

**Comments of Powerex Corp. on
Western EIM Resource Sufficiency Evaluation Enhancements
Emergency Actions Workshop**

Submitted by	Company	Date Submitted
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Powerex appreciates the opportunity to submit comments on CAISO’s February 23, 2022 Western EIM Resource Sufficiency Evaluation Enhancements Emergency Actions Workshop (the “Workshop”). As a real-time imbalance market, the Western EIM coordinates the operation of participating resources across the 15 balancing authority areas (“BAAs”) comprising the EIM footprint. As the last temporal wholesale electricity market for EIM participants, EIM operations can have both direct and indirect impacts on reliability for participating BAAs.

A key focus of the Workshop is the strongly-held view—which Powerex shares—that an EIM Entity experiencing reliability challenges should not be strictly “cut off” from accessing surplus supply available elsewhere in the EIM Area. Powerex, like many other entities across the west, has a long track record of cooperating with and assisting BAAs facing reliability challenges, including through deliveries of last-minute residual supply. Consistent with this background, Powerex does not believe it is appropriate to require an EIM Entity to experience reliability events that are otherwise avoidable through the delivery of voluntary, residual supply.

At the same time, Powerex also concurs with the view of many EIM Entities that the Western EIM is untenable if the expectation of access to supply in real-time undermines incentives for EIM Entities (and/or load-serving entities in an EIM Entity area) to arrange for sufficient resources prior to the EIM timeframe. When all EIM Entities come to the EIM sufficiently resourced, diversity can be unlocked and reliability can be maintained across the entire market footprint with a smaller fleet of reserves. But when one EIM Entity systemically comes to the EIM deficient in resources, it not only depletes this diversity benefit, but also exposes ratepayers in the broader EIM area to increased reliability risk and to more frequent price spikes.

Organized markets in North America generally address this type of “free rider” problem through one of two approaches:

1. ***By ensuring all entities in the organized market footprint are also part of a common resource adequacy program*** that requires the forward procurement of sufficient resources under a common objective metric for reliability and common qualifications of resources. That is, all organized market participants in the footprint are under a common requirement to be resource adequate, with verification and enforcement well in advance of the operational timeframe. Such programs drive the procurement of annual and seasonal supply and/or the decision to build new resources.

2. ***By adopting a day-ahead and real-time market design that provides exceptionally strong graduated price signals that accurately reflect tight conditions.*** Under this approach, there is nothing to prevent an entity from choosing to reduce their forward procurement of supply resources and rely on spot market purchases to serve their load, but the entities that elect to do so are exposed to very high prices when the available uncommitted supply to meet their needs is limited. This approach does not prevent capacity leaning, but sufficiently discourages it through robust price signals. This type of approach generally characterizes the market designs in Alberta (where energy prices frequently rise toward CDN\$1,000/MWh during moderately tight conditions) and in ERCOT (where energy prices rise to up to \$9,000/MWh under certain conditions).

