Stakeholder Comments Template

Submitted by	Company	Date Submitted
Seyed Madaeni smadaeni@solarcity.com Genevieve Dufau gdufau@gmail.com 415-799-6790	SolarCity	10.09.15

Please use this template to provide your comments on the Revised Straw Proposal posted on September 17, 2015 and as supplemented by the presentation and discussion during the stakeholder web conference held on September 28, 2015.

Submit comments to InitiativeComments@caiso.com

Comments are due October 9, 2015 by 5:00pm

All documents for the energy storage and distributed energy resources (ESDER) initiative, including the September 17, 2015 Revised Straw Proposal and the presentation discussed during the September 28, 2015 stakeholder web conference, are available on the webpage for the ESDER initiative at:
http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_AggregatedDistributedEnergyResources.aspx

SolarCity provides these comments on the California Independent System Operator's (CAISO) Energy Storage and Distributed Energy Resources (ESDER) Initiative's Revised Straw Proposal. SolarCity greatly appreciates the efforts of the CAISO to enable DER market participation. SolarCity appreciates the opportunity to submit comments and looks forward to future work with the CAISO.

Non-generator resources (NGR) enhancements

Please provide your comments in each of the four areas of proposed NGR enhancement.

1. NGR documentation.

    a. What specific NGR areas do you think require additional documentation that are not already outlined in the revised straw proposal?

Comments:

No comments

2. Clarification about how ISO uses state of charge (SOC) in the market optimization.

    a. What specific NGR SOC areas do you think require additional clarity that are not already outlined in the revised straw proposal?

Comments:

No comments

3. Allow for an initial SOC value as a daily bid parameter in the day-ahead market.

    a. Are there any further considerations for allowing for a daily initial SOC bid parameter that are not already outlined in the revised straw proposal?

Comments:

No comments

4. Allow an option to not provide energy limits or have the ISO co-optimize an NGR based on state of charge. Under this NGR option:

- NGRs that do not have SOC energy limits or choose to self-manage their SOC within resource energy limits, may choose to not use energy limit constraints and SOC in co-optimization or dispatch.
- NGRs that have an SOC and choose to self-manage their SOC, must provide telemetry SOC values for ISO resource monitoring.
- NGRs participating under Regulation Energy Management (REM) will not be eligible for this option.

    a. Are there any further considerations for allowing NGRs to not use SOC and energy limit constraints that are not already outlined in the straw proposal?

Comments:

No comments

Proxy Demand Resource (PDR)/Reliability Demand Response Resource (RDRR) enhancements

Please provide your comments in each of the two areas of proposed enhancement.

1. Consider/develop an alternative ISO Type 1 performance evaluation methodology base on metering generator output (MGO) concepts.
    a. What is your opinion on the MGO options being considered to represent performance of load offsetting behind the meter generation?
    b. What specific options do you believe need further evaluation in terms of its appropriate use under PDR/RDRR performance measurement methodology?
    c. Are there additional variants, specific to configuration B, needing further consideration (i.e. baseline of directly meter generator/device). If so please provide examples of what the ISO might need to consider.
    d. Are there concerns on the use of MGO for "frequent" use of load offsetting behind the meter generation?
    e. What is your response to the ISO's consideration of employing a "reservation of capacity" for load offsetting behind the meter generation to account for potential multi-use of the generator/device?

SolarCity Comments:

MGO Performance Methodology

SolarCity fully supports MGO performance methodology as outlined by the CAISO. The MGO methodology provides certainty on actual performance of PDR/RDRR products, which can provide further confidence to CAISO relying on DERs for congestion relief and will also improve market efficiency.

