Comments of the California Energy Storage Alliance (CESA) on Storage as a Transmission Asset (SATA) Issue Paper

Submitted by	Company	Date Submitted
Alex Morris amorris@storagealliance.org Jin Noh jnoh@storagealliance.org	California Energy Storage Alliance (CESA)	April 20, 2018

CESA appreciates the opportunity to submit comments on the Issue Paper and plans to be an active participant in this new Storage as Transmission Asset (SATA) Initiative. CESA provides brief introductory comments and then responses to the CAISO Comments-Response Template below.

I. CESA Introductory Comments:

CESA commends the California Independent System Operator (CAISO) for proactively responding to the Policy Statement issued by the Federal Energy Regulatory Commission (FERC) that affirmed that energy storage assets providing cost-based transmission services can also provide market-based services. This SATA work also sets the CAISO up for reasonable implementation of SATA solutions with clear accounting treatment. In CESA's view, the CAISO is continuing its market and policy leadership in the nation and the world in effectuating FERC's policy guidance.

Overall, CESA believes that creating a framework to enable this dual utilization of an energy storage asset can generate efficient market outcomes and related ratepayer benefits by reducing the cost of transmission investments. To do so, the CAISO appropriately recognizes the non-zero value of market revenues that could be generated from an energy storage as transmission asset in this initiative.

II. CESA Responses to CAISO Comments-Response Template:

A. Scope of policy examination

The ISO's initial identified scope for this stakeholder process is to enable storage to provide cost-based transmission services and participate in the market and receive market revenues. Specifically, the ISO will focus on (1) transmission-connected storage only and (2) storage resources identified as needed to provide reliability-based transmission services. Please provide comments on the proposed scope. If there are specific items not already identified by the ISO that you believe should be considered, please provide specific rationale for why the ISO should consider it as part of this initiative.

Comments:

First, CESA supports a focus on ISO-controlled (transmission-connected) storage. CESA also stresses that, pending any appropriate Distribution-Transmission communication systems, any rules for storage as transmission should logically and reasonably apply storage on the distribution system or, where applicable, in the customer domain. CESA does not dispute that some communications systems may be important for determining outages and or other factors on the distribution system for purposes of providing a transmission service, but CESA recommends the CAISO structure its rules to authorize this type of structure pending the resolution of any barriers. Through this approach, the CAISO signals where non-CAISO jurisdictional barriers exist, so that other jurisdictions can explore solutions. It seems unnecessary and punitive to exclude storage as transmission if located at different domains. The CAISO should declare the applicability of its approaches to all storage as transmission but can note that transmission system outage information and coordination is key to the viability of projects on the distribution system.

Second, a very important distinction should be added to the CAISO approaches:

a. Storage operating as transmission that, through transmission operations, has energy charging and discharging done for transmission needs and NOT through 'profit-seeking' market-oriented bids.
b. In addition to 'a' above, storage operating as transmission that, at certain times, is *exempt from* transmission service requirements and is able to profit-seek in CAISO jurisdictional energy markets, during which time energy charging and discharging are occurring under the market revenue jurisdiction.

Third, the framework developed in SATA can and should apply to all SATA projects, not just 'reliability projects'. CESA lacks insight into any policy-rationale for limiting the application of the thought-work developed in this initiative to only reliability projects. While CESA understands the desire for a 'crawl-walk-run' approach whereby policies and regulations can be developed incrementally, CESA recommends the CAISO not pre-emptively limit the application of this SATA work if it can logically apply to all storage as transmission, rather than just reliability transmission, without issue.

Fourth, the scope should also explicitly include the following:

- Clarifying assumptions around forecasting revenues and predicting a SATA resource's ability to participate in energy market profit-seeking. The ISO may seek to adapt the Transmission Economic Assessment Methodology (TEAM) to assess the market value of a storage proposal in the project selection in the TPP. This TEAM approach reduces complexity and is already established. Additionally, bid-in 'minimum market revenues' could be used to evaluate the overall cost-equation for storage as transmission too.
- Structuring market-participation incentives so that some storage as transmission resources seek to maximize ratepayer benefit (through profit-seeking in CAISO energy markets when appropriate.)
- Determining any information needed from storage providers to allow for the TPP to assess storage alternatives to traditional transmission infrastructure investments, such as storage duration, number of cycles and starts/stops per day, deliverability, and timing of charging.
- As mentioned above, expansion of scope to address how storage as transmission can be evaluated and procured not only to meet transmission *reliability* needs but also for economic and policy transmission projects, which the TPP already does for traditional transmission solutions.

Fifth, CESA accepts that some items should be out of scope for now:

- TPP evaluation methodologies should be out of scope because those methodologies are for the TPP, not just for effectuating storage as transmission.
- Competitive transmission solicitation frameworks are out of scope because those are for all competitive transmission solicitations, not just for effectuating storage as transmission.
- Cost-allocation of cost-based revenue requirements for rate-based assets are out of scope because those are for all resources, not just for effectuating storage as transmission.
- Resource Adequacy (RA) value is out of scope because this is not the right forum for determining RA values.

