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

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.

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:

NRG supports removing administrative barriers to the participation of storage resources in the wholesale markets. NRG thus supports the idea of a new agreement that synthesizes aspects of many other existing agreements.

However, there are potential downsides to the CAISO's well-intentioned desire to explore market participation for cost-of-service resources, if this process is not designed properly. One significant downside is that the SATA initiative has the potential to *delay* investment of at-risk capital into the battery storage sector by replacing private investment in storage with ratepayer-backed capital. To prevent the destruction of a merchant storage market (not to mention the merchant generation market), the SATA resources must be required to represent costs to the market that are comparable to a merchant investment.

Indeed, the CAISO should consider whether a properly designed storage market should make SATA resources look more "expensive" to the market than a comparable merchant storage resource. Such an outcome is justified since an effective market design should encourage the deployment of private, at-risk, capital and discourage the deployment of ratepayer backed capital.

Thus, while NRG supports *leveling* the playing field by removing barriers to the participation of storage resources in the market, we do not support providing select market participants *preferential* access to ratepayer support that is not available to all technologies capable of delivering a reliability product on a non-discriminatory basis.

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:

The CAISO's proposed TRR crediting mechanism is critical to ensuring that the SATA resources do not destroy the market for merchant investment in California, including merchant battery storage projects, demand response, and conventional generation. The TRR mechanism is an important step towards this goal, but the CAISO must ensure that *all* the costs of operating the SATA resource are fully reflected in energy market bids.

Specifically, the CAISO should clarify that the TRR credit reflects: (i) the full capital costs of a comparable merchant storage project, amortized over the appropriate number of charge/discharge cycles; (ii) the marginal cost of each charge/discharge; (iii) the capital costs of replenishing or replacing the SATA asset with an alternative solution because of the shortening of the asset's life as a transmission resource; and (iv) an adjustment to those costs based on the depth of the charge/discharge cycle.

Finally, two other items are important to consider. It is critical in determining the TRR credit that the CAISO assume an equity to debt ratio and financing costs that are appropriate for a merchant project. Using debt/equity ratios and the cost of capital associated with cost-of-service resources would significantly understate the true cost of any merchant portion of the resource. And finally, the relatively short lifespan of SATA resources relative to those assets typically selected in the CAISO's Transmission

Planning Process (TPP) must be accounted for, particularly as market participation would degrade the storage resource's long-term ability to serve a transmission function.

Without taking these steps, a SATA resource will *always* look more favorable to the market than an identical resource built with private capital. That would be an unfortunate outcome that would decrease innovation in the storage sector and create a permanent subsidy regime that will be difficult to ever leave.

Finally, NRG remains skeptical that this TRR credit will have the intended effect, namely, to ensure that the owner/operator of the SATA resource bids that resource in a way that does not unduly impact market prices. There is a circular aspect to the TRR that calls it into question. The proposed TRR credit will depend on how much market participation the SATA resource engages in, but the level of market participation will depend on the level of the market bids – bids that presumably include the TRR credit, which itself depends on the amount of market participation. As such, while the proposed TRR credit may seem an intriguing possible way to account for market participation diminishing the SATA resource's lifespan, the circular nature of this credit calls into question whether this mechanism will become a useful way to address a key question in this initiative, namely, how to ensure the cost-of-service subsidized SATA resource does not unduly impact market prices, either through its reliability participation or its market participation.

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:

The CAISO has proposed two timeframes for notification. The first is to see if the SATA resource clears the Day-Ahead Market (DAM) and notify the market participant of the availability of real-time market participation if the SATA resource does not clear the DAM. The second is similar, but determines if the SATA resource is required to operate in the D+2 RUC run; if not, then the CAISO would notify the SATA resource that it can participate in the market.

Whether the CAISO notifies the SATA resource that it can participate in the market after the DAM or after the D+2 RUC run, the CAISO always runs the risk that the need for the SATA resource will emerge after the SATA resource has operated in the market and depleted its state of charge such that it is not available to operate for the contingency for which it was acquired. This risk can be reduced if the SATA resource is required for a very narrow transmission contingency or transmission operating condition, but it may not able to be eliminated.

NRG agrees with the CAISO that forecasts of operating conditions at the time of the D+2 run may not reflect actual operating conditions. This has two negative consequences. First, the CAISO could anticipate a need for the SATA resource that did not actually materialize, keeping the resource out of the market when it could have operated in the market. Second, the CAISO could notify the SATA resource that it could participate in the market, only to have operating conditions change such that the SATA resource is required to operate for the reliability purpose for which it was developed. Presumably, the CAISO could provide some advisory notification allowing market participation after the D+2 run and then rescind that notification is condition change after the D+2 run. As noted before, unless the CAISO is willing to forego requiring the SATA resource to respond to conditions that may arise in real-time, allowing market participation in any time frame could allow the SATA resource to deplete its state of charge such that it could not be able to respond to the conditions and contingency for which it was selected through the TPP.

Providing notification authorizing market participation after the D+2 RUC run will increase the opportunities for market participation. Whether such increased opportunity is good for all involved parties, including ratepayers, will depend on a host of things, including the cost recovery option used and the level of the proposed TRR credit.

If a SATA resource is procured through the CAISO's TPP to address a specific, network transmission reliability issue, would the CAISO be willing to restrict the operation of the SATA resource to only that narrow issue, or to only that issue and to emergencies?

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:

NRG agrees that Option 1 provides no upside for the owner/operator of the SATA resource and is not likely to be attractive.

Option 2 may be attractive if the SATA owner/operator believes it can negotiate a partial cost-of-service reimbursement level that would allow them to realize market revenue upside. Option 2 is comparable to RMR Condition 1.

Option 3 does provide some ability for the SATA owner to earn more than a simple cost of service. As the CAISO is aware, the appropriate capital structure and debt costs of a project should reflect the risk of the technology. Relatively new technologies, such as battery storage, should have a relatively high cost of capital associated with such investment. Thus, only a market design that permits investors to meet the appropriate hurdle rate for investing in a high-risk asset is likely to be successful. Option 3 is the best of three bad options for this purpose.

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:

Whether the CAISO's proposal is consistent with FERC's policy statement depends on how the SATA resource will bid and what impact it will have on the market when required to operate for the reliability purpose for which it was secured as a cost-of-service resource.

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:

While NRG appreciates the CAISO's in-depth consideration of this issue, NRG remains skeptical that the CAISO can thread the need with regards to allowing a cost-of-service SATA resource to participate in the markets without adversely impacting the CAISO's independence or adversely impacting market price formation.