

## Stakeholder Comments

### Commitment Cost Enhancements Phase 3 Workshop

Submitted by	Company	Date Submitted
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Southern California Edison (SCE) appreciates the opportunity to provide comments on the Commitment Cost Enhancements Phase 3 (CCE3) initiative and associated issues discussed at the June 15th workshop.

SCE agrees that the preferred method to optimally dispatch PDR resources, given the limitations that extend beyond the market optimization horizon, is for those resources to reflect opportunity costs in market bids. A key challenge in doing so is determining the proper methodology and process, which SCE hopes the CAISO and the stakeholders can address in future workshop(s).

Below is SCE's feedback on the requested items:

- 1) The proposed draft agenda and topics list are a good start.
  
- 2) The limitations listed in the Issues Matrix, with one addition, (events per day/month/year, run-hours per event/month/year) cover the major Demand Response (DR) program limitations that drive the opportunity costs.

Some programs have a limitation to a single dispatch per day, even though multiple hours are allowed. For example, if such a program is dispatched for HE 12, and called off for HE 13, it cannot than be dispatched for HE 14; however, if it was initially called for HE 12-14, it could run through HE 14.

Other current limitations that pose market integration challenges are notification times and the requirements for some programs to communicate the end-time when dispatched.

3) For Utility run or administered DR, such as the Utility tariffs and programs, and Aggregator-Managed Programs, the Utility can provide the California Public Utilities Commission (CPUC) approved tariff or third-party contract that fully lists any applicable resource limitations.

In the case of third-party direct participation DR, such as through the Demand Response Auction Mechanism (DRAM), the third-party may have to provide information on their commercial arrangements with their customers – which would detail the resource limitations. Contracts with the Utility, such as the DRAM pro-forma, do not list resource limitations – rather they list the minimum requirements for the purchased DR resources.

4) Energy storage resources operating as PDR have similar types of limitations (e.g. battery cycles per day or year), however they may experience different challenges – as storage is likely to be targeted for a more frequent market dispatch than traditional DR. Additionally, storage also has daily (per cycle) energy limitations and the need to manage its state of charge.

Considering the fairly limited nature of DR programs, it may be necessary to update the calculated opportunity costs intra-monthly. When calculating the opportunity costs for DR, a key variable is the remaining availability in the relevant time period (e.g. remaining available hours for the month). A simple opportunity cost calculation looks at the relevant time period (e.g. remainder of the year), and sorts the forecast energy prices from highest to lowest. If there are 20 hours remaining, it would use the 20th highest forecast hourly price as the opportunity cost. When a DR resource is dispatched, the available calls/hours are reduced, and the opportunity cost calculation may need to be updated - especially if the resource is dispatched at a time that was not forecast. In this example, a 4 hour dispatch today, would reduce the remaining available hours to 16 – and now the opportunity cost would be the 16th highest forecast hourly price in the relevant time period.

Another quality of DR programs to keep in mind is that, just like with the underlying load, many are temperature-sensitive, where the available MW vary with weather conditions. This characteristic can complicate the opportunity cost calculations, as a MW used today, could be giving up 2 MW tomorrow. The variable MW availability is also another reason why the

opportunity costs are best incorporated as a startup cost for DR programs with per call limitations, and as a minimum load cost for DR programs with hourly limitations. Furthermore, it is unclear what the best method is to allocate annual run limits on a monthly basis – and whether a set number of calls should be allocated to each month. One option may be to use the CAISO methodology where a fraction of availability is not included in the opportunity cost calculation, and is implicitly reserved. Another option may be to include the Resource Adequacy (RA) replacement cost as a consideration so that a Use Limited Resource (ULR) bid reflects the full cost of exhausting its availability. For example, it may be optimal to exhaust a ULR in September, as long as the replacement capacity costs for October through December are considered (i.e. added value exceeded incremental cost).

SCE looks forward to continuing work with the CAISO to resolve these issues.