CESA Comments on
ESDER 2 Third Revised Straw Proposal

Submitted by	Company	Date Submitted
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CESA provides these comments on the CAISO's Third Revised Straw Proposal for the Energy Storage and Distributed Energy Resources Phase 2 (ESDER 2) Stakeholder Initiatives. [1,2]

While CESA continues to support CAISO action and enhancements on participation, modeling and valuation enhancements for energy storage and distribute energy resources (DERs), CESA believes faster action is needed. CESA's comments follow.

About CESA: CESA represents 60+ companies engaged in the energy storage industry, including large developers, small developers, manufacturers, software and support providers, etc. www.storagealliance.org.

CESA Comments:

[1] CESA is a 501(c)(6) non-profit. Individual member companies of CESA may have different views than those expressed by CESA. Learn more or join CESA today: www.storagealliance.org

[2] http://www.caiso.com/Documents/ThirdRevisedStrawProposal-EnergyStorage-DistributedEnergyResourcesPhase2.pdf

A. The CAISO should speed and prioritize important ESDER work and have a clear process for selecting its work and adhering to schedules.

The CAISO has made too little progress in ESDER 2 given that the initiative is over a year old and includes many needed, promising and timely technical fixes. The CAISO's process for how and when to move ESDER forward has also been unclear and disappointing to CESA.

CESA disagrees with the CAISO's justification for limited action in advancing the ideas of the Load Consumption Working Group (LCWG). CESA believes the CAISO may have mischaracterized progress by the LCWG insofar as statements in the ESDER Third Revised Straw Proposal that support delays in PDR enhancements may represent only a few stakeholders. Absent compelling policy considerations, CESA views it as inappropriate to allow generalized concerns to slow or stall progress. When the LCWG left off in December 21, 2016, CESA expected rapid consideration and development of the ideas based on the perception of broad interest and wide agreement that the ideas were ready for consideration in any imminent straw proposals.

The CAISO and its proposals should also detail issues more clearly to justify a course of action. CESA has not been briefed on PG&E's Load Consumption Supply pilots which the CAISO cites as a basis for delay on Load Consumption efforts. CESA believes it is improper for the CAISO to base key initiative decisions on information that is not re-cast and justified in a stakeholder proposal. What were the issues? Were they insurmountable? Are they CAISIO jurisdictional? How can CESA opine and engage without further information on the CAISO's perceived concerns?

With an eye towards allowing market access and fair rules while also ensuring grid needs are met, the most compelling and urgent aspects in ESDER appear to be:

- Finalizing enhancements to the Non-Generator Resource (NGR) model to promote fair and efficient use and competition by these resources
- Enhancing the Proxy Demand Resource (PDR) model to allow for non-discriminatory and broad participation by this resource category, particularly in light of grid and overgeneration conditions
- Enacting fair station power rules in accordance with California state direction on retail rates.

With actual energy storage resources in the market today and struggling to participate without the ESDER enhancements,[3] the need for CAISO action on these fronts should be clear.

[3] For example, PDR resources cannot address overgeneration challenges at this time. Also, current NGR resources appear to face difficulties with the inability to represent MWh through-put limits. This latter view is based on the May 11, 2017 Market Notice "Outage Reporting for Energy Storage Resources with Physical Limitations"

Unfortunately, the CAISO has only prioritized progress on the Station Power matter, while also adding a potentially non-priority issue to its scope in an unclear and opaque manner. This exacerbates CESA's concern that the CAISO is moving too slowly and has an unclear communication and prioritization approach. To elaborate, CESA was surprised to see the CAISO proposal to add to ESDER and to immediately address an EIM-related matter of updating the gas-price index for the Net-Benefits Test for EIM Demand Response participants. This matter was never discussed prior to this proposal as far as CESA knows. Further, per the response by CAISO staff in the 5/4/17 Stakeholder meeting, there are no active Demand Response providers in non-California EIM areas at this time.[4] While this NBT improvement may be facile and necessary, the process for prioritizing it remains unclear.

