Comments of OhmConnect, Inc.
Energy Storage and Distributed Energy Resources
Draft Final 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 November 2, 2015 Draft Final Proposal (Proposal). Our comments adhere to the template posted to the ESDER initiative website on November 10, 2015.

Topic Area	**Overall Level of Support** (Fully support; Support with qualification; or, Oppose)	**Comments** (Explain position)
Proposed enhancements to the non-generator resources ("NGR") market participation model	Fully support	No comments at this time
Proposed enhancements to demand response performance measures and statistical sampling for the proxy demand resource ("PDR") and reliability demand response resource ("RDRR") market participation models	Fully support	OhmConnect requests that CAISO clarify certain aspects of its MGO proposal related to net exporting and non-negativity of DR supply, as described below
Proposed clarifications to rules for non-resource adequacy multiple-use applications (provision of retail, distribution and wholesale services by the same resource)	Fully support	No comments at this time

Clarifications requested regarding CAISO's MGO proposal

1. Meter Option B1

Page 26 of the Proposal states that the "actual demand reduction of the load in response to an ISO dispatch" will be calculated as:

$$DR_{LOAD}(t) = B_{N-G}(t) - [N(t) - G(t)] \quad (1a)$$

Can CAISO please clarify whether this should instead be:

$$DR_{LOAD}(t) = \max\{B_{N-G}(t) - [N(t) - G(t)], 0\} \quad (1b)$$

i.e. $DR_{LOAD}(t)$ must be non-negative in all dispatch intervals, t.

2. Meter Option B2

Page 26 of the Proposal states that the "demand response performance attributed to a PDR/RDRR supply dispatch" will be calculated as:

$$DR_{SUPPLY}(t) = -[G(t) - G_{LM}(t)] \quad (2a)$$

Technically, this can be rewritten to reflect (i) the net export adjustment to $G(t)$ (if any); and (ii) the requirement that $DR_{SUPPLY}(t) \geq 0$ in each dispatch interval, t:

$$DR_{SUPPLY}(t) = \max\{-[G(t)^{nx} - G_{LM}(t)], 0\} \quad (2b)$$

Now, let $i = 1,2, \dots, N$ denote a location within the PDR/RDRR. Can CAISO please clarify which of the following equations it will use to calculate the net export-adjusted generation quantity, $G(t)^{nx}$:

$$G(t)^{nx} = \sum_{i=1}^{N} G(i,t) - \sum_{i=1}^{N} \min\{0, N(i,t)\} \quad (2c)$$

or

$$G(t)^{nx} = \sum_{i=1}^{N} G(i,t) - \min\left\{0, \sum_{i=1}^{N} N(i,t)\right\} \quad (2d)$$

where $G(i,t)$ is generator/device metered output at location i during dispatch interval t, and $N(i,t)$ is net metered consumption at location i during dispatch interval t. Equation (2c) performs the net export check at the location level, whereas equation (2d) performs the net export check at the PDR/RDRR level. In general, (2c) and (2d) are not equal.

3. Meter Option B3

Page 29 of the Proposal states that the "total performance evaluation under this option would be the combined demand responses attributed to $DR_{LOAD}(t)$ and $DR_{SUPPLY}(t)$", such that the total demand response will be calculated as:

$$DR_{TOTAL}(t) = DR_{LOAD}(t) + DR_{SUPPLY}(t) \quad (3a)$$

Can CAISO please clarify which of the following non-negativity conditions for $DR_{TOTAL}(t)$ will apply:

$$DR_{TOTAL}(t) = \max\{B_{N-G}(t) - [N(t) - G(t)], 0\} + \max\{-[G(t)^{nx} - G_{LM}(t)], 0\} \quad (3b)$$

or

$$DR_{TOTAL}(t) = \max\{B_{N-G}(t) - [N(t) - G(t)] - [G(t)^{nx} - G_{LM}(t)], 0\} \quad (3c)$$

Also, it is apparent from equation (3c) that the claim on page 29 that:

$$DR_{TOTAL}(t) = B_{N-G}(t) - N(t) + G_{LM}(t) \quad (3d)$$

is true *only* if no net export adjustment is made during the calculation of $DR_{SUPPLY}(t)$ – that is, $G(t)^{nx} = \sum_{i=1}^{N} G(i,t) = G(t)$ – since no net export adjustment is ever made for purposes of calculating $DR_{LOAD}(t)$.