices will not rise above the cost of new entry on a sustained basis. If there are barriers to new supply entering the market, however, then this competitive discipline will be less effective, and suppliers may have the ability to increase prices well above the costs of new entry on a sustained basis.

In the case of the CAISO markets, there is clear evidence that there are no barriers to entry that are artificially limiting the supply of resources available to meet CAISO needs. As an initial matter, there is regularly unused import capability into the CAISO BAA, even during periods of high prices. This means that there is sufficient import capacity available to allow additional output from external resources to reach the CAISO grid. Furthermore,

there are a large number of external entities that are potentially able to supply additional energy in the short-term markets and deliver that supply to CAISO intertie scheduling points. Unused import capability into the CAISO BAA therefore represents a source of potential additional competitive supply that can discipline any attempts to exercise seller market power at a system level during tight supply conditions.[5] More specifically, if prices within the CAISO BAA increase, then it is generally possible for the volume of imports into the CAISO to also increase, thereby reducing the ability of resources within the CAISO to increase prices above competitive levels.[6]

There also are no barriers (beyond cost) to the addition of generation capacity within the CAISO BAA, as evidenced from the fact that numerous new resources are built each year. For instance, the CAISO DMM's most recent annual report notes that "over 1,000 MW of gas capacity, over 5,300 MW of solar, about 300 MW of wind, and 130 MW of battery capacity was added or returned to the market."[7]

Perhaps most importantly, it is well-established that prices in the CAISO markets have consistently been far below the levels needed to support new entry of either a natural gas peaker or a baseload resource. More specifically, the CAISO DMM has noted that net revenues for new gas-fired generation resources consistently fell below the annualized fixed costs for these resources in 2016, 2017, and 2018. In particular, the CAISO DMM estimates that:

- The net operating revenues earned by a hypothetical new baseload combined cycle unit ranged from $33/kW-year to $47/kW-year in 2018, more than $119/kW-year below the estimated annualized fixed costs of $166/kW-year for such a resource.
- The net operating revenues earned by a hypothetical new natural gas peaker ranged from $19/kW-year to $28/kW-year, compared to an estimated annualized fixed cost of approximately $177/kW-year.[8]

[5] It is important to note that it would not be realistic to expect import capacity utilization to

[6] This does not mean, however, that it would be realistic to expect import capacity utilization to increase immediately in response to conditions in any given hour. In reality, timing differences between the bilateral markets and CAISO markets have the potential to shape the quantity of imports that are made available to the CAISO in any given period. For instance, since day-ahead trading in the bilateral markets typically occurs prior to the CAISO day-ahead market, certain external resources may end up selling their output into the bilateral markets before the CAISO day-ahead market runs, even though that supply may have been more valuable if sold into California. Similarly, if an entity fails to clear the day-ahead market, it may elect to sell the output of its resource in the bilateral markets on a real-time basis, thereby reducing the quantity of external supply available to CAISO. Nevertheless, on average, the quantity of imports into the system should respond to the relative market conditions in CAISO and in external markets.

[7] CAISO Dept. of Market Monitoring, 2018 Annual Report on Market Issues & Performance at 53 (May 2019).

[8] *Id.* at 16.

Notably, the gap between the estimated net operating revenues received by these resources and their annualized fixed costs far exceeds the System Resource Adequacy prices that have been reported by the CPUC in recent years. In other words, the combined annual revenues received from the Resource Adequacy program and the short-term energy markets remain well below the levels that would support new entry.

Taken together, Powerex believes that this evidence undercuts any claim that there is a seller system market power issue that either is resulting in unjust or unreasonable prices or warrants administrative interventions. More specifically, the lack of identified barriers to new supply participation, and the lack of prices being sustained well above new entry levels, demonstrate that prices in the CAISO BAA do not reflect an exercise of seller system market power. While prices may exceed the short-run marginal cost of the marginal unit during certain periods, this is consistent with sound market design principles and reflects periods of scarcity caused by the significant resource adequacy issues that are facing the CAISO BAA.

III. Absent Clear And Compelling Evidence Of Seller System Market Power, Administrative Interventions Would Likely Be Ineffective And Harmful To Market Efficiency

Powerex believes that imposing new administrative measures, such as new bid mitigation, is likely to be counterproductive and exacerbate the reliability challenges currently facing California, given that ample evidence indicates that the CAISO markets are not currently facing a seller system market power issue. Importantly, any attempt by the CAISO to impose new bid mitigation measures is likely to create a powerful incentive for external resources to reduce their participation in the CAISO markets, thereby exacerbating the Resource Adequacy issues faced by the CAISO.

