Comments of the California Energy Storage Alliance (CESA)
on
CAISO ESDER 3 Issue Paper

Submitted by	Company	Date Submitted
Alex Morris amorris@storagealliance.org	California Energy Storage Alliance ("CESA")	February 26, 2017

CESA appreciates the opportunity to comment on the Energy Storage and Distributed Energy Resources (ESDER) Phase 4 Issue Paper.[1]

ESDER remains a critically important stakeholder initiative to the energy storage industry. CESA provides the following comments regarding the scope and priority issues for ESDER 4. CESA elaborates on these recommended scope items in subsequent sections.

- NGR enhancements efforts. These should include:
  - Simplifying participation agreements to just require a Participating Generator Agreement (PGA)
  - Explorations of modifications to ensure feasible schedules and to support reliable operations from NGRs in local areas
  - Explorations of modifications to better enable storage operating as a transmission resource, assuming such operations are entered into the CAISO system through the NGR model even when acting as transmission
  - Quality-control improvements to ensure master-file inputs, such as maximum and minimum charging limits, are honored through schedules and dispatch
  - Accommodations for different instantaneous power ratings for energy and Ancillary Services based on the state-of-charge (SOC) to address charging limitations associated with instantaneous output at the high or low-ends of SOC

[1] http://www.caiso.com/Documents/IssuePaper-EnergyStorage-DistributedEnergyResourcesPhase4.pdf

    - Mitigating double-charging or double-billing issues associated with BTM DERP dispatch, if this issue is not otherwise addressed through the CAISO's FERC Order 841 compliance.
    - Removing the 24x7 participation requirement for DERPs

- Additional Behind-the-Meter (BTM) market access enhancements. These should include:
    - Mitigating double-charging or double-billing issues associated with BTM DERP dispatches, if this issue is not otherwise addressed through the CAISO's FERC Order 841 compliance (as mentioned above)
    - Removing the 24x7 participation requirement for DERPs (as mentioned above)
    - Augmenting the PDR model to support the provision of Frequency Regulation
    - Establishing RA counts for DERPs that are non-CPUC jurisdictional territories
    - Mitigation customer participation barriers by allowing more customer participation paths, e.g. enrolling multiple resources
    - Supporting multiple-use application resource participation through better support for time- and capacity-differentiated distributed energy resources (DERs), or by allowing multiple resources to be registered from a customer site.

- Modifications to allow fair and reasonable access, valuation, and participation from Multiple Use Applications (MUAs). These enhancements are listed below and may overlap with above recommended modifications

- Participation models of combined "solar plus storage" and also for other hybrid resources

CESA is concerned that the scope of ESDER 4 is limited while many additional important enhancements are sought for energy storage and distributed energy resource participation.

While CESA does not oppose any of the items already proposed as 'in scope', it may be that consideration of market power mitigation could be developed at a later date, *e.g.* in an ESDER 5. CESA understands and supports the role of market power mitigation, but also observes that very large components of existing energy storage generation is bid and scheduled by regulated California utilities operating under 'least-cost dispatch' requirements, which provides alternative forms of market power limitations, *e.g.* bidding of resources at marginal costs within applicable guidelines.

CESA is mindful of the CAISO's bandwidth limitations and desire to focus on high impact market design changes. CESA is thankful that the ESDER series of initiatives has been prioritized these

past few years. CESA continues to see the role of energy storage, both in front of and behind the meter, as growing and as key to meeting local capacity, ramping, and renewables integration goals. As such, the ESDER initiative is a strategic and smart investment by the CAISO in not only expanding its non-discriminatory market structure, but also in ensuring participation models are viable and effective in order to meet CAISO's grid needs.

For newer market participants or resource categories, new market participation may build over time, and many resources can take time to develop and come on-line. Market participation under current conditions does not necessarily indicate participation under going forward conditions. CESA notes these points to reduce any concerns that market participation pathways for energy storage, including for DERs, could see limited utilization. With each iteration of market design, barriers can be removed and participation can grow. A focus on understanding and removing participation barriers to DERs will support not only DER participation concepts raised in FERC Order 841 but also will ensure competitive access to markets from resources, in line with the CAISO's goals.