The CAISO should strive to promote a transparent, robust, independent, efficient, and reasonable stakeholder process. The passage of 8 months between the CAISO's current and last straw proposals (which was released on September 19, 2016) falls short, to CESA, of expectations of an efficient and urgent stakeholder process.

B. Multiple NGR Enhancements are needed right away, including some that are not currently listed in the Third Revised Straw Proposal

CESA supports the scope of NGR enhancements and believes two additional enhancements should be in scope. Collectively, these enhancements will help adequately represent storage participation parameters, allow NGR resources to qualify for the current use-limited status construct, and address key participation and settlement barriers.

The NGR model should allow storage resources to reflect all physical use-limitations or preferences.[5] To start, these enhancements should include tools to manage excessive cycling and to help manage a resource's state-of-charge.

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[4] CESA questioned CAISO staff on this matter in the 5/4/17 Stakeholder Call.
CESA has commented on these matters in ESDER and in CCE 3 in the past (see below links). Also, PG&E's pilots and comments identified these needs. Finally, the matter is obviously pressing based on the May 11, 2017 Market Notice "Outage Reporting for Energy Storage Resources with Physical Limitations". Links to these documents can be found at:

- CESA ESDER Comments: http://www.caiso.com/Documents/CESAComments-EnergyStorageandDistributedEnergyResourcesPhase2WorkingGroup-Sep132016.pdf
- CESA CCE3 Presentation to CAISO: http://www.caiso.com/Documents/CESAPresentation-CommitmentCostEnhancementsPhase3-RevisedStrawProposal.pdf)
- PG&E Comments: http://www.caiso.com/Documents/PG-EComments-EnergyStorage-DistributedEnergyResourcesPhase2WorkingGroup-Sep13_2016.pdf
- Market Notice: http://www.caiso.com/Documents/OutageReporting-EnergyStorageResources-PhysicalLimitations.html

Since many storage resources have extremely fast ramp rates, the CAISO's market optimization may use these resources by ramping them up and down very quickly. This type of utilization, while helpful to the CAISO's system, may stress resources or operate them to the point where warranty agreements become inapplicable. Some resources avoid this type of rough dispatch through the use of slower ramp rates, but CESA does not recommend that the CAISO require energy storage resources to artificially deflate ramp rates to reduce cycling (even though lower bid-in ramp rates may always be used). Instead, the CAISO should consider how else to ensure that resources are not overly cycled. One example under consideration has been to allow a 'MWh through-put' constraint for a resource such that it cannot be charged or discharged in excess of warranty rules.

CESA also believes that a 'cycling limit' may be helpful. A cycling limit could be calculated in a fashion similar to the calculation of 'mileage' as used in the CAISO's Pay for Performance Regulation. As CESA understands it, there is no economic ability to represent mileage costs for the NGR model and so a mileage limit could address the excess cycling concerns. It's worth noting that NGR resources currently cannot represent major maintenance or commitment costs.

To address the need for NGRs to manage states of charge, numerous solutions should be developed. As CESA and LS Power have suggested, the use of different bid-stacks based on the resources state of charge could be developed, so that a storage resource can economically signal how it wishes to be charged or to discharge differently based on its state of charge.[6] This latter approach also provides a resource with a more predictable state of charge across scheduling intervals, helping schedulers to optimize the usage of the resource in the CAISO's real-time market wherein the optimization does not 'see' opportunity costs or schedule needs for intervals beyond the outlook horizon of the Short-Term Unit Commitment (STUC) optimization.

Other ideas for functionalities to manage an NGR's state of charge should also include exploration of hourly through-put or mileage limitations, and of multi-point Ancillary Service (AS) bids. Whereas the former allows higher precision for managing a resource's usage in an hour, the latter works by allowing a NGR to bid higher costs if all of its available capacity is used for AS, so that a storage device can economically reflect a preference for some energy schedules and dispatches in addition to Ancillary Services schedules. This way, the storage device uses the energy dispatches to manage its state of charge with some predictability. CESA continues to discuss these ideas with CESA members.