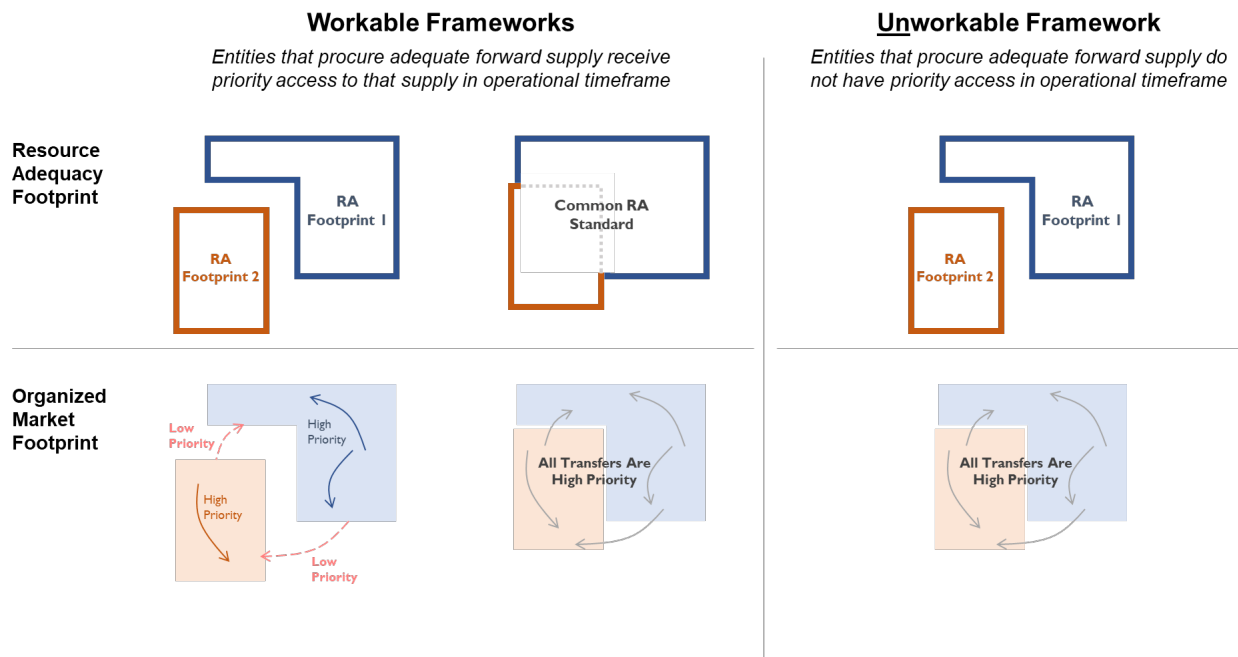
The Western EIM does not operate under either of these approaches. Prices in the Western EIM are based on the price-formation practices of the CAISO, which currently lacks meaningful scarcity pricing. And the Western EIM does not require participating entities to meet a common standard of forward resource adequacy. Therefore, to the extent that the Western EIM's hourly resource sufficiency evaluation ("RSE") framework permits an EIM Entity to simply "go short" into the EIM and still receive equal access to EIM supply, that entity (and the load-serving entities in its area) will have a powerful financial incentive *not* to procure an adequate level of resources on a forward basis. The entity (and the load-serving entities in its area) will have the opportunity to avoid the significant costs associated with arranging for sufficient resources but face no realistic risk that prices in the Western EIM will rise high enough, for long enough, to regret its decision.

I. The Long-Term Solution is to Align Resource Adequacy Program Footprints with Short-Term Organized Market Footprints

In Powerex's view, the long-term solution is to align access to supply in a day-ahead and real-time organized market footprint with a requirement to meet a common set of forward resource adequacy ("RA") requirements. Under such an approach, the diversity unlocked by adopting a common forward procurement standard is made available *first* to the entities that funded the committed resources (*i.e.*, through ownership or through contractual arrangements), and only then to support transfers outside of the RA footprint, using any available *residual* supply. This is consistent with the design of other organized markets in the nation that are part of an RTO. It is also consistent with the principles that have been expressed by CPUC Energy Division Staff and some California LSEs: namely, that the benefits of resources procured and paid for in connection to an RA program should remain available to all of the participants in that RA program throughout the operating timeframe, unless and until they are surplus to the collective needs of those participants.

The conceptual alignment of RA program participation and organized market footprints is illustrated below. The left-hand side of the illustration depicts two examples in which the day-ahead and real-time markets ensure priority access to supply procured under an RA program to the entities that participated in that program. The first workable framework is consistent with existing RTOs that include both a forward resource adequacy requirement and an organized day-ahead and real-time spot market, in which exports out of the RTO footprint have lower priority than serving load within the footprint, absent a forward contractual commitment of a resource to

an external load (consistent with the RA program rules in the source area for RA exports). The second workable framework illustrates how entities in a region with two (or more) distinct RA programs can retain priority access to the resources they procure in the operational timeframe by assigning a lower priority to transfers between the different RA footprints.¹ The right-hand side of the illustration depicts an unworkable framework, in which entities procure forward supply to meet different standards of resource adequacy, but the day-ahead and real-time market does not ensure entities that contract for supply retain priority access to that supply to serve their load in the operational timeframe.



