PC Special Session: SATA Poll Results

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Storage as a Transmission Asset
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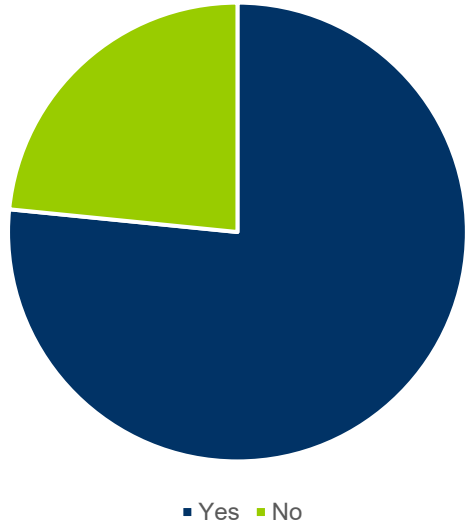
- Results of a non-binding poll on the Solution Package developed in the Planning Committee Special Sessions – Storage as a Transmission Asset
- Poll Open: 10/09/2020 – 10/16/2020
- 184 Total Responses
  - Voting Members - 36
  - Affiliate Members - 145
  - Non-Members - 3

1. Do you support the PJM package proposal to ensure existing planning rules provide sufficient clarity regarding how SATA should be evaluated and incorporated into the RTEP process?

	Count	% of Total
Yes	121	77%
No	37	23%
Abstain	26	n/a



Comments from Question 1

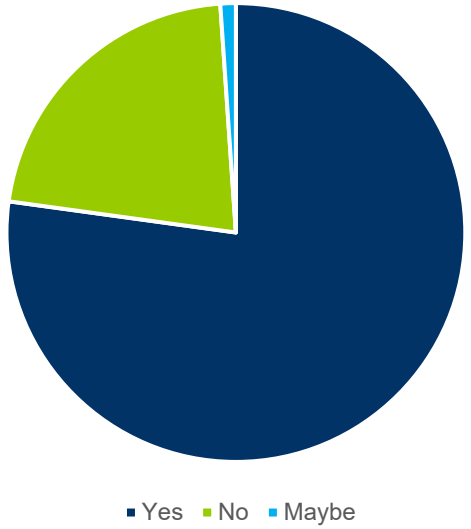
We are not necessarily opposed to the idea of SATA. However, we do believe it is important that the markets and operations implications of deploying ratebase transmission assets that act as generation and load are discussed and resolved prior to approving such assets as solutions to RTEP violations. These facilities will impact gen/load balance and so will impact LMPs by their fundamental nature. Understanding how these impacts, as well as potential dual uses of the facilities in other PJM's markets (e.g. ancillary service markets), will be addressed and managed is important to companies whose asset prices and valuations will be impacted by the presence of the SATA resources. We also believe it is critical that market participants have a concrete expectation about how the SATA resources will be deployed in response to transmission constraints in operations. Such knowledge is critical to understanding how SATA will impact transmission congestion patterns, market prices and the dispatch of other generation resources.
The proposal is a good start to determine how PJM will evaluate and select SATA for baseline needs. As a broad guideline, SATA is a technology similar to capacitors and should be seen as an analog to how SATA should be treated in the planning analysis. There are however some confusing aspects in the proposal as to what is a planning consideration versus operational. For instance, the design component "Allowable modes of operation" imply an operational consideration but PJM staff have indicated the design component is only to determine how SATA is treated in the reliability case. Additionally, the design component "Charge and discharge schedules and responsibilities" are an operational consideration and has no impact on the planning analysis. If PJM intends to setup a future phase focused on the operational aspects of SATA, these operational considerations should be restated and extracted from the current phase and pulled into future discussions. The planning aspects around SATA for reliability purposes should be fully developed or future phases of SATA (e.g. dual use) will lack a useful model to build off of.
[Our] main concerns regarding Storage as a Transmission Asset pertain to issues that are out of scope of the Phase I discussion (e.g. dual-use treatment, ownership requirements, interconnection process). These issues must be addressed before we can feel comfortable with any aspect of the proposal.
The PJM proposal requires the update suggested by multiple stakeholders at the October task force meeting. It needs an explicit statement that, "PJM analysis protocols are based on storage being out of the energy and ancillary service markets so that it is 100% available when needed for reliability."
-mitigation of impacts on queued generation are insufficiently addressed -must include explicit procedures to test reasonableness of SATA duration proposed -needs explicit statement of which entities can propose SATA on which facilities and explain any existing TO rights of refusal. -"costs of charging would be attributed to system losses" is not specific enough. There also may be misaligned incentives because owner is submitting schedule (which may affect RTE and operating costs) without being accountable for operating costs -treatment of discharged energy is not specified. Is this netted from system losses or provided to SATA owner?