All of the above enhancements should be optional fields in the Master File or SIBR bid-interface tools resources can use the tools as needed to represent their contractual or 'real-world' conditions. Contracts for storage vary and may have wildly different warranty or operational

[6] See past ESDER Comments.

restrictions, so an array of NGR functionalities promises more fair and reasonable participation opportunities.

Moving on, the authorization of commitment costs and opportunities costs and the application of 'use-limited status' to energy storage resources should be important outcomes of ESDER 3. The CAISO should include in ESDER 3 the CCE3 findings that resources must either be able to economically reflect opportunity costs of dispatch and commitment or be able to exit the market as needed due to excessive dispatch or lack of recognition of opportunity costs. CESA has provided information on these needs and the expected range of these costs in the past.[7]

Use-limited status for storage resources also positions NGR resources on similar footing with other use-limited resources and ensures non-discriminatory treatment in how resources are required to manage their Resource Adequacy (RA) and Must-Offer Obligations (MOOs) and Availability. As ESDER is the primary vehicle for enhancing and 'tuning' the NGR model, CESA believes ESDER is the proper initiative for authorizing NGRs as use-limited while addressing any related rule changes that are needed.

Finally, CESA reiterates that the ability to exit the market for DERP NGRs is essential. As CESA stated in April 2016,

> "the concept of 'less than twenty-four hour a day metering for NGR resources' is a priority and should be in-scope… this functionality is key to NGR resources acting in MUAs, including in potential transmission applications which may be related to Aliso Canyon solutions."[8]

While retail tariffs will surely impact how Behind-the-meter DERs participate under the DERP framework, to support MUA and host-customer satisfaction, the NGR model needs to accommodate the concept of BTM resources exiting the market for selected intervals (for settlement purposes). Without this, it is likely that certain DERs will not be able to enter the market under the NGR mode. The CAISO should thus allow and accommodate market exit for DERPs operating BTM resources under the NGR model.

C. Load Consumption Progress is needed right away.

CESA disagrees that "retail rate impacts and demand charges [act] as fundamental barriers that must be addressed, and on a path to resolution, before the CAISO can investment time and

[7] http://www.caiso.com/Documents/CESAComments-EnergyStorageandDistributedEnergyResourcesPhase2-StrawProposal.pdf
[8] http://www.caiso.com/Documents/CESAComments-EnergyStorageandDistributedEnergyResourcesPhase2-IssuePaper.pdf

resources creating a wholesale bi-directional PDR product."[9] This statement is anathema to the CAISO stakeholder process in which ideas are developed as straw proposals for stakeholder feedback and issue-resolution. Retail rate concerns cannot be controlled by the CAISO and, while important to address in the right forum, do not amount to a basis for no CAISO action. In fact, elucidation on the issues by the CAISO may encourage stakeholder ideas and solutions. Further, CAISO inaction may inadvertently exacerbate inaction by utilities on their rate design. Why would the utilities make adjustments if the CAISO doesn't have a pathway for participation by such resources? This rhetorical question highlights how the CAISO should move forward in order to spur access and non-discriminatory participation opportunities by PDRs seeking to absorb over-generation and provide 'down-ramping'. CESA appreciates the CAISO's potential leadership in this regard. The CAISO showed leadership in this regard in the original creation of the Distributed Energy Resource Provider (DERP) functionality.

Improvements to the CAISO's PDR model are timely. The current model prohibits some would-be loads from competing to provide certain market products. The CAISO can and should rectify this. CESA presumed that ESDER 2 was the initiative for such consideration, and looks forward to urgent resolution of barriers.

CESA emphasizes that many parties from the LCWG supported the ideas put forth. CESA supports reconvening the LCWG to further this market design effort in an expeditious manner and build on previous collaboration efforts, if the normal stakeholder process needs augmentation.

The ability for directed increases in load consumption and for PDRs to compete to provide regulation seems to clearly support the needs of the CAISO system. In light of negative prices, overgeneration, curtailment of renewables, and the needs for more regulation resources, the CAISO's lack of progress on these market design matters since the September 2016 2nd Revised Straw Proposal is concerning. PDR capabilities can represent available solutions to the CAISO grid challenges and could be authorized by the CAISO under FERC oversight.

