

Stakeholder Comments Template

Submitted by	Company	Date Submitted
Seyed Madaeni smadaeni@solarcity.com Genevieve Dufau gdufau@solarcity.com	SolarCity	August 11, 2016

Please use this template to provide your comments on the ESDER Phase 2 stakeholder initiative Revised Straw Proposal posted on July 21 and as supplemented by the presentation and discussion during the stakeholder web conference held on July 28.

Submit comments to InitiativeComments@CAISO.com

Comments are due August 11, 2016 by 5:00pm

The Revised Straw Proposal posted on July 21 and the presentation discussed during the July 28 stakeholder web conference may be found on the [ESDER Phase 2](#) webpage.

Please provide your comments on the Revised Straw Proposal topics listed below and any additional comments you wish to provide using this template.

SolarCity appreciates the opportunity to provide comments on ESDER Phase II Revised Straw Proposal. We support many of the proposed changes and generally support the CAISO's direction to enhance the current market structure to allow for participation of behind-the-meter (BTM) distributed energy resources (DERs). SolarCity has been an active participant in the ESDER Phase II proceeding and working groups since its inception.

NGR enhancements

The CAISO has been focused on two areas of potential NGR enhancement: (1) representing use limitations in the NGR model and (2) representing throughput limitations based on a resource's state of charge (SOC).

The CAISO is requesting stakeholders provide comments in each of these two areas.

Comments:

SolarCity appreciates the CAISO's commitment to the continued refinement of NGR model. SolarCity looks forward to the establishment of a working group to further enhance the NGR model and participate in the meetings scheduled to begin in August or September. SolarCity understands that the ISO's market systems are not designed to track cumulative NGR performance parameters on an individual resource level and understands these limitations and are currently best tracked and managed by the resource owner.

Demand response enhancements

Two stakeholder-led work groups are up and running within ESDER 2 to explore two areas of potential demand response enhancement:

- Baseline Analysis Working Group – Explore additional baselines to assess the performance of PDR when application of the current approved 10-in-10 baseline methodology is sufficiently inaccurate. The Working Group has completed its first phase of analysis on topics including alternative baselines and control groups.
- Load Consumption Working Group – Explore the ability for PDR to consume load based on an ISO dispatch, including the ability for PDR to provide regulation service. The working group has recommended bi-directional PDR modelling.

The CAISO is requesting stakeholders provide comments in each of these two areas.

Comments:

SolarCity was an active participant in the Load Consumption Working Group (LCWG) and strongly supports the outlined recommendations of the working group to enhance PDR. SolarCity believes the detailed proposals of the LCWG should be approved by the CAISO and swiftly adopted. Enhancements to PDR such as load consumption and frequency regulation are critical to unlock the value of distributed energy storage and should be implemented.

1. Bi-Directional PDR

SolarCity strongly supports including enhancements to PDR’s capability to consume and increase energy. Recognizing that oversupply of generation has already resulted in periods of low prices in the middle of the day, there is a clear and urgent need to develop this enhancement to PDR to improve market efficiency. Implementation of bi-directional PDR could be done with minimal market developments. These developments, as proposed by LCWG, may include:

- Establishing a “mid-point” between supply and consumption
 - This allows PDR to include a range for available capacity with a floor below zero (i.e. export). This is similar to the NGR construct which energy storage charge is modeled as negative capacity.
- Split baseline for energy measurement
 - Existing methodologies for performance evaluation can be extended to load increase by simply reversing methodologies in place for load reduction.

Increasing consumption on a retail meter due to wholesale market dispatch results in retail and wholesale settlements. The end-use customer needs to pay retail rates for the load consumed and the CAISO would issue wholesale settlements at the market clearing price. The burden is on the customer to manage risk of double charges by controlling their economic bids. For example a customer may insert negative bids to declare a price at which it would be willing to consume energy in return for a payment, considering the fact that load increase results in additional retail charges. This structure does not trigger any jurisdictional issues given that no changes to retail rate treatment are being proposed.

2. Frequency Regulation

Extending frequency regulation participation to PDR would allow a set of deployed DERs to participate in a regulation market. SolarCity strongly believes that regulation markets should be accessible to DERs, and it is crucial that DERs be capable of providing these services to help improve reliability of the grid. SolarCity supports PDR resources having both options of PDR Regulation as developed by the working group, including PDR Regulation with No Energy Settlement & PDR Regulation with Energy Settlement

2.1 PDR Regulation with No Energy Settlement

A “zero-net energy” structure similar to the Regulation Energy Management (REM) model is proposed by the LCWG to enable capacity payments for resources providing regulation. To

eliminate energy settlements, the regulation resource must return to its original set point, which can be the baseline load level.

3.2 PDR Regulation with Energy Settlement

This product allows resources compete to provide regulation up or down and receive compensation for capacity, mileage and energy with the risk of managing operational complexities. For instance, behind-the-meter storage aggregators need to estimate SOC available for grid services and manage energy discharge by bidding in one direction of regulation or vice versa.

Performance measurements for this type of regulation service is important. SolarCity is looking forward to collaborating with the LCWG to establish performance measurements, Automatic Generation Control (AGC) responsiveness and settlement structures. An ideal starting point for this is extending the existing MGO method.

Multiple-use applications

The ISO has not yet identified specific MUA issues or topics that require treatment in ESDER 2. The ISO proposes to continue its collaboration with the CPUC in this topic area through Track 2 of the CPUC's energy storage proceeding (CPUC Rulemaking 15-03-011). If an issue is identified that should be addressed within ESDER 2 the ISO can amend the scope and develop a response. The ISO is requesting stakeholders provide comments on this topic area as well as this proposed approach.

Comments:

SolarCity is strongly supportive of the CAISO's continue collaboration with the California Public Utility Commission in Rulemaking 15-03-011 to develop appropriate standards and guidelines for multiple-use applications. As the CAISO correctly points out, multi-use applications reflect distributed energy resource owners offering combinations of the thirteen value streams identified by Rocky Mountain Institute to the three identified stakeholders: the ISO, UDC, and the end-use customer. Therefore, in order to unlock the full value of distributed resources, we need to work collaborative to identify the standards and frameworks necessary in order to allow these resources to reach their full potential across key stakeholders. SolarCity looks forward to future collaboration with both the CPUC and the CAISO.

Distinction between charging energy and station power

In this topic area the ISO will continue its collaboration with the CPUC through Track 2 of the CPUC's energy storage proceeding (CPUC Rulemaking 15-03-011) rather than exclusively through ESDER 2. At this time, the ISO proposes the following:

- Revise the ISO tariff definition of station power to exclude explicitly charging energy (and any associated efficiency losses); and
- Revise its tariff later to be consistent with IOU tariffs, as needed, in the event that they revise their station power rates.

The CAISO is requesting stakeholders provide comments on this proposed approach. The CAISO also seeks comments on the following:

- What rules are necessary, if any, to dictate how station power and wholesale charging energy (including efficiency losses) can be separately calculated for settlement purposes? For example, what would be the advantages and disadvantages of using meters compared to predetermined deductions?
- Assuming that station power includes all energy drawn from the grid except to charge the storage device, what specific advantages and disadvantages do storage devices have compared to conventional generators under current netting and self-supply rules?

Detailed examples comparing the generally expected dispatching of storage devices and conventional generators under current netting and self-supply rules are appreciated.

Comments:

[SolarCity has no comment at this time.](#)

Other comments

Please provide any additional comments not associated with the topics above.

Comments:

[SolarCity has no additional comments at this time.](#)