Comments from Question 1, cont.

Our YES response is contingent upon the understanding that this is only a start to defining how to evaluate and select SATA for baseline needs. Much needs to be done to determine what is a planning consideration vs an operational one.
[We] believe this poll is premature. The first phase of this effort as outlined in the Issue Charge is to determine "If" Energy Storage Resources should be evaluated as Transmission Facilities ("SATF") and incorporated into the PJM Regional Transmission Expansion Plan ("RTEP") process. This poll is premised on the conclusion that ESR should be evaluated as Transmission Facilities and incorporated into the RTEP. However, assuming it has been determined that ESR should be evaluated as Transmission Facilities and incorporated into the RTEP, then [we] advocate that ESR should compete directly with the Immediate Need transmission designations. Today, if a reliability violation pops up and it is needed within 3 years, PJM often says it is "an Immediate Need transmission project". Under the OA provision Section 1.5.8(m), PJM is required to review non-transmission alternatives before declaring a transmission improvement is "Immediate Need". That is, PJM is to determine if there are non-transmission alternatives that could push off the immediate need until "year 4". Implementing the OA in this manner would allow competitive transmission windows to occur for year 4 forward while creating a new 3 year market-based product (e.g., "3 year generation", "3 year DER", "3 year storage", "3 year DR", etc.) to defer "Immediate Need" determinations.
PJM proposal is a good starting point to address the baseline needs. [We] recognize that SATA will have wide variety of applications and the design package will further need to be updated to address those needs. However, there is room to improve the proposed package. For instance, clear guidelines needed regarding how the SATA's charging and discharging credit should be handled. One of the ways to address the charging/discharging credit is to allocate them based on the cost allocation associated with respective SATA's project. Simply allocating the SATA charging cost to system losses may not be the best long-term approach. Specially in market efficiency type applications where SATA may be charged/discharged on frequent basis to provide congestion relief, allocating charging cost to the system losses may not be a good idea.
PJM's proposal seems to properly recognize (1) concerns about SATA having the wide-ranging ability to mitigate broader reliability issues; and (2) the belief that, for now, SATA is likely best invoked on a targeted local basis. It should hopefully further the interest expressed by FERC and others in promoting experience with Grid Enhancing Technologies (GETs). It also seems reasonable for PJM and TOs to consider SATA as a baseline or supplemental project solution where it would be both cost-effective and reliable. That said, PJM should provide additional guidance and there needs to be further discussion on the reference to cost elements in the PJM options matrix, including what PJM exactly means by (1) "SATA estimated life should be a composite of all the major components (i.e.battery cells, inverters, GSU, auxilliary equipment); and (2) "Costs associated with SATA charging would be attributed to system losses."

2. Do you support continued discussions, following the conclusion of this phase, to explore the potential for dual use (use of storage as transmission reinforcement as well as allowing market participation) and resulting market process and tool changes?

