



Stakeholder Comments Template

Energy Storage and Distributed Energy Resources Phase 4

This template has been created for submission of stakeholder comments on the Draft Final Proposal and associated May 27 meeting discussions, for the Energy Storage and Distributed Energy Resources (ESDER) Phase 4 initiative. 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 June 10, 2020.

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

1. Default Energy Bid for Storage Resources

Please provide your organization's feedback on the default energy bid proposal for storage resources, as described within the draft final proposal and discussed during the May 27 stakeholder meeting.

PG&E is supportive of the CAISO's proposal for a simplified Default Energy Bid (DEB) equation which does not adjust dynamically with cycling costs. This was an important adjustment made in the previous draft proposal, and PG&E supports it being maintained in the draft final proposal.

PG&E requests clarification on the use of the term "Variable Cost Component" in Section 4.3.

PG&E understands the analysis in Section 4.3 as an attempt to study how two components of the DEB (Energy Costs and Opportunity Costs) compare to each other and may vary depending on the time of year. However, the analysis does not follow the framework provided in Section 4.2, which categorizes energy storage resource costs as either: (1) Energy Costs, (2) Cycling Costs and (3) Opportunity Costs. Instead it uses the term "Variable Cost Component." It is unclear whether the CAISO is intending to use Variable Cost Component interchangeably with the variable "En" defined in Equation 1 (page 21) as the "estimated cost for resource to buy energy." Furthermore, since the day-

ahead bilateral hub (DAB) variable in the Opportunity Cost equation (Equation 2 on page 25) is itself variable, the use of the term “Variable Cost Component” is confusing.

The CAISO should consider adding descriptors to any variables that change between the Day Ahead (DA) and Real-time (RT) markets

In Sections 4.2.1 and 4.2.3, the CAISO qualitatively describes how energy costs and opportunity costs are calculated differently in the DA market compared to the RT market. PG&E assumes that these differences are captured within the “En” variable of Equation 1 and the “DAB” variable of Equation 2. For transparency purposes, PG&E recommends the CAISO consider expanding how these variables are defined to include the important distinction of which prices are used in the calculations (e.g. MPM or IFM run prices). One way to do this is to create defined terms for: En^{DA} , En^{RT} , DAB^{DA} and DAB^{RT} .

2. End-of-Hour Charge Parameter(s)

Please provide your organization’s feedback on the end-of-hour charge parameter(s) proposal, as described within the draft final proposal and discussed during the May 27 stakeholder meeting.

PG&E appreciates the CAISO’s ongoing efforts to implement state-of-charge bidding parameters for NGRs. Although PG&E had initially advocated for an end-of-day parameter to be included as a part of ESDER4, PG&E recognizes that this request is a challenge given its complexity and the implementation timeline. PG&E recommends that the CAISO consider an end-of-day bidding parameter in future stakeholder initiatives.

PG&E recommends that the CAISO create tariff definitions for the “implied end-of-hour constraint” and “end-of-horizon constraint”.

PG&E supports the CAISO’s solution for the market application issue between the RTUC and the RTED. The example provided on pages 9-11 of the draft final Proposal were helpful to illustrate the need for the implied end-of-hour constraint at the end-of-horizon for RTED. As these market applications become more important, maintaining clear and consistent definitions benefits both the CAISO and stakeholders.

PG&E asks the CAISO whether the RT end-of-hour (EOH) charge parameter will be constrained by the minimum/maximum state-of-charge (SOC) values that are submitted in the DA market.

PG&E foresees situations occurring in RT which would warrant scheduling coordinators to set an EOH parameter which is outside of the minimum or maximum SOC range submitted in the DA timeframe. This is a concern because currently, the Outage Management System (OMS) can only be used to inform CAISO of a change in maximum SOC, not in minimum SOC. If the flexibility to use EOH charge parameters outside of this range is not already provided, PG&E requests that it be made available as a part of this initiative.

3. Variable-Output DR

Please provide your organization's feedback on variable-output DR, as described within the draft final proposal and in the ELCC study discussed during the May 27 stakeholder meeting. Please explain your rationale and include examples if applicable.

E3's analysis of PG&E and SCE's bidding data for demand response resources for 2018 and 2019 data suggests that the RA valuation for DR determined through the Load Impact Protocols (LIP) overvalues the capacity contribution of DR relative to the Effective Load Carrying Capability (ELCC) by at least 40%. They provide two reasons: 1.) DR does not bid into the CAISO market at levels equal to its NQC values, and ii) the times when DR is bid are either not at optimal times for not for long enough to earn full ELCC value. (Slide 14 of E3's presentation.) PG&E would like to provide a few points of clarification to inform the analysis:

- The comparison between today's NQC vs. a proposed ELCC is a false comparison that will naturally result in poor performance. The RA program today, as reflected in the LIP evaluations, is designed to look at peak contribution, while the ELCC methodology favors a resource that is available 24/7. To compare peak contribution to "optimal times", as defined by E3, will naturally produce poor results. Specifically, the NQC value is determined by the ex ante impact expected to be available during the RA measurement hours, i.e., 4-9 pm on the monthly system peak day. The "optimal times" defined by E3's analysis are not necessarily consistent with the RA measurement hours and conditions. In the event where the "optimal times" differ from the RA measurement hours, it is logical that the bids are lower than the NQC value. For a time-dependent resource like DR, the NQC, which is based on the impacts for RA measurement hours, is not a realistic expected value for the resource in other hours.
- What CAISO is proposing is a fundamental change to the purpose of DR. Accordingly, PG&E urges the CAISO to seek CPUC clarification on the purpose of market integrated DR – as it is valued from a capacity perspective. PG&E understands that a resource similar to a perfect generator which can provide the same capacity available for 24/7 is much more useful to the CAISO; however, DR is not designed to behave that way. Given CPUC's capacity credit design today, RA expects DR to be a peak-shaving resource primarily and awards RA credit based on DR's capacity on the monthly system peak day. Requiring DR to perform more like a perfect generator would fundamentally restructure DR programs, which will result in a different cost-effectiveness calculation. Thus far, E3 has only considered the capacity, which is only one side of the equation, ignoring the additional costs the restructured DR would incur. There is a long list of issues for holistic consideration. In short, it would be incorrect to simply characterize the change from the LIP to the ELCC as a methodological matter. Applying ELCC on DR fundamentally alters how DR is valued in RA. This is a significant RA policy issue, for which the CPUC should provide guidance on the purpose of market integrated DR.
- Lastly, contrary to statements on the call, PG&E's bids are not grossed up for line losses or planning reserve margin. Are these factors accounted for when the daily bids are compared with the NQC? If not, then the difference between the daily bids and the NQC may be overstated.

4. Additional comments

Please offer any other feedback your organization would like to provide from the straw proposal and topics discussed during the web meeting.

No additional comments at this time.