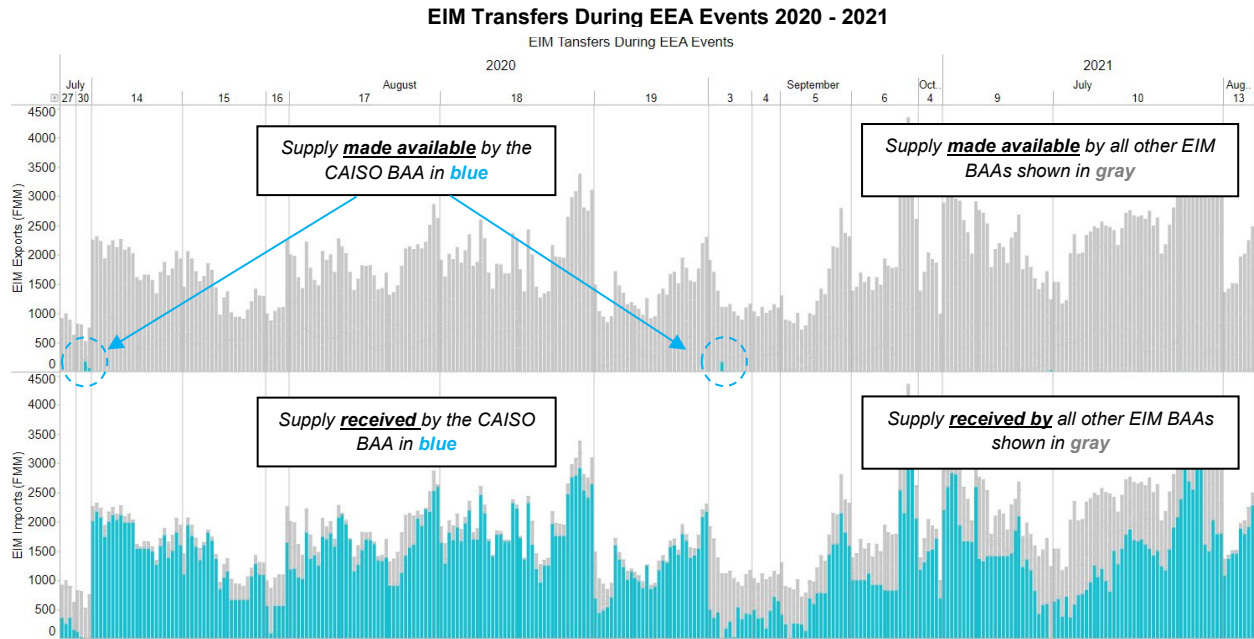
Powerex is hopeful that the multiple efforts underway to increase regional coordination in wholesale electricity transactions will ultimately lead to one or more market frameworks that adequately address the existing incentives for “free riding” on the capacity of others. This will lead not only to market structures that are equitable and therefore sustainable, but also to markets that provide appropriate incentives for the right resources to be built in the right locations, and to be available when most valuable to the grid.

II. Need for a Near Term Solution

Regardless of a potential long-term solution noted above, there is a pressing need to address this issue in the near term. There is extensive data showing systemic “free riding” by the CAISO BAA on the supply procured by other western entities and made available in the Western EIM, particularly during capacity critical hours in the summer season. The charts below examine EIM Transfers in 2020 and 2021 during hours in which at least one BAA experienced a declared

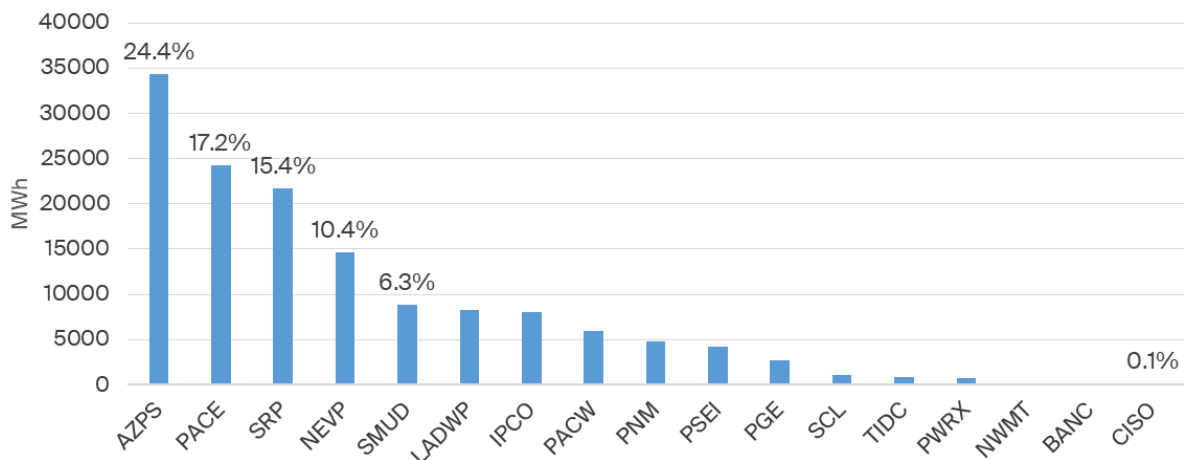
¹Note that, while this framework could be achieved by all entities joining a single RA program and a single organized market, it could also be achieved through coordination and mutual recognition among and between two or more RA programs and organized markets.

