

# Storage as a Transmission Asset

## Stakeholder Comment Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments on the Storage as a Transmission Asset revised straw proposal that was posted on August 15, 2018.



Submit comments to [InitiativeComments@CAISO.com](mailto:InitiativeComments@CAISO.com)

**Comments are due September 4, 2018 by 5:00pm**

The revised straw proposal, posted on August 15, 2018, as well as the presentation discussed during the August 21, 2018 stakeholder web conference, may be found on the [Storage as a Transmission Asset](#) webpage.

Please provide your comments on the revised straw proposal topics listed below, as well as any additional comments you wish to provide using this template.

The ability for SATA to provide both transmission and market services may inappropriately suppress competitive prices in wholesale markets, create the potential for discriminatory access to wholesale markets, and negatively impact the competitive storage market. LS Power encourages CAISO to limit the focus of the SATA initiative to developing a transmission planning process through which electric storage resources may be evaluated against traditional wires alternatives to resolve transmission needs through competitive solicitations. To the extent CAISO elects to continue with a broader SATA scope to include market participation, LS Power offers the following comments which may mitigate some, but not all of the risks to wholesale markets.

**Contractual Arrangement**

The ISO proposes to develop a new agreement with SATA resource owners that captures elements from Participating Generator Agreement (PGA), Participating Load Agreement (PLA), Reliability-Must-Run (RMR) and Transmission Control Area (TCA) agreements. Additionally, the ISO has indicated its preference to control SATAs when they operate as transmission assets. Please provide comments on this proposal.

**Comments:**

LS Power has no comments on this topic other than the terms of Pro Forma SATA Agreement should be discussed within a Stakeholder process framework.

**Transmission Revenue Requirement Capital Credit**

The ISO has proposed a TRR capital credit to reduce a SATA resource's capital cost recovery. The objective of this credit is (1) to protect ratepayers from early degradation of SATA resources operational capabilities due to dispatches from ISO market participation and potential for reduced useful lifespan for a SATA resource's ability to meet the identified transmission need(s), and, (2) to ensure the SATA resource owner considers all marginal costs when bidding into the market. Please provide comments on the ISO's proposal and any potential alternative the ISO could consider to achieve the same objectives.

**Comments:**

LS Power doesn't believe that TRR capital credit is required. LS Power understands CAISO's objectives for this element of the proposal; however it believes that SATA Agreement between CAISO & SATA owner should require the owner to provide full project capacity and duration (MW, MWh) for the life of contract. It is expected that there will be provisions in this contract that would penalize the Owner if SATA can't deliver the operational capabilities (MW, MWh) that are required through contract term. Including a TRR capital credit on top of that will further penalize the SATA Owner. Also, prescribing a SATA owner to bid in a certain way, i.e. to consider marginal costs, may inadvertently impact market prices plus could preclude SATA Owner from achieving projected market returns. It should anyway be in financial interest of SATA Owner to consider all its costs while bidding or else it would lose revenue. CAISO should rely on contract terms and not impose this TRR capital credit mechanism.

**Market Participation**

The ISO provided two additional options it is currently considering to notify SATA resources when they would be permitted to provide market services and access market revenues: Day-ahead market option and D+2 Option. Please provide comments on these options, including any preference or alternative options.

**Comments:**

LS Power believes that SATA resources should have an understanding of the ability to provide market services in order to be able to provide the lowest cost-of-service pricing under Cost Recovery Mechanism Option 2 below. However, under Cost Recovery Mechanism Options 1 or 3 below, participation in the energy markets by a SATA resource will potentially result in negative impacts to energy markets and also can potentially question CAISO's independence which could conflict with FERC 2017 Policy Statement. LS Power currently does not support building SATA under Option 1 or Option 3 and our comments below are related to Market Participation for SATA being built under Option 2.