The CAISO should pursue solutions for BTM resources even though other participation paths, such as retail rate reforms, could conceivably be used to support operations from resources to meet grid needs. The CAISO naturally will seek to develop non-discriminatory participation paths and should further prioritize market participation paths for DERs, particularly in light of FERC Order 841 and a potential "DER Order" which may build on the record developed through the Order 841 (but not included in the final order).[2] The CAISO knows that CPUC rate design proceedings can take time and may involve settlements, and also that retail rates will be static between rate cases (aside from infrequent rate-design update windows (RDWs)). This aspect of the regulatory process highlights how the access to the CAISO's dynamic market is an important path to develop, or else the functionalities of fast-acting storage solutions may be less or un-available to the CAISO.

Finally, CESA salutes the CAISO's ongoing leadership. CAISO efforts to allow and support market participation from energy storage and DERs are some of the best in the world.[3] The CAISO has also recognized the need for improving pathways, working with key stakeholders such as the California Public Utilities Association (CPUC), and developing Multiple-Use Application (MUA) structures to reasonably and fairly value and utilize the resources. CESA looks forward to ongoing work with the CAISO to develop these important participation models and to mitigate or remove barriers, ensuring useful market participation in future years.

[2] FERC Order 841 directed settlement treatment provisions for DERs. See Paragraph 321, Order 841.
[3] See FERC Order 841, paragraph 4, Footnote 7

Responses to CAISO Comments Template

1. Non-Generator Resource (NGR) model

Please state your organization's position as described in the Issue Paper:

CESA Comments: Supports with Additions

CESA recommends the suite of NGR enhancements scoped for ESDER 4 include the following, with brief justifications:

- Simplifying participation agreements to just require a Participating Generator Agreement (PGA) – this simplification is important, appropriately treats NGR storage as a generator capable of providing 'negative generation', and aligns with the CAISO's FERC Order 841 compliance filing in which the CAISO proposes rules whereby storage charging is differentiated from 'load plus exports'.
- Explorations of modifications to ensure feasible schedules and to support reliable operations from NGRs in local areas – it will be important to develop an understanding of CAISO system needs and develop participation paths and compensation that meets needs.
- Explorations of modifications to better enable storage operating as a transmission resources, assuming such operations are entered into the CAISO system through the NGR model – while the CAISO Transmission Planning Process (TPP) authorized non-wires alternatives (NWAs), models or frameworks are need for these NWAs to be represented in the CAISO transmission topology 'backbone', and also to allow for operator control. CESA understands the NGR model might be used for representing NWA storage as transmission into the CAISO's operations, and so additional functionalities might be desired on the NGR model.
- Quality-control improvements to ensure master-file inputs, such as maximum and minimum charging limits, are honored through schedules and dispatch – it is important and appropriate to build on experiences of early NGR users to review the NGR model for basic improvements to ensure a fair and reasonable user experience.
- Accommodations for different instantaneous power ratings for energy and Ancillary Services based on the state-of-charge (SOC) to address charging limitations associated with instantaneous output at the high or low-ends of SOC – just like with multi-stage generators, models need to reasonably reflect actual operational parameters of resources. Depending on the SOC, some adjustments may be appropriate for the instantaneous power ratings of resources.

- Mitigating double-charging or double-billing issues associated with BTM DERP charging, if this issue is not otherwise addressed through the CAISO's FERC Order 841 compliance – this problem is well known to the CAISO and a compliance path has been provided through FERC Order 841. CAISO's leadership in authorizing the FO 841 solution may spur LSEs to pursue more accurate information. The double-billing issue is a major barrier to participation with the NGR model from BTM resources. An ESDER discussion on how to mitigate this major barrier will be helpful for many stakeholders, including the utilities, industry, and the CPUC.
- Removing the 24x7 participation requirement for DERPs – this is a critical requirement for multi-use applications. BTM resources do not have a path for providing regulation services, and the NGR model is a tool they'll need to use to provide this service. The 24x7 participation requirement is a major barrier to the feasibility of MUA resources and should be addressed.

2. Behind-the-Meter Resource Participation

CESA Position: More Participation Enhancements are needed.

