California ISO

Stakeholder Comments Template

Energy Storage and Distributed Energy Resources (ESDER) Phase 4

This template has been created for submission of stakeholder comments on the Revised Straw Proposal for ESDER Phase 4. The paper, stakeholder meeting presentation, and all information related to this initiative is located on the initiative webpage.

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business **November 12, 2019.**

Submitted by	Organization	Date Submitted
Maria Belenky (maria@ohmconnect.com)	*OhmConnect*	*11/12/2019*

Please provide your organization's general comments on the following issues and answers to specific requests.

1. **End-of hour state-of-charge proposal**

OhmConnect has no comment at this time.

2. **Discussion of end-of-day state-of-charge**

OhmConnect has no comment at this time.

3. **Market power mitigation for storage resources**

OhmConnect has no comment at this time.

4. **Variable output demand response**

Implementation of the ELCC Methodology (The "How")

We are pleased to see that CAISO has commissioned E3 to thoroughly study how the ELCC methodology could be applied to demand response (DR). The outputs of the study will add important substance to this debate and will allow stakeholders to have a much more informed conversation regarding the benefits and drawbacks of this approach. We look forward to reviewing the results of this effort early next year.

One of our principle implementation concerns continues to be the definition of DR's "nameplate capacity". DR does not have a precise equivalent to the "nameplate capacity" of wind or solar. Because the ELCC is a percentage that is typically applied to the nameplate capacity of the resource being evaluated, it is essential that "nameplate capacity" be appropriately defined and calculated for DR.

All existing methods to determine the qualifying capacity (QC) of DR resources are inappropriate for this purpose. As we have stated previously, the nameplate capacity of wind and solar is an engineered value that represents the maximum theoretical output of that resource. It does not account for how much of it can actually be delivered to the grid in any given interval and under any given conditions. In contrast, existing methodologies to determine the QC of DR *do* take into account deliverability during hours of greatest grid need—independent of when the resource's actual "peak" occurs—and, if applicable, account for anticipated conditions such as weather. The QC of DRAM resources is no longer "set to the MW amount contracted as resource adequacy," as is stated in the Revised Straw Proposal.[1] Per, D.19-09-027, DRAM QC is to be based on actual historical performance during the availability assessment hours (AAH). In sum, none of the existing methodologies to establish the QC of DR resources are theoretical maximum values. Therefore, QC as presently calculated should not be used to set its nameplate capacity.

One starting point for establishing a nameplate capacity value could be the total load of customers in a given resource. In our residential program, we have seen users reduce load to 0MW during DR events. This behavior highlights 1) the inappropriateness of using average load or average reductions (because if a user can exceed the nameplate capacity, then by definition it is not a theoretical maximum) and 2) the potential for users to reduce their full load to 0 MW exists. If the "nameplate capacity" of a DR resource is defined as its theoretical maximum reductions, the most appropriate equivalent we see at this time is the load of the customers comprising that resource.

Rationale for using ELCC for DR (The "Why")

While the forthcoming study should provide much-needed clarity on the implementation of the ELCC methodology, OhmConnect continues to have significant concerns regarding CAISO's high-level rationale for the application of the ELCC methodology to DR. These concerns include:

a) *Valuing the contribution of DR to resource adequacy (RA) based on a comparison to a perfect generator disregards the purpose of DR.*

   To the best of our understanding, a core component of the LOLE study in the broader ELCC methodology is the removal of the studied resource from the electricity mix and the addition of MWs from a "perfect generator" until overall system reliability returns to a target level. The ELCC percentage is subsequently obtained by comparing the MWs of this perfect generator that have been added to the MWs of the resource under study that have been removed.

[1] ESDER 4 Revised Straw Proposal, p. 33.

Deriving the RA value of a DR resource by comparing it to a "perfect generator" is flawed analysis. Demand response was never meant to be anything akin to a perfect generator. It is not a baseload resource and is not intended to be a baseload resource. Parallels should not be drawn with wind and solar because those resources, coupled with battery storage, will actually serve as a significant portion of system load if California is to reach its decarbonization goals. While DR certainly has an important role to play in decarbonizing California's electricity mix, its primary contribution is shaving peak demand in order to decrease reliance on peaker plants. Obtaining its QC value by essentially treating it as a baseload resource runs counter to what DR has been created to do for the grid. We are worried that, by comparing DR to a standard generator, the ELCC methodology will simply decrease its RA value to the point of disincentivizing anyone from developing DR resources in California.

b) *Valuing the contribution of DR to RA based on its contribution to reliability in* every hour *of the day disregards the purpose of DR.*

There has been substantial discussion in the ESDER 4 Stakeholder Initiative regarding the purpose of the RA program and the specific hours that should be used to establish the QC of a DR resource. The CAISO has been clear in its judgement that the RA program is about meeting load requirements in every hour of the day, rather than just satisfying peak demand. While it is completely true that the CAISO may require energy from RA resources outside of the peak hours, it does not imply that *every* resource must be available at every hour of the day, or that every resource must be *valued* based on its contribution to reliability in every hour.

LSEs procure a portfolio of resources, including non-variable resources, to meet the expected RA need throughout the entire day. As stated above, DR is primarily procured to reduce peak demand and is dispatched during the AAH, which coincide with the peak load hours. Modeling DR as a resource that should be available at any hour of the day is a mischaracterization of the true value of DR to the grid. In fact, as stated above, doing so will likely artificially lower the QC value of all DR and disincentivize its development in the state.

c) *More evidence is needed that ELCC would indeed improve the accuracy of available DR capacity.*

As mentioned in our previous comments, we are not yet convinced that there is enough evidence to demonstrated that the ELCC methodology would produce more accurate estimates of deliverable capacity in the year-ahead process than the methodologies currently in place. Regardless of how it is calculated, "QC" is one static monthly value. The fact that it is a static monthly value is the entire reason that the CAISO has proposed allowing variable DR to bid to a forecast in the market. The forecast could be quite a bit higher or lower than the QC. It would be helpful to see how the theoretical QC values calculated by E3 compare with actual dispatch instructions and performance in the CAISO market relative to other QC methodologies.

These are only some of the high-level issues—issues that deal with the "why" of ELCC, not the "how" of ELCC—that have been exposed during this process. At this time, all stakeholders can agree that there is not yet a consensus that the ELCC is needed or is appropriate for demand response. It is our understanding that the E3 study will principally focus on the implementation of the ELCC methodology and will not address these and other high-level issues. While the "how" is indeed important, it would be helpful for the CAISO to document and respond in depth to stakeholder comments regarding the "why". The CAISO has always been clear that its rationale stems from the need to ensure enough supply to meet load in every hour, but this stance does not fully address the breadth of stakeholder concerns, including those listed above. We understand that full consensus may not be possible. However, a robust conversation regarding the rationale for this change could do well to move us in that direction.

5. **Parameters to reflect demand response operational characteristics**

6. **Removing consideration of non-24x7 settlement of behind the meter resources under DER aggregation model**

OhmConnect has no comment at this time.

7. **Additional comments**

   Please offer any other feedback your organization would like to provide from the topics discussed during the working group meeting.

OhmConnect has no additional comments at this time.