LS Power recommends that CAISO completely rethink the Market Participation approach. We understand the challenges in predicting days/times/months for when SATA resources can be allowed market participation at the Planning stage. However, not providing any guidelines to SATA owners on when market participation can be allowed will make it impossible to estimate market revenues. Lack of ability to estimate market revenues will not only make it challenging for SATA Owners to provide their most competitive bids for resolving Transmission Planning needs but will also make it challenging for CAISO to compare Storage vs. Transmission for addressing a particular need. Further, SATA Owners will likely lean towards seeking Full Cost-of-service based cost recovery option with energy market crediting, i.e. Option 1 or Full Cost-of-service based cost recovery with energy market revenue sharing, i.e. Option 3 and hence will not be properly incented to fully optimize the asset.

CAISO should provide some guidelines on conditions under which it expects to use Storage as a Transmission Asset. It is unclear whether CAISO will be only be using SATA for the specific reliability, economic, policy need for which the resource got approved in Transmission Planning process or does CAISO also expect to use SATA for other grid needs as they arise? As an example, let's say SATA was built to resolve a thermal overload issue on Transmission Line "Y". If grid conditions change<sup>1</sup> and this SATA resource is now also effective in resolving thermal overload on a new Transmission Line "Z", will CAISO use SATA to address this new overload also? Further, if SATA was effective in resolving other grid needs, such as helping CAISO stay within its Area Control Error (ACE) to avoid a NERC CPS violation, does CAISO anticipate dispatching<sup>2</sup> SATA for such events?

Once CAISO clearly defines the grid conditions for which SATA is expected to be used as a Transmission Asset; outside these conditions, SATA should be allowed to participate in the markets. By CAISO defining conditions under which SATA will be CAISO dispatched or held in reserve, SATA owners can forecast market participation revenues, and propose cost effective and innovative solutions.

With respect to CAISO Notification proposal, the earlier CAISO can provide notification to SATA Owner and Market Participants as to which circumstances it will allow market participation, or not, the better it will be for all parties.

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<sup>1</sup> Grid conditions could change in operating horizon due to scheduled/forced outages, fire conditions, heat wave etc. or in planning horizon from one year to another as new transmission and/or generation projects get added to the mix.

<sup>2</sup> Dispatching SATA as a Regulation product to stay within ACE limits will have an impact on market and will question CAISO's Independence unless this use case was what SATA was being built for.

**Cost Recovery Mechanism**

The ISO has proposed three alternative cost recovery mechanisms in the straw proposal:

1. Full cost-of-service based cost recovery with energy market crediting
2. Partial cost-of-service based cost recovery with no energy market crediting
3. Full cost-of-service based cost recovery with partial market revenue sharing between owner and ratepayer

Please provide comments on these three options and any other options the ISO has not identified. Please provide specific comments on (a) if the ISO should maintain option 2, above, and (b) why, if any, specific market profit threshold must be reached before the SATA resource would be permitted to retain some portion of profits and how such threshold should be determined.

**Comments:**

LS Power believes that the ability for SATA to provide both transmission and market services has a potential to inappropriately suppress competitive prices in wholesale markets, negatively impact the competitive storage market and negatively impact transmission development. Rules for dual participation should be very carefully discussed to ensure there are no unintended discriminatory consequences from implementation. Further, any rules developed here should be consistent with the FERC Policy Statement. While LS Power is generally concerned about negative impacts SATA resources will have on market prices under all Options, we believe that on a relative basis Option 2 has the most merit and is the only option that guarantees cost savings to rate payers.

**Option 1:**

LS Power notes the following disadvantages of this Option:

This option represents a subsidized resource participating in the wholesale energy market, negatively impacting energy markets as well as the market for competitive energy storage development. This option does not incentivize SATA Owner to participate in the markets. If a SATA resource under this Option does participate in markets, it is more likely to negatively impact markets since its full cost would already have guaranteed recovery which would give this a competitive edge against other generators that rely solely on markets.