While CESA accepts these items as out of scope, CESA stresses its above-mentioned point about storage as transmission on the distribution system, and also seeks more discussion on the importance of accurately representing and accounting for energy market revenues against TAC costs in the TPP selection process. Even with a crediting mechanism in place to offset ratepayer costs for the transmission service, CESA believes that a barrier to SATA solutions will remain if SATAs are disadvantaged in the TPP process due to the inaccurate representation of energy market revenues. As CESA understands it, the TPP does not forecast market revenues for proposed transmission solutions, so this may be a new frontier for the CAISO.[1]

[1] At the same time, CESA notes that the Oakland Clean Energy Initiative (OCEI) approved in the 2017-2018 TPP must have included some forecasting of market revenues, or at least some assessment to validate PG&E's proposed forecast. CESA believes this may be the case because the OCEI includes market-participating resources.

Sixth, CESA recommends 'parallel' work be pursued in coordination with the SATA Initiative. For example, CESA sees the interconnection process as needing to potentially accommodate storage as transmission assets. When storage provides only reliability-based transmission services, it is clear that interconnection processes don't apply, but in the case where a storage asset is being utilized to provide both transmission and market services, it is unclear what interconnection and deliverability considerations should apply. Should only the deliverable or energy-only portion be studied in the interconnection process? Or should the entire capacity be studied if the storage system operator aims given the impacts of transmission reliability-based dispatch on the deliverability of other generating assets? These questions would be helpful to be addressed in coordination with this initiative, though it does not need to be specifically addressed herein.

Seventh, CESA supports the CAISO's use of FERC's principles in guiding the development of a solution. Specifically, FERC noted the following principles, but CESA adds a slight amendment of these principles (shown in red) to guide discussions in this initiative:

- Must be cost competitive with transmission
- Must avoid *unreasonable* double recovery for providing the same service
- Cannot suppress market bids
- Cannot jeopardize ISO/RTO independence

CESA's above edit is designed to accommodate instances where multiple services are being *reasonably* provided. This could happen pursuant to Multiple-Use Application (MUA) rules being developed by the CPUC and the CAISO. Through this work, there may be periods where a resource can, within a month, reasonably contract for multiple services, such as black-start and market services. Currently, some conventional resources receive payments for black-start transmission service while also operating as merchant market resources, and storage should not face higher hurdles than other resources. The energy storage MUA framework authorizes this approach in order to extract maximum but reasonable values from grid-connected energy storage systems.

Eighth and finally, the CAISO should note the following in response to comments or questions raised in the April 6 stakeholder call. Concerns about giving storage resources a competitive edge over other resources, such as generation or conventional transmission assets are, as CESA sees it, inapplicable. The FERC policy and CAISO principles and rules prevent inappropriate cross-subsidization, and so resources compete fairly. If a storage resource can out-compete some resources due to its ability to, in the right

Even though these resources will address transmission needs by acting purely as generation resources (*i.e.*, by meeting local capacity requirements), CESA believes that this approval must have involved some assessment of forecasted market participation. CESA seeks clarity in this regard. Potentially, the process used to assess and approve OCEI could be considered for adaptation to SATA resources.

times and ways, pursue other revenues, then the competition is fair and reasonable. CESA of course supports prudent safeguards against inappropriate cross-subsidization. Further, the FERC Policy Statement provides clear guidance and authorization that an electric storage resource may receive cost-based rate recovery and, if technically capable, provide market-based services. The details of implementation of this guidance is appropriately left up to each ISO, which the CAISO has responded via this SATA Initiative. The focus of this initiative should remain on storage assets, not on generation or conventional transmission assets.

B. Cost recovery mechanism

The ISO has offered two alternative cost recovery mechanisms for discussion as part of the issue paper:

1. Asset in PTO's TAC rate base, and
2. Contractual provision of "cost-based" transmission service without becoming a PTO

Please provide comments on these two options and any other options the ISO has not identified. Additionally, please provide comments on the "wholly in rate base" and "partially in rate base" alternatives discussed within each of the above options.

Comments:

CESA generally supports the two proposed alternative cost recovery mechanisms and recommends that these approaches be discussed in further detail here in this initiative.

In addition, CESA proposes a potential third option for consideration. In this third option, settlement of energy related to the operation of the storage asset would be treated akin to 'energy losses' on the system today. CESA understands such losses are treated as Unaccounted For Energy (UFE). This has been explored in Texas via an AEP case in September 2016.[2]

[2] In September 2016, AEP proposed installation of two li-ion battery systems as an alternative to traditional T&D upgrades. They proposed charging with UFE. The projects didn't move forward but this example of consideration of UFE 'treatment' for energy charging and discharging may still be helpful.