As a practical matter, imposing new bid mitigation measures would dramatically increase the risks associated with participating in the CAISO markets by raising the possibility that resources will be required to sell energy at a price below their marginal costs. Ultimately, the imposition of new bid mitigation measures can be expected to result in the voluntary offers of external resources being overridden and replaced by a default energy bid ("DEB") during tight periods. The problem, however, is that DEBs tend to be highly inaccurate, particularly during periods of regional scarcity. Indeed, even a thermal generation resource will face uncertainty and volatility in the price of natural gas, particularly intra-day, during tight periods.

The risk that the DEB will not accurately reflect a supplier's cost is even higher in the case of energy-limited resources, particularly hydro resources with long-term storage, whose marginal costs tend to be driven by the opportunity costs associated with foregoing the ability to make sales in later periods and/or in different markets. The marginal costs of

such resources tend to be highly variable, reflecting changes in estimates of water supply, domestic needs, and an array of operational constraints across each resource's storage horizon, which can range from hours to years. As CAISO has recognized, the many factors that can affect the marginal costs of such resources "makes it impractical to calculate a specific hydroelectric resource's opportunity costs with a high degree of precision."[9] While CAISO is taking steps to add a more workable DEB option for hydro resources participating in the EIM, CAISO's proposal does not attempt to precisely model each resource's operation and does not eliminate the risk that the imposition of mitigation measures could force a seller to make uneconomic sales.

Powerex believes that subjecting external suppliers to the possibility that they will be forced to make sales into the CAISO BAA at a price that does not reflect their own estimates of their marginal costs is likely to have two adverse consequences that will increase reliability risks and harm California ratepayers.

First, it is likely that fewer external suppliers will be willing to sell their energy, capacity, and flexibility into the CAISO markets. Faced with the prospect of being forced to make uneconomic sales when market mitigation is triggered, it is reasonable to expect that many external entities will elect to sell the output of their resources to regions outside of California, where sales are not subject to this risk. The likely result will be to exacerbate the reliability challenges facing the CAISO and to increase short-term market prices by reducing the quantity of supply offered into the CAISO markets—the exact opposite of what mitigation is intended to achieve. ***In other words, mitigation will not reduce the price of the voluntary supply that is offered into the CAISO markets. Instead, it is likely to reduce the quantity that is offered into the market***.

Second, adopting new mitigation measures is likely to increase the costs of meeting Resource Adequacy requirements. Under the Resource Adequacy framework, a supplier that commits to sell import Resource Adequacy is required to submit an offer to supply energy into the day-ahead market each day of the relevant commitment period. In practice, adopting new mitigation measures through this proceeding would increase the risks associated with complying with the must-offer obligation imposed on sellers of Resource Adequacy, as suppliers would now be faced with the prospect that they would be required to make energy sales below their estimate of their marginal cost when mitigation is triggered. Faced with this risk, the likely result is that many sellers may decide not to participate in the Resource Adequacy program and instead sell their capacity and flexibility on a forward basis to other regions. To the extent that sellers elect to continue selling Resource Adequacy following the imposition of expanded bid

[9] *Cal. Indep. Sys. Operator Corp.,* CAISO Tariff Amendments to Enhance Local Market Power Mitigation and Reflect Hydroelectric Resource Opportunity Costs in Default Energy Bids, Docket No. ER19-2347-000, Transmittal Letter at 32 (filed July 2, 2019).

mitigation measures, it is likely that they would take into account the risk of inaccurate mitigation by increasing the price at which they are willing to supply Resource Adequacy. ***In other words, the likely result will be a decrease in the number of external suppliers willing to enter into Resource Adequacy commitments and an increase the price at which external suppliers are willing to supply Resource Adequacy capacity.***

Powerex believes that, collectively, the increase in costs associated with the effects described above will likely outweigh any potential cost savings associated with administratively suppressing prices during hours in which mitigation is triggered. While adopting mitigation measures may reduce short-term energy prices during the limited number of hours in which it is triggered, it would create a disincentive for resources to make their voluntary supply available to the CAISO in all hours in which there is a risk that mitigation could be triggered—even if mitigation is, in fact, not triggered in that hour. Additionally, the cost of import Resource Adequacy will be affected by all hours in which there is a risk of inaccurate mitigation—even if mitigation is triggered only a subset of these hours.