Further, a project proponent using Option 1 may present assumptions of market revenues to be able to look competitive but will have no obligation to follow through and earn those revenues thereby reducing cost to ratepayers. Under this Option, SATA will likely be dispatched more by CAISO rather than through economic bids in the market. Unless the rules of dual participation are clearly defined (i.e. when will Storage be used as Transmission and when will market participation be allowed), it is hard to tell whether CAISO's Independence will be compromised and/or whether CAISO or SATA Owner's actions will inappropriately suppress market prices. This option will result in missed cost saving opportunities by ratepayers (as compared to Option 2).

Option 2:

Option 2 is the only Option where SATA is not a fully subsidized resource participating in the wholesale energy markets. To the extent there are any negative impacts on markets, these should be a lot less under Option 2 as compared to Options 1 & 3. That is because Option 2 provides for competitors to bid a level of partial recovery and passes that benefit through to ratepayers. CAISO proposed at the stakeholder meeting if Option 2 should be discontinued. LS Power respectfully disagrees with that. We don't see any reason to foreclose this option, especially since this is the only Option that can guarantee savings to ratepayers and should attract multiple competitive proposals. As suggested by our comments under "Market Participation" Section, we believe that if CAISO provides some guidelines on Transmission and Market use for Storage projects, this will encourage Storage Owners to provide competitive project proposals under this Option which will lead to savings for rate payers. Just like competitive solicitation process under Order 1000 has led to several competitive and innovative solutions proposed by Independent Developers across various ISOs and RTOs (See Appendix A and Appendix B) in the Transmission space, we believe Option 2 can do the same for SATA resources.

Option 3:

Like Option 1, Option 3 represents a subsidized resource participating in the wholesale energy market, negatively impacting energy markets as well as the market for energy storage. LS Power notes that under Option 3 if SATA owner is always guaranteed 100% cost recovery through TAC without participating in the market, plus if rules of market participation are not clear, SATA Owners will not be properly motivated to participate in the market and this Option may very well just look like Option 1. Alternatively, if poorly structured, SATA Owners could earn windfall profits from the sharing mechanism, even as increased market operations increase maintenance cost or decrease project life.

**Options in the event of insufficient qualified project sponsors**

The ISO has proposed potential options for addressing SATA projects when there is insufficient qualified project sponsors. Please provide comments on these options, including preferences and/or additional alternatives that should be considered.

**Comments:**

This scenario is not likely. LS Power is not aware of any energy solicitation when there have not been sufficient qualified bids. LS Power believes that if CAISO will likely get multiple project proposals if it doesn't impose a restriction on what Option a SATA proponent can propose for cost recovery. Nevertheless, even if CAISO receives only one proposal and as long as that still meets the reliability needs and is competitive against other solutions, such as a Transmission project, then CAISO should still proceed with it.

**Consistent with FERC Policy Statement**

The ISO believes the revised straw proposal is consistent with the FERC Policy Statement. Specifically, that the straw proposal does not inappropriately suppress market prices, impact ISO independence, nor result in double recovery of costs. Please provide comments on the whether you agree or disagree with the ISO. If you disagree, please clarify why and how the ISO might address this issue.

**Comments:**

LS Power believes that CAISO’s proposal, as currently structured, is potentially not consistent with the FERC Policy Statement. It is unclear under what grid conditions will CAISO be dispatching Storage as a Transmission Asset and what will be the rules for market participation. Without knowing these it is hard to comment on whether CAISO’s dispatch of SATA will inappropriately suppress market prices or impact ISO independence. In order to address this, we recommend CAISO further develop rules of participation of Storage as a Transmission Asset and as a Market Resource and have a robust stakeholder discussion on this.