CESA recommends the BTM resource-participation models be enhanced to include the following:

- Mitigating double-charging or double-billing issues associated with BTM DERP dispatch, if this issue is not otherwise addressed through the CAISO's FERC Order 841 compliance (as mentioned above) – CESA understands that FERC Order 841 may require this enhancement very soon. The CAISO's settlement provisions should be modified to include the FERC Order 841 directives, unless LSEs establish alternative and viable pathways for DER resources operating in the applicable conditions.
- Removing the 24x7 participation requirement for DERPs (as mentioned above) – this is a key provision for providing access by DERs to wholesale services, such as Regulation. The lack of an 'opt-in, opt-out' capability renders the model inviable for many resource configurations.
- Augmenting the PDR model to support the provision of Frequency Regulation – load modulation by PDRs can provide valuable grid response, including frequency regulation. This capability should be unleashed through ESDER 4 where stakeholders could explore changes or metering provisions associated with expanding the PDR model to accommodate the provision of Regulation.
- Establishing RA counts for DERPs that are non-CPUC jurisdictional territories – the CAISO should establish default RA 'counts' for DERs under the NGR model. Local-Regulatory Authorities can assume the responsibility for determining RA 'counts' for these resource

types, but the CAISO will need default counts and has jurisdictional authority to establish these.

- Mitigation customer participation barriers by allowing more customer participation paths, e.g. enrolling multiple resources – more information on this is detailed in CESA MUA comments below, but this capability can be accessed through PDR and or NGR model enhancements.
- Supporting multiple-use application resource participation through better support for time- and capacity-differentiated distributed energy resources (DERs), or by allowing multiple resources to be registered from a customer site – more information on this is detailed in CESA MUA comments below, but this capability can be accessed through PDR and or NGR model enhancements.

3. Multi-Use Application Enhancements

CESA Position: More Participation Enhancements are needed

Broadly, some NGR and/or PDR enhancements are needed to focus on enabling MUAs. CESA strongly supports a focus on improving participation for MUAs. While some of this is proposed as 'in-scope', CESA recommends a tactical assessment and approach to remove barriers and improve participation. This recommendation appears to go beyond the CAISO's proposed assessment of the 11 MUA guidelines that were developed through the CPUC-CAISO led process in 2018. This CAISO conversation should also tee up considerations for identifying Resource Adequacy values from DERs.

The CAISO has multiple non-CPUC jurisdictional resources in its territory, and so CAISO rules and RA 'counts' for NGR-DERs will allow participation in appropriate ways. It is thus reasonable to proceed even if efforts that are CPUC-jurisdictional are ongoing.

Specifically, within the MUA topic area, ESDER 4 should address the following issues:

- CAISO should allow multiple Resource IDs located at the same retail Service Account ID (SAID) for all CAISO resource registrations (enables capacity-differentiated MUAs)
- Corollary to above: A single customer should be allowed to enroll in multiple DRP or DERP aggregations by using different Resource IDs. Each Resource ID is still limited to one aggregation at a time.
- CAISO should allow each Resource ID to be moved in and out of an aggregation or switch between DRPs (enables time-differentiated MUA) in reasonable ways

- CAISO should assess if and how all 3 MGO configurations are available for for resource-separated MUAs
- CAISO should work with CPUC to explore how PDR-LSR resources can register for any utility-run traditional "shed" DR program (bi-directional multi-use) where appropriate

3. Solar Plus Storage and Hybrid Participation Requirements

CESA Position: Needs to be added to scope

Scheduling, counting, and developing this type of resource is a key issue for many CESA members. Such resources are in the interests of rate-payers in that solar plus storage resources or other hybrid resources can have materially lower costs by relying on a single interconnection and by capturing important tax benefits.

The CAISO should support hybrid resources because they provide enhanced operational capabilities in some instances. In the case of solar plus storage resources, such a resource may operate with less variability, could extend solar output into hours where the sun no longer shines, and can provide higher levels of planning capacity (RA).

A challenge for the CAISO is how to schedule such resources. The CAISO's optimization can manage many discrete resources and does not necessarily see efficiencies through solar plus storage hybridization. The ratepayer benefits of such resources, however, are significant and the CAISO should allow non-discriminatory participation from these resources. The CPUC is actively exploring an RA capacity count (ELCC) for solar plus storage resources in its Track 3 RA Proceeding, and the CAISO should be prepared for such resources entering its market.

Typically, renewable resources use VER scheduling models. For solar plus storage, the resource may similarly select a VER scheduling model, even though the 'resource' might operate somewhat differently from traditional VERs, *i.e.* it will be 'better behaving resource'. The CAISO's VER forecast models may need modification in order to appropriately forecast and schedule these resources.

Finally, the addition of storage to other resources, including gas resources, unleashes more flexibility, speed, cost-savings, and other benefits (no emissions) from these resources under certain operating schedules. The NGR model may be pursued for use by these resources insofar as it allows the resources to operate with a negative P-min. Explorations of how to accommodate these configurations should be part of ESDER too.