

Comments of OhmConnect, Inc.
Commitment Costs and Default Energy Bid Enhancements
Straw Proposal

Submitted by	Company	Date Submitted
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OhmConnect, Inc. (OhmConnect) respectfully submits the following comments in the stakeholder process for the California Independent System Operator’s (CAISO) Commitment Costs and Default Energy Bid Enhancements initiative June 30, 2017 Straw Proposal.

OhmConnect supports the CAISO’s proposal to allow “market-based offers for each component of the supply offer” (page 14) – in particular, the recommendation that “[t]he minimum load component [...] be an hourly component for which suppliers can submit different hourly prices” (page 17). OhmConnect believes the CAISO’s proposed changes will provide valuable flexibility to Proxy Demand Resources (PDRs) with significant behavioral response components and will facilitate participation by such resources in the CAISO’s Real-Time Market (RTM).

1. PDRs provide Energy through both behavioral and automated responses.

OhmConnect is one of the largest non-utility residential Demand Response Providers (DRPs) in California. OhmConnect presently has several dozen PDRs in the CAISO market, comprised of tens of thousands of residential end-use customers. When OhmConnect’s PDRs receive CAISO market awards or dispatch instructions, OhmConnect delivers Energy by eliciting both behavioral and automated responses from its customer base. To elicit behavioral responses, OhmConnect sends emails and text messages to customers notifying them of the time and duration of the DR event; customers then take manual actions, such as turning off light switches, unplugging laptop and cellphone chargers, and postponing laundry cycles, to reduce their energy consumption during the event. To elicit automated responses, OhmConnect directly controls internet-connected devices, such as WiFi thermostats, electric vehicle chargers, and smart plugs, that customers have registered with the OhmConnect platform.

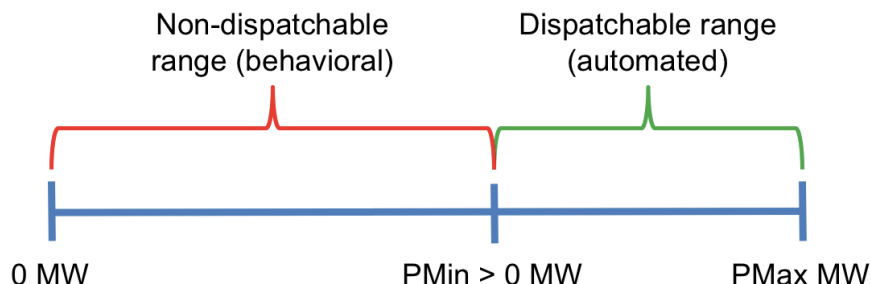
2. The behavioral portion of a PDR’s total response capability is unlikely to be 5-minute dispatchable.

In order to fully participate in the CAISO’s RTM, resources, including PDRs, must be capable of responding to CAISO dispatch instructions on a 5-minute basis. OhmConnect is able to vary the *automated* response of its PDRs on a 5-minute basis, as this can be accomplished without customers having to receive notifications or take any actions. In contrast, it is not

feasible for OhmConnect to vary the *behavioral* response of its PDRs on a 5-minute basis once the response has been deployed. It is unrealistic to expect that residential end-use customers will “stand by” to turn off and on light switches, unplug and plug in chargers, etc. in response to email or text message notifications sent every 5 minutes. To ensure a positive customer experience – and to prevent the customer attrition that has afflicted other residential DR programs – OhmConnect must commit to deploying the behavioral response of its PDRs for some minimum amount of time (e.g. one hour).

The implication is that, in the CAISO Master File, each of OhmConnect’s PDRs should have a non-zero minimum generating capacity (i.e. $P_{Min} > 0$ MW) and minimum run time. The operating range from 0 to P_{Min} MW is non-dispatchable on a 5-minute basis, and reflects the behavioral capability of the PDR. Conversely, the operating range from P_{Min} to P_{Max} MW is dispatchable on a 5-minute basis, and reflects the automated capability of the PDR. (Figure 1 below provides a graphical representation of the behavioral versus automated operating regions.) Thus, if the CAISO commits the PDR in the RTM, each 5-minute dispatch instruction must be between P_{Min} and P_{Max} MW, and the CAISO cannot de-commit the PDR – i.e. instruct OhmConnect to withdraw customers’ behavioral responses – until after the minimum run time has elapsed.

Figure 1. Dispatchable and non-dispatchable operating regions for a hypothetical OhmConnect PDR with behavioral and automated response capabilities



3. The cost of deploying the behavioral portion of a PDR’s response capability can vary over the course of the day.

The cost to OhmConnect of deploying a PDR consists mostly of payments to participating end-use customers, in amounts sufficient to incentivize a collective reduction in Energy consumption equal to the quantity of Energy scheduled or dispatched by the CAISO. Importantly, the payments needed to elicit a certain response from OhmConnect’s customer base can vary over the course of a day, depending, for example, on temperature, the proportion of customers who are at work versus in their homes, or whether there are multiple DR events on the same day. For the automated (i.e. dispatchable) portion of the PDR’s operating range, from P_{Min} to P_{Max} MW, OhmConnect can represent time-varying costs of delivering Energy to the market using Incremental Energy Cost Bids, for which prices may vary hourly under the CAISO’s current market rules. However, for the behavioral (i.e. non-dispatchable) portion of the PDR’s operating range, at P_{Min} MW, OhmConnect presently cannot represent time-varying costs of delivering Energy to the

market, since Minimum Load Cost Bids (measured in dollars per hour) must remain constant across all hours of the day under the CAISO's current market rules. Hence, the CAISO's proposal to allow market-based Commitment Cost Bids – in particular, Minimum Load Cost Bids – that vary by hour will enable PDRs with significant behavioral response components to more accurately represent their costs and capabilities to the market and better participate in the RTM.