Powerex is pleased to offer comments using the CAISO template on the following topics:

1. **Does your entity have suggestions or comments on the process by which the CAISO will resolve the nodal versus zonal granularity issue?**

   Powerex supports the CAISO building a system with scalability.

   Powerex believes that for convergence bidding to achieve the greatest efficiency gains, it needs to be enabled at liquid points of the CAISO system so that there is widespread participation by market participants willing to submit virtual supply and demand bids. For this reason, Powerex feels that initially, convergence bidding should be enabled at the LAP and at the EZ Gen Hub trading level.

   Although Powerex understands that there are additional benefits from convergence bidding at the nodal level, Powerex feels that initially the bulk of the benefits in converging Day Ahead and Real Time prices can be achieved by allowing convergence bidding at the LAP and Trading Hubs, without the associated concerns of illiquidity at specific nodes.

   Expansion to nodal level can and should be considered at a future point once convergence bidding has proven its market efficiency merits in the California market.

2. **What are your entity’s views on the proposed characteristics of virtual bids (that were reviewed at the November 14th meeting)?**

   Powerex agrees the following proposed characteristics for Virtual Bids are reasonable:
   - Be explicit (flagged);
   - Be submitted only in DAM; automatically liquated at RT price;
   - Include a price and quantity with up to ten segments and no start-up or minimum energy costs;
– No virtual bidding at the interties (see example below);
– Increase the number of zones by allowing convergence bidding at EZ Trading Hubs;
– Be subject to same bid caps as physical bids; and
– Not be subject to local market power mitigation.

On other proposed characteristics:
– Powerex does not support position limits if convergence bidding is at a zonal level. Powerex believes the credit policy can serve to self limit positions at the liquid zonal hubs (LAPs and Trading Hubs).
– Powerex supports the CAISO’s proposal for a CRR settlement rule.
– Once convergence bidding is implemented, Powerex believes the CAISO should provide consideration to implementing the dormant UDP provision in its tariff.
– Powerex agrees that the CAISO should have tariff authority to suspend convergence bidding by market participant or for the whole market but more detail is required on when that authority would be used.

3. What are your entity’s views on proposed changes to the Day Ahead market which are needed to facilitate convergence bidding?

Powerex agrees the proposed DAM changes required to facilitate convergence bidding is a reasonable approach.

4. What are your entity’s views on the proposed credit policy and processes for virtual bids?

Powerex agrees that the proposed credit policy and processes is a reasonable approach.

5. What are your entity’s views on the CAISO’s proposal (explained at the November 14th meeting) for allocating costs for virtual transactions?

Powerex firmly believes that cost causation should the principle used for allocating costs. The CAISO’s proposal appears to follow the cause causation principle.

6. What are your entity’s views on the potential interaction of nodal convergence bidding and Inter-SC Trades?

Need to review further.
In addition, Powerex offers these following comments and recommendation:

- Powerex believes that convergence bidding can be a valuable mechanism for improving market efficiency. However, it may have the potential to create unintended consequences that could be detrimental to reliability under certain circumstances, such as high load and/or over-generation conditions.

- Powerex agrees with the CAISO that convergence bidding should initially be prohibited at the interties. The particular concern relates to convergence bidding activities on the interties that ‘crowd out’ physical supplies without any mechanism for Unit Commitment of imports when they are needed under high demand conditions.

- Specifically, under convergence bidding, Powerex believes that a potential exists for virtual supply offers in the IFM to “crowd out” higher-priced physical offers. For example, on a given intertie for a heavy demand day:

  o Physical suppliers offer energy at $200 into the CAISO DAM, reflecting prevailing Day Ahead market prices for physical energy in the region.

  o Virtual bids are offered at $175 into the CAISO DAM, reflecting market participant’s prediction that the real-time prices will be below $175 in the CAISO Real Time market.

  o The intertie is congested in the IFM and the intertie clearing price settles between $175 and $200; the virtual bid is accepted and the physical bid is not.

  o Under MRTU, the physical supplier at the intertie can not participate in the RUC (as a non-dynamic non-RA system resource).

  o Under high load conditions where the CAISO may have insufficient resources in the internal RUC market, the potential exists for physical imports to be ‘crowded out’ by virtual supply at the interties with no mechanism for the CAISO to commit importers in Day Ahead to be there in real time.

- Powerex recommends that if the CAISO decides to include convergence bidding at the interties then it should revisit the ability of non-dynamic non-RA imports to participate in RUC in the Day Ahead Market.