

Comments of OhmConnect, Inc.
Energy Storage and Distributed Energy Resources
Issue Paper and Straw Proposal

Submitted by	Company	Date Submitted
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OhmConnect, Inc. (OhmConnect) offers the following comments in the stakeholder process for the California Independent System Operator's (CAISO) Energy Storage and Distributed Energy Resources (ESDER) initiative July 30, 2015 Issue Paper and Straw Proposal (Proposal). Our comments adhere to the template posted to the ESDER initiative website on August 7, 2015.

Non-generator resources (NGR) enhancements

1. *Update documentation on NGR to capture material and clarifications compiled for April education forums.*

OhmConnect supports the updating of the CAISO's Business Practice Manuals (BPMs) to include additional details about the NGR model. Given that multiple BPMs will be affected, we request that CAISO publish a consolidated summary of all the changes that it makes.

2. *Clarify how ISO uses state of charge (SOC) in market optimization.*

OhmConnect would appreciate additional documentation clarifying how CAISO uses SOC in the market optimization. In particular, we would like to see more details regarding how SOC affects the mathematical formulation of the SCUC and SCED problems.

3. *Evaluate initial SOC as a submitted parameter in the day-ahead market.*

OhmConnect supports evaluating initial SOC as a bid parameter in the Day-Ahead Market (DAM) as part of this stakeholder initiative. We suspect this flexibility would be valuable to NGRs that intend to participate in DAM intermittently (and can manage SOC outside of the market in the hours leading up to a DAM award). However, we believe we will be best able to evaluate this proposal after reviewing the technical documentation requested in item 2.

4. *Evaluate option to not provide energy limits or have the ISO co-optimize an NGR based on state of charge.*

OhmConnect recommends that this approach be explored with caution. For example, depending on an NGR's maximum energy limit and rates of charge and discharge, it may not be possible to manage the resource's SOC and prevent infeasible dispatch instructions

by actively submitting bids into the Real-Time Market (RTM), because bids into RTM must be submitted 75 minutes before the start of the trading hour and remain fixed for the duration of the trading hour.

PDR/RDRR enhancements – alternative baseline methodologies

1. *Develop meter generator output (MGO) as a new ISO baseline methodology.*

OhmConnect supports MGO as a new baseline methodology in CAISO, and we intend to participate in the ESDER stakeholder working group (as discussed on page 17 of the Proposal) in order to assist with the development and implementation details.

2. *Develop additional detail regarding the “ISO Type 2” baseline methodology (i.e., provision of statistically derived meter data) and document that in the appropriate BPMs.*

Additional details regarding the Type 2 baseline methodology would be helpful. As mentioned on page 16 of the Proposal, the only discussion of this baseline type in the CAISO tariff is in section 10.1.7, which states:

“A Demand Response Provider representing a Reliability Demand Response Resource or a Proxy Demand Resource may submit a written application to the CAISO for approval of a methodology for deriving Settlement Quality Meter Data for the Reliability Demand Response Resource or Proxy Demand Resource that consists of a statistical sampling of Energy usage data, in cases where interval metering is not available for the entire population of underlying service accounts for the Reliability Demand Response Resource or Proxy Demand Resource.”

As OhmConnect interprets this tariff provision, a DRP may infer interval meter data for customers not having interval meters based upon the meter data observed for a subset of representative customers having interval meters, such that the DRP can then employ the Type 1 baseline methodology using a combination of actual plus statistically-derived interval meter data.

It is not clear how useful this baseline option is for DRPs aggregating non-residential retail customers, given that most of these customers already have (or will soon have) interval meters with 15-minute data granularity. Non-residential DRPs can simply employ the Type 1 baseline in order to provide Day-Ahead and Real-Time Energy, as well as certain Ancillary Services (potential telemetry requirements notwithstanding).

However, the Type 2 baseline might offer a means of facilitating participation in the Real-Time and Ancillary Services Markets by DRPs aggregating residential retail customers. Although at present some residential customers have interval meters with 15-minute data granularity, most residential customers have hourly interval meters, which only enable participation in the Day-Ahead Market for Energy. Accordingly, OhmConnect requests that CAISO clarify whether tariff section 10.1.7 allows a PDR comprised of both customers with hourly meters and customers with 15-minute meters to participate in the Real-Time and

Ancillary Services Markets, provided that the set of customers with 15-minute meters (or a subset thereof) is representative of the overall customer makeup of the PDR.

Non-resource adequacy multiple use applications

1. *Type 1: Resource provides services to the distribution system and participates in the ISO market.*

OhmConnect has no comments on this part of the Proposal at this time.

2. *Type 2: Resource provides services to end-use customers and participates in the ISO market*

OhmConnect has no comments on this part of the Proposal at this time.