SolarCity appreciates CAISO providing details on possible variants of meter configuration. CAISO proposed two possible variants of this configuration (*B3-1 and B3-2)* and requested stakeholders comment. SolarCity finds the option of combining metering of generation and baseline metering for load, as exemplified in *B3-1 – Load and Generation*[1], sufficiently comprehensive to support underlying PDR/RDRR technologies. Within variant *B3-1*, the demand reduction during dispatch interval t would be the sum of the load-only response plus the generator output (therefore demand reduction would equal (B – (Nt – Gt) + Gt). This would provide a comprehensive framework for performance evaluation. The performance calculation should be aggregated based on generation output and load performance as

[1] Page 27, http://www.caiso.com/Documents/RevisedStrawProposal_EnergyStorage-DistributedEnergyResources.pdf

exemplified in *B3-1*. It is not clear how the alternative, B3-2 (B-N), would properly account for generation, and therefore SolarCity supports B3-1 as the preferred option.

Export Check Provision

SolarCity is concerned with the export check provision of all metering configurations and requests further clarity from CAISO on the intent of this requirement. Non-exporting rules can severely limit true capabilities of Behind the Meter (BTM) assets to provide DR services. SolarCity believes it is overly restrictive for BTM DERs that wish to provide DR to be constrained to non-export functionality. SolarCity would like to clarify that the export check provision does not disqualify BTM DERs from wholesale market participation under PDR/RDRR and it only should impact performance evaluations.

For example, in the use cases provided below, SolarCity illustrates an example to showcase a possible export check provision that can be an option for CAISO's consideration. The proposal is constructed in a way that discounts performance evaluation for exporting events by altering performance evaluation to be {-max{0,-N}-G} as opposed to the original –G specification. SolarCity appreciates the opportunity to work with the CAISO on developing rules that would allow use cases such as demonstrated below.

Scenario	*Load (MWh)*	*Generation (MWh)*	*Meter N (MWh)*	*Meter G (MWh)*	*Performance Calculation Proposed (MWh)*	*Export check*
1	0.75	0.5	0.25	-0.5	{-Max{0,-N}-G} = 0.5	No
2	0.75	1	-0.25	-1	{-Max{0,-N}-G} = 0.75	Yes

Load offsetting BTM

SolarCity believes employing a "reservation of capacity" for load offsetting BTM generation to account for multi-use of the generation may prove problematic and add unnecessary complexity. BTM assets will be co-optimized to provide wholesale services subject to inherent risk of exposure to uninstructed imbalance energy (UIE) penalties, which adequately provides proper incentives for honoring CAISO dispatch instructions. The additional

"reservation of capacity" requirement will therefore only add additional complexity with little additional value.

2. Develop additional detail regarding use of statistical sampling and document that in the appropriate BPMs.

a. What is your opinion on the statistical sampling methodology being proposed as an approved ISO Type 2?

b. Has enough detail been provided? If not, what additional detail is needed?

c. What is your opinion on the applicability currently proposed and being considered by for ISO Type 2?

d. What additional information can you provide the ISO that will help in understanding the need for use of ISO Type 2 in cases where Hourly Interval Metering is available? (i.e. why is the "interval meter data" unavailable to meet SQMD submission timelines) Should provisions for its use for Hourly Interval Metering cases have limitations? What might those limitations be?

SolarCity Comments:

SolarCity has concerns regarding the application of a Baseline Type II – Statistical Sampling methodology given the California Public Utility Commission (CPUC) requirement that Revenue Quality Meter Data (RQMD) be provided to Distributed Resource Providers (DRPs). [2] There are considerable technological advances in customer-side metering that can be leveraged for various wholesale products. For instance, thanks to the considerable investments made in Advanced Metering Infrastructure (AMI) in California, meters can be effectively utilized to shape PDR/RDRR products.

SolarCity therefore requests clarification regarding the availability of hourly/sub-hourly data in question by DRPs. SolarCity believes a first step is fully describing and understanding the main barriers envisioned by the CAISO prior to requiring statistical sampling, and that a description of these barriers and a transparent stakeholder process to address them is appropriate.