In sum, Powerex believes that it would be inefficient, inappropriate, and counterproductive to impose new market mitigation measures at a system level under the current circumstances. Faced with tightening supply conditions and Resource Adequacy issues, CAISO should take steps to ensure that its markets are sending the short-term and long-term price signals necessary to ensure that there are sufficient resources available to efficiently and cost-effectively maintain reliability. As Powerex noted in its earlier comments in this proceeding, CAISO can achieve this objective by:

- Working collaboratively with the CPUC to strengthen California's Resource Adequacy program;
- Moving forward with implementation of an integrated Day-Ahead market, including co-optimized procurement of a new day-ahead flexible capacity product;
- Adopting robust scarcity pricing to send accurate short-term price signals that reflect the value of supply in the periods of greatest system need; and
- Reducing reliance on the use of load biasing and other operator interventions that distort prices and discourage voluntary participation.

IV. Evaluating And Addressing System-Level Market Power Going Forward

As noted above, Powerex believes that there is ample evidence to support the conclusion that CAISO is not experiencing seller system market power issues at the present time. Nevertheless, Powerex recognizes that it will remain important for CAISO to monitor the

competitiveness of the CAISO markets as system conditions continue to evolve and that conditions could arguably arise in the future where it may be appropriate to take steps to address system market power concerns.

Powerex believes that CAISO's ongoing evaluation of system-level competitiveness must explicitly recognize whether the grid is facing capacity constraints to maintain reliability. If it is—as is the case today—then the key metric that CAISO should apply is not whether prices periodically exceed the short-run marginal cost of the marginal unit, but whether prices significantly exceed the long-run marginal cost of supply on a sustained basis; that is, the cost of new entry. In Powerex's view, to the extent that net revenues are sustained at a level well above the cost of new entry, this may be a sign that there is a system market power issue that needs to be resolved.

Notably, a number of other RTOs/ISOs have used the cost of new entry as a benchmark measure of the competitiveness of market outcomes. For instance:

- Public Utility Commission of Texas rules have required ERCOT to maintain a systemwide offer cap of $9,000/MWh until real-time market prices have been high enough during a given year that a natural gas peaker would be able to have a net operating profit over the year of three times the cost of new entry; once this threshold has been exceeded, the offer cap is dropped to the higher of $2,000/MWh or 50 times a natural gas index price.[10]
- When establishing its energy imbalance services ("EIS") market, SPP's market mitigation measures applied an offer cap based on the cost of new entry to generators within a constrained area. SPP explained that the "offer cap was designed to recover the full variable and long-run fixed costs of a new peaking generator with the fixed costs spread over the number of hours a constraint is binding at a particular location."[11] When accepting this proposal, FERC explained that "[t]he premise of not mitigating below the cost of new entry ensures that the mitigation will not suppress prices and deter needed investment in new supply."[12]
- Similarly, the penalty applied by SPP when an LSE fails to procure sufficient Resource Adequacy capacity is based on the cost of new entry. More specifically, in SPP, a deficiency triggers the application of a penalty equal to annual cost of new entry multiplied by a penalty factor that ranges from 125% to 200%. In other words, a Resource Adequacy deficiency can result in an LSE paying up to 2 times the annual cost of new entry. Setting the penalty at this level ensures that LSEs have an incentive to procure sufficient capacity to meet Resource Adequacy

[10] 16 TAC 25.505.

[11] *Southwest Power Pool, Inc.,* 114 FERC ¶ 61,289 at P 153 (2006)

[12] *Id.* at P 171.

requirements instead of unnecessarily restricting capacity prices below the level necessary to create incentives for new entry into the market.

Powerex believes that CAISO should consider taking a similar approach to identifying and protecting against the potential exercise of seller market power at a system level. In particular, Powerex believes that CAISO should work with the CPUC to track and publish the annualized revenues from System Resource Adequacy transactions. The volume-weighted price of these transactions would serve as a "benchmark System RA index price," which could be summed with the net revenues available to a hypothetical new resources from the CAISO markets, yielding a "new entrant net annual margin." If, and only if, the "new entrant net annual margin" exceeded a defined multiple (*e.g.,* 200% or 300%) of the cost of new entry during a 12-month period, then offer prices from Resource Adequacy supply resources would be subject to mitigation.