Energy Emergency Alert. The top chart shows the sum of EIM Transfers in the export direction, with the EIM Transfers out of the CAISO BAA highlighted in blue. The bottom chart shows the sum of EIM Transfers in the import direction, again with those into the CAISO BAA highlighted in blue.

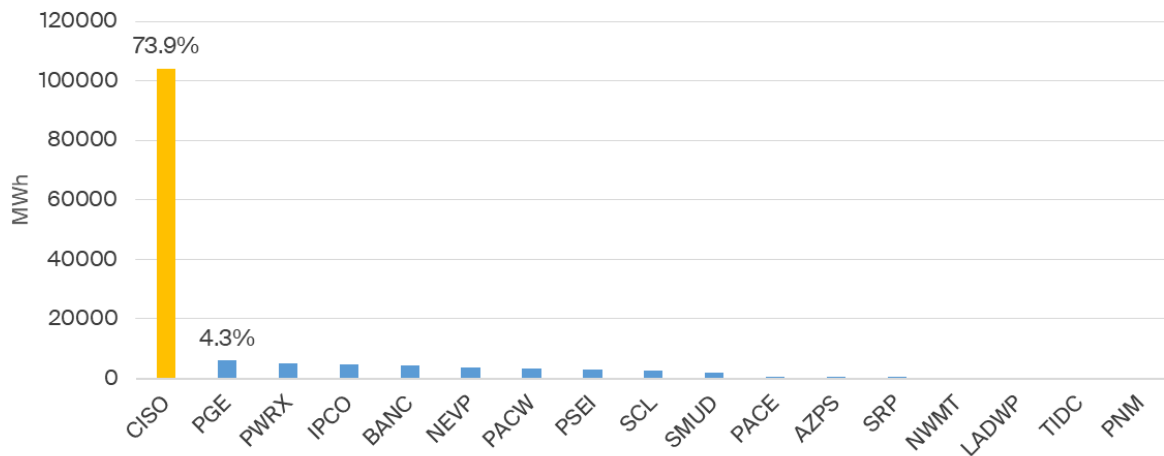


The above charts show that, when conditions across the EIM footprint are very tight, there has been up to approximately 3,000 MW (and occasionally more) of aggregate supply delivered from EIM Entities with real-time surplus. Virtually **none of this surplus supply came from the CAISO BAA**, however, while the overwhelming **majority of this surplus supply went to the CAISO BAA**. As shown below, the CAISO BAA provided only 0.1% of the total supply made available to the EIM during emergency conditions in 2020 and 2021, while the CAISO BAA received nearly 74% of all the supply made available by other EIM BAAs during these events.

EIM Exports (FMM) Supplied during EEA Events



EIM Imports (FMM) Received During EEA Events



These transfers do not simply represent economic displacement of resources in the CAISO BAA, but reflect extensive capacity leaning, as ample evidence has been presented demonstrating that the CAISO BAA has been substantially short of sufficient resources during peak demand periods, driven by the well-documented deficiencies in California’s RA program.

This experience is contrary to the foundational vision of the Western EIM as a market where all entities bring their fair share of resources, and unlock sub-hourly diversity. The harm from this sizeable capacity leaning by the CAISO BAA during capacity critical hours can affect all EIM Entities:

- Entities that do not have forward surplus supply are harmed in their ability to purchase supply from the EIM, where the CAISO BAA’s large shortfall can largely deplete all available supply during tight conditions, thus exposing these other entities to increased reliability risk when supply is limited and they experience intra-hour operational challenges, as well as to increased price spikes.
- Entities with surplus supply that could be committed under forward contracts to LSEs in the CAISO BAA are under-compensated for the capacity that is being relied upon through the EIM. This revenue would have gone to offset revenue requirements and reduce retail rates to their customers.