Finally, CESA appreciates that some aspects of PDR load increases may warrant further stakeholder discussion, such as consideration of a default load adjustment settlement mechanism and or a possible net benefits test for bids for increased consumption for PDRs.

D. Additional settlement and metering tools are needed for select distributed energy resources configurations.

[9] ESDER Third Revised Straw Proposal, pg. 24.

CESA reiterates this point from its September 20, 2016 comments on ESDER 2.[10]

If a DER is placed in series and behind the distribution metering for the distribution utility it is possible that the energy consumed in round-trip efficiency (RTE) losses by a DER, especially storage, could be paid to the CAISO twice. As the true consumption of the energy is at the DER the DER should be responsible for the net cost of that energy and a Settlement payment equal to the net payment by the DER be made to the respective Utility. This situation amounts to a potential double payment condition by a Utility due to RTE losses in a DER. CESA recommends exploration of a settlement-style 'credit' to utilities equal to the net energy payment made to CAISO by the DER. Additionally, DER devices used in multiple use applications should have the option to be measured in isolation to assure accurate whole measurements of RTE and to separate from station power uses.

In addition, a major impediment for use of the NGR model by BTM storage under the DERP framework is that energy used to charge the storage is assessed the Locational Marginal Price (LMP), in addition to the hosts' costs for paying the applicable retail rate for the charging energy drawn through the retail meter. The DERP - host customer combination thus pay double for each KWh used to charge the storage system. Of course, double payment by the DERP/host is also illogical and will be an unreasonable barrier to market participation by BTM NGRs under DERP. These issues should be taken up within ESDER Phase 3.

E. Station Power tariff changes should accommodate new CPUC rules right away and should be implemented immediately.

CESA strongly supports the prioritization of this matter for approval by the CAISO Board of Governors this summer. Delays here would be untenable and multiple energy storage resources are operating today and CAISO rules should reflect State direction on this State jurisdictional matter. CESA appreciates the CAISO's work on this important matter.

CESA generally supports the details and approaches for implementing the CPUC's Storage OIR Decision[11] via of the CAISO's Third Revised Straw Proposal for how to define station power. The proposal does this in two main ways: detailing where the retail station power costs are determined, e.g. in a state-jurisdictional utility tariff, and clarifying wholesale netting provisions.

CESA believes the CAISO should not at this time pursue or establish metering criteria, but should direct principled metering such that wholesale costs can be reasonably differentiated and

[10] http://www.caiso.com/Documents/CESAComments-EnergyStorageandDistributedEnergyResourcesPhase2-SecondRevisedStrawProposal.pdf

[11] *See* ESDER Third Revised Straw Proposal

calculated as separate from retail costs. This can be done in many ways, and the CAISO should not be overly restrictive. As shown through the Baseline Analysis Working Group, estimation methodologies from control groups or other configurations can be determined.

While all participating resources in the CAISO need appropriate performance measurement for their market participation, CESA believes the CAISO should rely on individual parties to establish the correct and workable configurations for measuring station power. Presumably, utility tariffs will provide guidance on these configurations, and the CAISO should construct broad rules to again accommodate any state-jurisdictional outcomes and practices.

These comments focus on the station power metering requirements, and do not reflect CESA's views on the need for newly authorized performance measurement structures for market participation and settlement.

F. Notwithstanding the timing concerns raised above, the Scope of ESDER 3 appears appropriate for now.

The CAISO details how its new ESDER 3 process will includes numerous NGR and PDR enhancements. CESA believes the ESDER 3 scope reflects many appropriate and compelling areas for energy storage and DER market design. The CAISO should pursue work on this scope immediately and should develop and adhere to an aggressive schedule.

CESA also supports continuing to evaluate the ability for behind the meter storage to receive compensation for exporting during a grid need event when on-site load is zero. Like multi use application (MUA) opportunities, the CAISO should collaborate with the CPUC on this issue.