**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:**

Competitive Solicitation Threshold of 200 kV:

CAISO should reconsider its decision on which projects will be sent for competitive solicitation. As LS Power previously commented, we disagree with CAISO’s proposal to use 200 kV as threshold to decide whether a SATA resource will go through Competitive Solicitation or not. A SATA resource may be connected below 200 kV but if it is resolving a transmission grid reliability need for the system 200 kV and above it should be sent for Competitive solicitation. Not doing so will discourage competition which will potentially cost the ratepayers. As an example, consider a reliability need that can be resolved by a 230 kV transmission project. By CAISO’s current tariff rules, unless the proposed project constitutes an upgrade to an existing transmission facility (which Incumbent PTOs are responsible for building), that project goes for competitive solicitation. If a SATA resource connected to a voltage level below 200 kV can effectively resolve the same reliability issue then this resource should be procured through competitive solicitation. For clarity purposes, we are not proposing that CAISO change the 200 kV threshold it applies for identifying regional projects that go through competitive solicitation but that it considers the effectiveness of a SATA project in addressing 200 kV and above constraint to make a decision whether this SATA resource should go for competition solicitation or not.

Generation Interconnection Queue for SATA:

CAISO’s proposal that SATA does not need to go through the Generation Interconnection (GI) process should be reconsidered. Discriminatory access through the relative timing of interconnection study

completion is the first area of concern. CAISO’s Regional transmission planning studies are typically completed in one year whereas GI studies take approximately three years<sup>3</sup> GI queue study group. If SATA is able to enter service by only completing a regional transmission planning study without going through a GI queue, then SATA may be able to gain preferential access to markets not available to other developers. Allowing a SATA resource to participate in the market after receiving discriminatory access will negatively impact the market for storage services. Scope and Cost responsibility for required interconnection upgrades is the second area of concern. Upgrades resulting from transmission planning studies may be included in the ratebase and recovered from ratepayers while upgrades resulting from the GI queue are generally the responsibility of the developer. These concerns over discriminatory access will become exacerbated if regional transmission planning processes determine SATA to be considered “upgrades” which are exempted from competition. Even Transmission interconnection requests have to go through Local Participating Transmission Owner’s Interconnection process under which typically System Impact Study and Facility Studies are done. Is CAISO suggesting that even these studies will not be required for SATA? Third area of concern is the impact SATA will have on Deliverability status of generators that are already operational or enter the queue before SATA gets approved. How will CAISO ensure that these generators are not negatively impacted with deliverability allocation because of the new SATA resource?

#### Estimation of Market Revenues:

This area needs further development. It is not clear how will CAISO estimate and/or validate estimates provided by project proponents for market revenues. For a particular transmission planning need, CAISO may receive SATA proposals with SATA being built under Option 1, 2 or 3. How will CAISO estimate compare these proposals and in doing so how will CAISO validate proposed market revenues? For projects that are being built under Option 1 or Option 3, estimating market revenues by CAISO is extremely important. Project proponents could use rosy assumptions for market revenues under Options 1 & 3 which can lead CAISO to falsely believe that net cost to ratepayers would be lower and it is not clear that SATA Owners would be held accountable for market underperformance. For Option 2, market revenue estimates should not matter since market revenues would not impact ratepayer costs.

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<sup>3</sup> Two years for the Phase I and Phase II study and one year for getting Deliverability Status and signing Generator Interconnection Agreement.

## APPENDIX A – Estimated Cost Saving of Order 1000 Projects

Project	Region	Planning Estimate	Cost Cap	Savings <sup>1</sup>
Suncrest Project	CAISO	\$50 to \$75 million	\$42.2 million	15-43%
Estrella Project	CAISO	\$35 to \$45 million	\$24.5 million	30-45%
Delaney to Colorado River	CAISO	\$337 million	\$241 million	28%
Harry Allen to Eldorado	CAISO	\$159 million	\$147 million	8%
Walkemeyer-North Liberal	SPP	\$16.8 million	\$7.4 million <sup>2</sup>	54%
Duff-Coleman	MISO	\$60 million	\$47 million <sup>3</sup>	28%