III. An Alternative Framework for EIM Resource Sufficiency Consequences

A solution that can be implemented in the near-term—perhaps as early as this summer—must recognize that neither a comprehensive scarcity pricing proposal nor major changes to the formal forward procurement programs are feasible in that timeframe. A near-term solution should therefore seek:

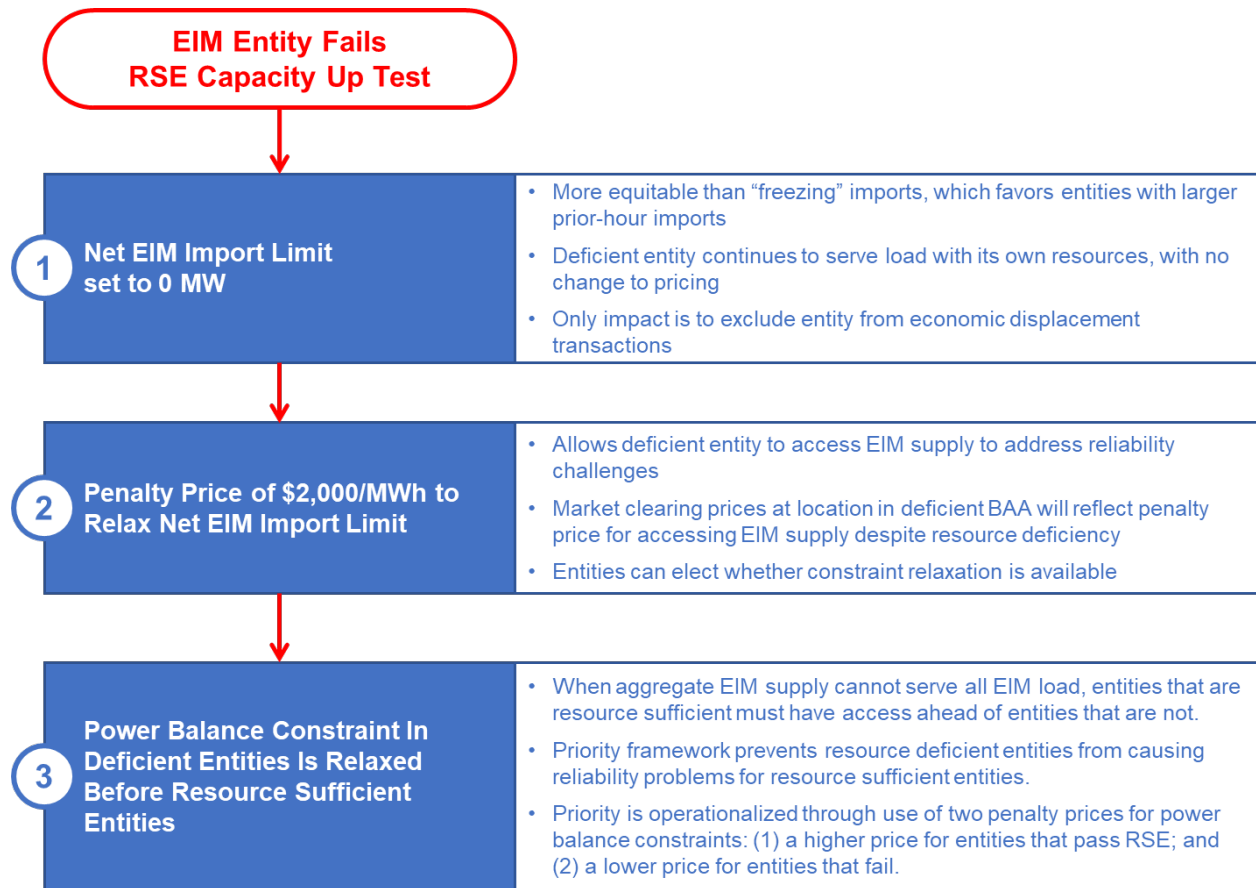
- To create strong incentives for all EIM Entities to be resource sufficient;
- To allow EIM Entities to access available EIM supply to address reliability challenges; and,

- To protect EIM Entities that *are* resource sufficient from increased intra-hour reliability risk created by EIM Entities that are *not* resource sufficient.

Powerex believes the above objectives can be achieved through limited enhancements to the existing use of EIM net transfer constraints. More specifically, Powerex proposes that, for any EIM Entity that fails the Resource Sufficiency Evaluation capacity test, three measures will apply:

1. The EIM net import limit is set to 0 MW;
2. The 0 MW net import limit may be relaxed at a penalty price of \$2,000/MWh; and,
3. The penalty price for relaxing the Power Balance Constraint (“PBC”) of all EIM Entities that fail the RSE is set at a materially lower value than the PBC penalty price for all EIM Entities that pass the RSE.

