Comments of Sunrun Inc. on CAISO ESDER 3 Straw Proposal

Submitted by	Company	Date Submitted
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Sunrun appreciates the opportunity to comment on the Energy Storage and Distributed Energy Resources (ESDER) Phase 3 Straw Proposal.[1]

First and foremost, we urge CAISO to take a leadership position in enabling retail program participants, particularly those enrolled in net energy metering (NEM), to address current planning challenges. Program design can address concerns with double compensation and create market opportunities to enable much broader DER participation. Retail DERs can modify their operations to align with CAISO needs as an additional grid service.

Consistent with our comments filed January 26, 2018 and March 7, 2018, CAISO should prioritize improving the DERP model. The DERP model has major utilization barriers, primarily that Behind-the-Meter resources cannot pursue retail non-market functions without exposure to wholesale markets. We believe that DERP participation must evolve to include retail participation to ensure the most cost effective procurement of grid services.

The ESDER 3 Load Shift Program, if designed properly, could be a key enabler to demonstrate how NEM DERs can be leveraged to address current CAISO challenges and would be an ideal starting point to enable NEM DER participation.

[1] http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=263724F0-4524-4B2B-9497-1C56AA541F0D

CAISO Load Shift Product Questions Asked of Stakeholders

Regarding the overall design elements of the Load Shift Product:

- Sunrun believes the guiding vision behind the load shift product makes sense for California. Where this is not an RA product, it creates a marketplace for storage to show up for participation. Along with the two resource IDs, this structure appears to provide some flexibility for the market participants to choose to bid only load consumption and utilize stored energy for non CAISO market purposes if desired.

Regarding the CAISO's proposal to establish two resource IDs and the bidding requirements for the load curtailment and consumption:

- Sunrun believes utilizing two resource IDs as rationalized by CAISO at the working group meeting on March 29th makes sense and further believe as discussed below each resource ID should be utilized for independent storage baselines for the consumption and curtailment periods.

Regarding the Metered Energy Consumption (MEC) methodology:

- Sunrun likes the MEC methodology concept for use during load consumption and load curtailment periods, though it does pose difficulties as proposed for DC coupled systems. By adopting storage based metering capabilities, it makes baselining for residential customers much easier and enable an equal level of capacity support during load curtailment and load consumption periods. Allowing metering in this manner comports with guidance in FERC Order No. 841 in section 35.28(g)(9)(i)(A), as further discussed below.
- In FERC Order No. 841, this section was added to require each RTO/ISO establish market rules so that a resource using the participation model for electric storage resources is eligible to provide all capacity, energy, and ancillary services that it is technically capable of providing, including services that are not procured through an organized market (such as blackstart service, primary frequency response service, and reactive power service). As part of developing these participation models for electric storage resources, FERC made it clear that it would "provide each RTO/ISO with the flexibility to propose in its compliance filing other reasonable metering solutions that may help reduce costs for developers." (P. 323)
- Hybrid DC coupled storage system utilize a inverter with DC inputs for photovoltaic generation and energy storage, which requires a slight change to the MEC methodology. For the hybrid DC coupled storage systems, the MEC meter during the

load consumption period would typically be measuring photovoltaic electricity exported from the inverter. Then in response to the CAISO's load consumption dispatch, the previously exported electricity would be diverted to charge the DC battery. This makes the MEC methodology as proposed incapable of metering the diverted energy going to the battery for dc coupled systems. In order to address this MEC methodology issue for Hybrid DC coupled systems, we propose to utilize a hybrid MEC methodology. This will include the MEC methodology in conjunction with DC power flow metering of the battery. The MEC measured response at the start and stop of the load consumption period would correlate and validate the DC metering data in response to the event.

Regarding the CAISO presentation of an example that measured typical use with consideration of only the load consumption in "non-event hours" during the 10-in-10 baseline calculation and an example that considered both load curtailment and consumption; please comment on either calculation:

- Sunrun does not have any opinion regarding conservatism of approaches, but believe the calculation proposed on page 28 of CAISO's March 29th presentation considering both load curtailment and consumption to be in conflict with how Sunrun proposed to utilize the MEC methodology for both load consumption and curtailment periods.
- Sunrun requests clarification of how the 10 non-event hours will be used to calculate typical use and whether these hours are the most recent hours preceding the dispatch call or if these are related to the same hour of the dispatch on the preceding 10 + days up to having a 10 hour baseline of the same hour.

Regarding other calculations that could measure typical use:

- Sunrun proposes creating a MEC style baseline approach for each CAISO resource ID number to facilitate accurate independent baseline of energy storage in response to associated CAISO dispatch for consumption and curtailment without consideration of load measured by utility meter.

Regarding opportunity to provide any additional comments not associated with the topics above:

- The Load Shift proposals operational goals align well with what a Passive RA participation model could enable from an aggregated storage fleet programmed for daily dispatch within specified program rules. This Passive participation model would ensure desired response within defined periods and may make for a better planning tool to meet the CAISO system needs. We encourage development of a Passive Load Shift RA participation model in conjunction with this envisioned non RA load shift participation model.

Thank you again for your collaboration and the opportunity to comment on the ESDER 3 Straw Proposal.