Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your written comments on the ESDER Phase 3 stakeholder initiative workshop held on January 16, 2018.

Submit comments to InitiativeComments@CAISO.com

Comments are due January 26, 2018 by 5:00pm

The CAISO held a stakeholder workshop to find consensus on the issues and identify additional topics for ESDER 3. The presentation and all supporting documents can be found on the ESDER 3 webpage.

Important: The CAISO requests stakeholders comment on the current list of priorities presented at the January 16, 2018 workshop. Based on the list below, high priority items (green) are considered in scope, low priority items (yellow) will be evaluated based on stakeholder comments and CAISO resource sufficiency, and no consideration items (red) will not be included in the ESDER 3 scope. Note that some items have been rewritten for clarification.

List of potential scope (DR, MUA, and NGR combined)

- **Demand response modeling limitations –** Resolving the issue of RUC that leads to infeasible 5-minute dispatches and minimum/maximum run time constraint recognition.

- **Variable demand response (weather sensitive) –** Exploring bidding options that reflect the variability of DR.
- **Removing the single LSE requirement/ DLA discussion –** Remove the requirement of a single LSE for DR with a subsequent discussion on if the DLA will need to be modified.
- **Load shift product -** Development of load shift capability with a consideration of additional technologies than just behind the meter storage.
- **Comprehensive review of MUA impacts –** Review of potential tariff changes in accordance with CPUC's ruling/ working groups (including 24x7 participation requirement impact analysis).
- **Recognition of a behind the meter resource in load curtailment –** Extending the meter generator output (MGO) model to EVSEs.
- **Use-limitation status for NGRs –** Exploring the option to allow NGRs to qualify as a use-limited resource.
    - What constitutes use-limited status for NGR resources (i.e. batteries)?
- **Bidding Costs –** What bidding costs need to be captured for NGRs? (i.e. cost based offers)
- **Establishing throughput limitations –** Creating bidding options to manage excessive cycling of NGRs.
- **Management of State of Charge (SOC) –** Considering options for the management of SOC such as a multi-stacked ancillary service bid.
- **Recognition of a behind the meter resource in load curtailment –** Extending the meter generator output (MGO) model to sub-meter and develop individual baselines to all other individual load types.
- **PDR/RDRR hybrid resource –** Exploring how a DR resource that can be economic (PDR) for a limited amount and can transfer to become an RDRR.
- **Continued discussion on use-cases for MUA –** Determining participation models for new technologies such as micro-grids through use-case scenarios.

Comments:

BMW would like to comment on the following two topics: Load shift product and Recognition of a behind the meter resource in load curtailment.

Load shift product *- Development of load shift capability with a consideration of additional technologies than just behind the meter storage.*

BMW understands that a new product is under consideration, known as a "load shift product". The purpose of this product is to support the integration of an increasing number of renewables on the electricity grid. With a "load shift product", renewable generators can

reduce the need for curtailment because there will be distributed resources available to absorb the excess renewable generation for use at a later time.

Stem proposed that the product should be specific to stationary energy storage technologies, such as batteries. However, BMW believes mobile energy storage technologies, such as electric vehicles are capable of performing the same function and achieving the goals of the "load shift product".

In BMW's experience with its ChargeForward pilot, electric vehicles can be managed to shift their charging time to when it's most optimal for the electricity grid. In this way, given an indication of high renewable content on the grid, BMW can direct its fleet of vehicles to shift its charging to a later point in time to help the grid avoid renewable curtailment. All of this can be managed by the vehicle telematics.

Although not all electric vehicles have V2G capabilities to discharge the charged energy to the grid at a later time, V1G vehicles will utilize the energy charged in their vehicles from the "load shift product" for driving power (making the electric vehicle a cleaner vehicle overall). In this way, the vehicle will avoid charging during other non-optimal hours via shifting its charging to meet the driver's mobility needs. BMW believes that electric vehicles should also be considered for the "load shift product" because they can support the product's goal of avoiding renewable curtailment in the same way as stationary storage resources.

Recognition of a behind the meter resource in load curtailment – *Extending the meter generator output (MGO) model to EVSEs.*

BMW understands that in the current CAISO rules, separate meters are allowed for stationary energy storage systems, such as batteries for participation as a proxy demand response (PDR) resource. BMW supports the idea that the recognition of other behind the meter resources for serving load curtailment should be considered. In addition to recognition of sub-metering for EVSEs, BMW believes that the recognition should be extended to electric vehicles as well since they themselves can offer load curtailment and internal metering.

Because electric vehicles are mobile resources, they can inherently offer load curtailment at a variety of geographical locations depending on where the load curtailment service is needed the most. Electric vehicles (if they can meet the necessary requirements for metering) could essentially provide load curtailment by delaying their charging to a later time at any charging point.

BMW has been testing this capability through the telematics of the vehicle in partnership with Pacific Gas and Electric (PG&E) since mid-2015. In a report released at the beginning of 2017, BMW and PG&E showcased the success of the BMW i ChargeForward pilot in which the

charging load of customer vehicles was delayed for hour-long periods. Furthermore, BMW is testing the capability of electric vehicles to serve as the metering point in its latest ChargeForward pilot: Total Charge Management. Therefore, at any charging station (even if it's a Level 1 charger or a charger without curtailment capabilities), the electric vehicle would be able to perform the load curtailment service.

Other comments

Comments:

BMW does not have any additional comments to add here.

BMW would like to thank the CPUC for the opportunity provide comments on the ESDER 3 initiative.