The purpose and effect of each measure is described more fully below:



Powerex believes this proposal will meet the core objectives set out previously. EIM Entities that fail the RSE capacity test will not be “cut off” from importing available EIM supply to resolve reliability challenges. But any such imports will:

1. Only occur if there is residual supply after meeting the needs of all EIM Entities that have passed the RSE;

2. Carry an appropriately high price of \$2,000/MWh, indicating resource deficits and leaning by the receiving EIM Entity; and,
3. Provide an adequate incentive for entities that are making the underlying forward procurement decisions in the affected region.

To achieve this third objective, the high price must automatically be reflected in the market-clearing prices throughout the deficient EIM Entity’s area. This is a critical component of ensuring the entities that make forward procurement decisions—and hence largely determine whether a BAA is resource sufficient or not—bear the costs of those decisions. This important incentive would be lost if there is a charge for accessing EIM imports that is merely recovered as an uplift charge, rather than affecting the market clearing prices in the deficient EIM Entity’s area and thus passing that cost through to those entities within that are responsible for that deficiency.

To the extent that multiple EIM Entities require EIM imports to address reliability challenges, those EIM Entities that brought their fair share of resources to the EIM (*i.e.*, and hence passed the RSE) will appropriately have higher priority than those that did not. In Powerex’s view, this represents a balanced approach of strong financial incentives for all EIM Entities to be resource sufficient, making EIM supply available to address reliability challenges, but also aligning priority of access to available EIM supply with each EIM Entity’s contribution to that supply.

	Current RSE Outcomes	Powerex Proposal
Pass RSE	No priority access to EIM supply. Large shortfall of deficient entities increases reliability risk, price spikes.	Priority access to EIM supply, preventing reliability risk due to deficient entities. EIM import limit prevents price spikes due to deficient entities.
Inaccurate RSE Failure	Loss of access to EIM supply (unless already importing in prior period).	If load can be served by internal supply, the penalty price will not impact LMPs in the BAA.
Accurate RSE Failure	Loss of access to EIM supply (unless already importing in prior period).	Access to EIM supply, with high imbalance charges to entities responsible for deficiency.

Powerex believes that a further strength of this proposal is that implementation can be achieved by modifying two tools already in use in the current market optimization: a BAA net import limit (already applied during RS failures), and the penalty prices for power balance constraints for each EIM Entity. Each of these constraints will require revised penalty prices, which the CAISO has been able to implement quickly in other contexts. Powerex therefore believes that, if there is broad support among EIM Entities for this proposal, the CAISO should expedite implementation of this approach in time for this summer, or to delineate the specific reasons why this is not feasible. (Note: Powerex’s request for accelerated implementation should not be misconstrued as Powerex proposing to rush this solution into place without prudently validating it and testing it).

IV. Powerex Could Potentially Support Joint Commenters' Proposal as a Workable Interim Approach to Enable Summer 2022 Implementation

Powerex understands that certain Joint Commenters have outlined a proposal for Reliability Emergency Energy Service ("REES"). Powerex understands that under the REES proposal, priority will be given in the market dispatch to EIM Entities that have passed the EIM RSE, prior to permitting any additional transfers to a deficient EIM Entity at a scarcity price.

Powerex understands that the Joint Commenters' REES proposal is intended to represent an interim approach to allow residual EIM energy to be made available to deficient EIM Entities in order to address a reliability emergency during Summer 2022. While Powerex does not believe that the REES as currently proposed represents a durable solution that creates strong incentives for all EIM Entities to be resource sufficient, Powerex is willing to consider the proposal provided that:

1. The REES proposal is the only alternative that can be implemented prior to Summer 2022;
2. The proposal is clearly defined as an interim solution;
3. Emergency assistance is only available to BAAs that have actually entered an energy emergency (*i.e.*, issued an EEA);
4. Emergency assistance is limited to a total EIM import amount of 500 MW for any EIM Entity (including any concurrent EIM imports to that EIM Entity through the EIM's normal dispatch procedures). A volume limitation is necessary to mitigate the risk that a request for emergency assistance could largely deplete all available EIM residual supply, causing other BAAs (that passed the RSE) to be at a heightened reliability risk during each market interval that emergency assistance is taking place; and,
5. The CAISO commits to a comprehensive evaluation of Powerex's proposal (assuming there is considerable stakeholder support) as a more durable solution going forward.