- ***Non-resource adequacy multiple use applications***

1. Please comment on the ISO's proposal regarding Type 1 multiple-use scenarios.

[2] See, e.g., CPUC, Resolution E-4630 (Feb. 5, 2014) Appendix B, p. B-7; CPUC, D.13-09-025 (Sep. 19, 2013) at p. 69; CPUC, D.15-03-042 (Mar. 26, 2015) at pp. 43-44

Comments:

2. Please comment on the ISO's proposal regarding Type 2 multiple-use scenarios.

Comments:

3. Please offer any additional comments on other aspects of the ISO's proposal.

SolarCity Comments:

Net movement of resources

SolarCity supports only net movement of resources in line with distribution factors (DF) on multi-pnode DER aggregations to be in the same direction to an ISO dispatch. SolarCity supports CAISO's position and finds UIE a sufficient incentive to address scenarios in which ISO instructions are perceived as conflicting with distribution and end use customer services.

- Failure of following dispatch instructions would lead to UIE penalties
- Failure to comply with distribution and residential contracts would result in charges based on contract terms
- It is primarily the responsibility of DER aggregator to manage the risk of wholesale market participation and distribution services

24-hour Settlement Rule

SolarCity does not support the 24-hour settlement rule under the NGR construct for non-RA DERs and advocates for an "opt-in/opt-out" mechanism. While a full-day settlement process is appropriate for wholesale resources, BTM DERs will be settled based on utility tariffs that lead to ISO settlements in hours in which market awards are not granted. Therefore, the 24-hour settlement requirement for non-RA resources will render BTM DERs basically infeasible, which seems to be at odds with the intention of both ESDER and NGR.

Specifically, Non-RA DERs should not be mandated to participate in CAISO markets and need to be able to manage their wholesale activities in conjunction with distribution and retail services. A 24-hour settlement mandate prohibits multi-use application of DERs. NGR is perceived as the only platform for DERs to provide frequency regulation, and it is crucial that DERs be capable of providing these services to help improve reliability of the grid.

The following example is provided to further illustrate and "opt-out/opt-in" mechanism suggested by SolarCity. This mechanism is to allow multi-use BTM assets to provide desirable

demand reduction to CAISO in some hours of the day and retail services in others. This example could be extended to Real-Time markets but for the sake of brevity only the IFM is shown. In the example a 1 MW BTM resource registered under PDR has bid in HE 15-19 and received IFM awards HE 17-19. In this scenario CASIO would only settle the resource for HE 17-19. In remaining hours, HE 1-16 & 20-24, resource continues to pay retail rate and face BTM penalties and incentives. This mechanism is viable given that MGO allows the resource performance to be measured and compensated based on revenue-grade meter.

Resource ID	Operating Date	HE	Clean Bid – IFM (MW)	IFM Award (MW)	CAISO Settlement Applicable
BTM_PDR	10/9/2015	1	-	-	No
BTM_PDR	10/9/2015	2	-	-	No
BTM_PDR	10/9/2015	3	-	-	No
BTM_PDR	10/9/2015	4	-	-	No
BTM_PDR	10/9/2015	5	-	-	No
BTM_PDR	10/9/2015	6	-	-	No
BTM_PDR	10/9/2015	7	-	-	No
BTM_PDR	10/9/2015	8	-	-	No
BTM_PDR	10/9/2015	9	-	-	No
BTM_PDR	10/9/2015	10	-	-	No
BTM_PDR	10/9/2015	11	-	-	No
BTM_PDR	10/9/2015	12	-	-	No
BTM_PDR	10/9/2015	13	-	-	No
BTM_PDR	10/9/2015	14	-	-	No
BTM_PDR	10/9/2015	15	1	0	No
BTM_PDR	10/9/2015	16	1	0	No
BTM_PDR	10/9/2015	17	1	1	Yes
BTM_PDR	10/9/2015	18	1	1	Yes

BTM_PDR	10/9/2015	19	1	1	Yes
BTM_PDR	10/9/2015	20	-	-	No
BTM_PDR	10/9/2015	21	-	-	No
BTM_PDR	10/9/2015	22	-	-	No
BTM_PDR	10/9/2015	23	-	-	No
BTM_PDR	10/9/2015	24	-	-	No