<sup>1</sup> Weighted-average savings between 23-27%

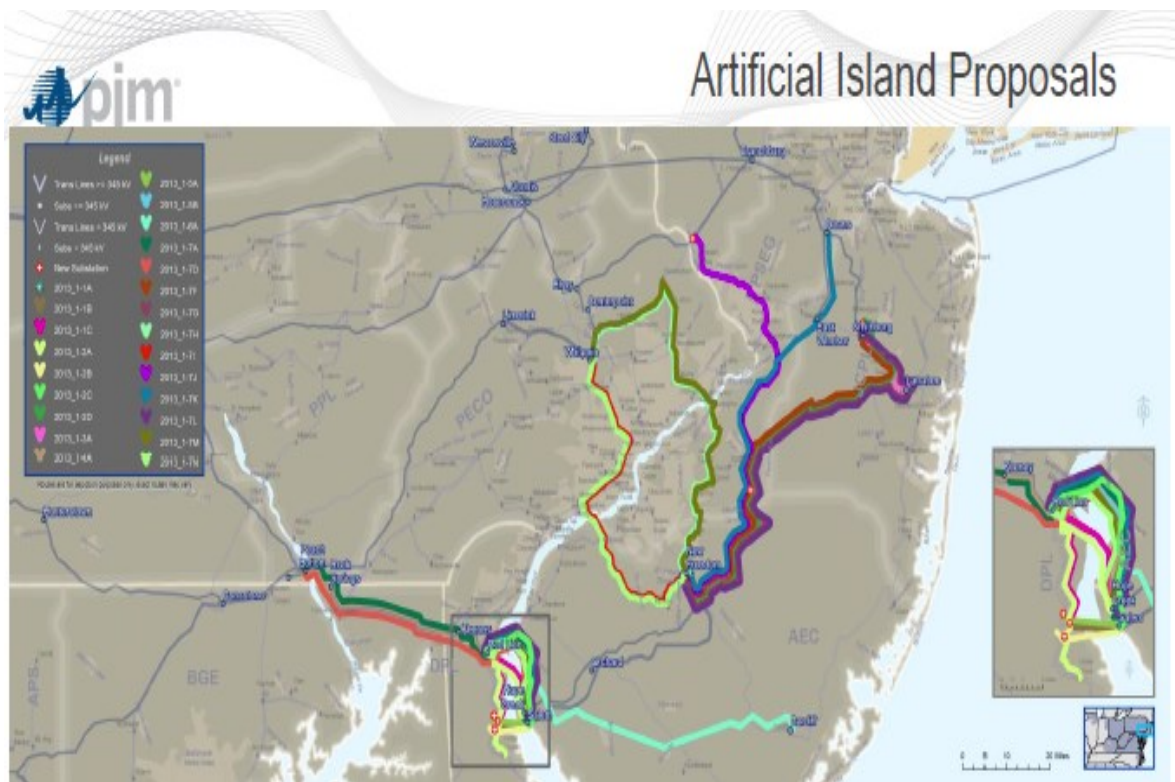
<sup>2</sup> Lowest capital cost with cap identified by SPP, however this bid was not selected

<sup>3</sup> 2015 dollars to make comparable with planning estimate (project resulted from MTEP15)



## Appendix B – Technical Innovation from Competition in Transmission Planning

PJM’s Artificial Island competitive solicitation drew 26 distinct proposals with widely varying specifications including location, voltage level, technology, and river crossing method (overhead, underground). The graphic below was created by PJM and presented to the Transmission Expansion Advisory Committee on January 9, 2014 to illustrate the varied proposals. A link to the PJM presentation is included below. The graphic below can be found on page 48 of the presentation.



Link to PJM presentation to the Transmission Expansion Advisory Committee from January 9, 2014:

<https://www.pjm.com/-/media/committees-groups/committees/teac/20140109/20140109-reliability-analysis-update.ashx>