- Docket for AEP Upgrade Filing: http://interchange.puc.texas.gov/WebApp/Interchange/application/dbapps/filings/pgControl.asp?TXT_CNTRL_NO=46368&TXT_STYLE=&TXT_UTILITY_TYPE=A&TXT_D_FROM_STYLE=&TXT_D_TO_STYLE=
- Dismissal Recommendation: http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/46368_162_967807.PDF

Table 1: Options for SATA rate-basing and related energy settlements

Option	Amount rate-based in TAC	Treatment of energy-related settlements
Full cost of service (Option A)	All	Market settlements flow into TAC and can reduce TAC amounts.
Partial cost of service (Option B)	Partial	Rate-based amount is already less than cost, and SATA asset owner leverages market settlements to recover minimum needed amounts (or more).
UFE energy settlement	All	Market settlements flow into account in a fashion similar to that for losses, such as UFE settlement structure.

For all of the above options, CAISO independence is maintained because resources are operated pursuant to transmission grid needs rather than the market in the applicable period of transmission operation. If transmission projects with 20- to 30-year lifetimes (similar to conventional transmission solutions) are pursued, the counterparty risks related to option B warrant careful consideration. As with today's merchant transmission, rules should contemplate how costs for transmission are recovered in instances where a merchant transmission solution does not achieve construction or performance milestones. The effects on such a resource's financial viability or on cost over-runs also may mirror that with today's Merchant or investor-owned utility Transmission. Overall, this initiate should explore all three structures while supporting competitive transmission outcomes.

Independence can also be aided through explicit performance obligations, analogous to the obligations existing PTOs have to maintain equipment in a way that makes it available to the ISO for use as a transmission resource. Publications around the status of a resource as a transmission resource, akin to today's notification changes of availability of transmission outage information, could also help cement independence.

CESA also recommends consideration of bidding parameters, operational requirements, and other contractual provisions that address potential concerns around independence and lifetime assurances of the storage asset.[3] CESA and many other parties agree that transmission service needs should be met reliably, such as through the prudent management of sufficient 'state of charge', where applicable. CESA is open to discussing various approaches. For example, a pre-determined self-schedule when operating as transmission may be a solution, or the use of some flavor of reasonable 'proxy-bids', may be explored, depending on the option and circumstances.

Furthermore, the CAISO can incorporate existing transmission performance guarantees to provide some performance assurances of the storage asset. CESA again notes that conventional transmission systems and equipment have outage procedures and do not have many specific requirements to direct performance, so any requirements around transmission service and performance for storage assets

[3] This should include: number of hours of storage duration, number of starts and stops per day, start time duration to full operation, ability to transition quickly from min to max and back, number of operating cycles, applicability and need for deliverability (if any) and timing of charging, and guarantees, warranties, or liquidated damages for underperformance.

should consider these precedents to ensure consistency – *e.g.*, consider how outage procedures can be implemented for storage as well. Other solutions to address performance longevity may include demonstration that performance thresholds are not being exceeded, or other modest and conciliatory data-sharing or documentation efforts.

Finally, as part of this initiative, it may be helpful to focus on which transmission services can be best addressed by dual-purpose storage assets. For example, to facilitate discussions around potential operational and bidding frameworks, it may be helpful to consider discrete transmission issues that are fairly predictable (*e.g.*, consistent daily transmission line congestion) to address some availability concerns around providing the needed transmission service and potentially simplify the subsequent evaluation and solicitation process in the TPP. More predictable transmission needs may be an area where storage providers may be better positioned to more regularly participate in the market to produce a more cost-effective transmission alternative solution.

C. Allocation to high or low voltage TAC

The ISO has expressed its plans to maintain the current practice of allocating costs to high or low voltage TAC based on the point of interconnection. Please provide comments on this proposal.

Comments:

CESA has no comment at this time.

D. Other

Please provide any comments not addressed above, including any comments on process or scope of the Storage as a Transmission Asset initiative, here.

Comments:

The CAISO should consider whether hybrid energy storage systems, such as energy storage paired with solar, wind, or gas, is eligible as a transmission alternative and proceed to consider the same bidding parameters, operational requirements, etc. for such systems. As noted before, CESA also recommends that the CAISO consider our proposed 'Option C' as well as other precedents to inform policy development. CESA thanks the CAISO for taking leadership in enabling storage as transmission assets to also provide market-based services.

SATA should also seek to modify or use existing PTO agreements rather than to direct wholly new PTO agreements. Utilizing the existing PTO frameworks allows for easier implementation rather than creating new agreements, and aligns with FERC's jurisdiction over rates for transmission.

Finally, as mentioned above, CESA recommends a more permissive approach to enable storage as transmission that is interconnected below the transmission system. The CAISO should ensure that fair

SATA rules apply to all, but that communication barriers between distribution and transmission system likely may need resolution in some cases.