	Count	% of Total
Yes	142	72%
No	40	27%
Maybe	2	1%

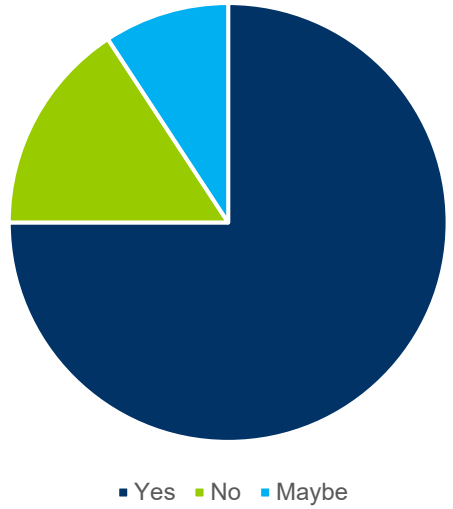


Comments from Question 2

Given the newness of this topic, we think the conversation would benefit from first finalizing within PJM and getting FERC approval of the storage as transmission rules by themselves. Once that effort is totally complete and we have a common understanding and approved set of rules for how that will work and what the limits of that are, only then do we think it is ripe and a good use of time to embark on the further discussion of dual use.
inappropriate to allow ratebase assets
The dual use of SATA may follow the use of SATA for reliability needs but cannot be rushed given 1) the complex nature of separating costs associated with dual use and the bidding requirements of these assets, 2) the novel concept of a limited duration asset serving both reliability and market needs, and 3) the potential for market participants to exercise control of the transmission system. A thorough stakeholder discussion that allows for more time than PJM's Phase 1 process for SATA should be considered. While SATA for reliability needs is a complicated concept, the considerations for market participation of SATA are even more complex. CAISO has tried to tackle the issue but has temporarily suspended the effort for almost two years now. MISO has also suggested developing the market participation rules for SATOA but has yet to begin those discussions.
I do NOT support dual use (use of storage as transmission reinforcement as well as allowing market participation). But I do support continued discussion to ensure that storage is not depleted in markets when it has been built for transmission reliability purposes.
Our YES response is contingent upon significant further investigation into what constitutes dual use especially given the primary reliability considerations for use as a transmission asset.
Transmission assets are recovered through transmission rates. The market for storage as full-fledged market participants would be diminished if certain storage had the economic advantage of having their cost recovered through transmission rates.
It is probably a good idea to continue discussions. However, energy storage probably should not be sanctioned for dual use (i.e. not serving reliability and market services at the same time). It should either be used as a transmission reinforcement or as a market participation mechanism. Recognizing that there is only a narrow band for storage to assist as transmission and that stakeholder discussion thus far has seemed to indicate that most stakeholders are eager to discuss storage's market participation capabilities, the dual use concept should hopefully be a less controversial discussion.

3. Do you support continued discussions, following the conclusion of this phase, to include exploring operational process inputs as well as reviewing the need for potential operations process and tool changes?

	Count	% of Total
Yes	138	75%
No	29	16%
Maybe	17	9%



Comments from Question 3

As it relates to storage operating just as transmission, possibly. It depends on whether we anticipate operational needs to be part of the FERC filing for approval. If yes, then we need to do that. If no, then it might be a better use of time to wait and get approval first before making operational determinations.
Yes. As PJM staff have said, the Phase 1 package proposed by PJM only considers the planning analysis aspects of SATA. There remains a considerable amount of questions around the operational aspects of SATA including: communication requirements and coordination of SATA operation between PJM, TOs and asset owners, whether development of operating guides and/or asset operation agreements that outline responsibilities of all parties associated with SATA are needed and how will costs and revenues associated with charge and discharge of SATA will be treated. Finally, under market efficiency solutions, how or will SATA need to be integrated into the PJM EMS to optimize both mitigating the constraint and the asset's state of charge (if not, which and how are those market signals integrated into the TO or asset owner's dispatch computer)? These are not insurmountable questions but need to be resolved in order to provide clarity around how SATA will be operated and treated.
pull these load profile assumptions into interconnection process for non-SATA storage projects.
Our YES response is contingent upon significant further consideration of what would constitute the operational aspects of SATA, particularly how costs will be treated.
We should put the discussion on hold and see if we can come back with broader issue statement/problem statement.
Storage as transmission should also be considered in the market efficiency context, as set out in the design components of the matrix. This would be a more fruitful phase 2 approach.
If PJM wants to move forward with SATA, how SATA will behave in real time from an Operations and Planning standpoint would be helpful to explore, including whether the computer systems/software/relays/processes are ready and capable of handling.

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