

## Develop PJM Business Rule Proposals for Integrating Storage As a Transmission Asset

### Issue Source

PJM seeks to ensure existing planning rules provide sufficient clarity regarding if and how storage as a transmission asset (“SATA”) should be evaluated and incorporated into the PJM Regional Transmission Expansion Plan (“RTEP”) process. Resolving this issue is necessary to enable PJM to provide transparent rules for stakeholders to understand how PJM might evaluate these assets to address elements in the RTEP

### Issue Content

The effort will explore existing transmission planning criteria, including performance measurement methodology, and where there are gaps, develop additional criteria to be used in evaluating storage as a transmission asset to address elements in the RTEP associated with Reliability, Market Efficiency, Operational Performance, and Public Policy to allow PJM to plan the RTEP effectively.

### Key Work Activities and Scope

#### Phase I

1. Provide educational session in regards to current applicable business rules
2. Provide education on regulatory precedent (e.g. *Western Grid* and *Nevada Hydro* cases at FERC)
3. Engage stakeholders in PJM business rules gap identification as well as developing possible recommendations for changes
4. Ensure Planning criteria adequately addresses both performance measurement methodology and cost measurement methodology
5. Ensure planning criteria reflects System Operations input in an effort to maintain system reliability.
6. Develop criteria for proposal evaluation for the size of the SATA
  - a. Consideration of peak load, load duration, load curve, and market efficiency impacts.
  - b. Consideration of SATA effective duration and recharging characteristics
7. Develop comparative framework for evaluating storage in relation to traditional transmission reinforcement
  - a. Determine if SATA is an acceptable solution for various reinforcement scenarios in the RTEP
8. Evaluate how to model the SATA (generator/load/standby)
  - a. Reliability analysis
  - b. Sensitivity cases to expose reliability deficiencies
  - c. Market Efficiency analysis
9. Evaluate facility cost determination methodology
  - a. Initial cost and ongoing maintenance cost
  - b. Life expectancy and cost to ensure usable life on par with traditional transmission assets
  - c. Consideration of losses associated with charge/discharge cycles
  - d. Methodology will create a level playing field for comparing SATA costs to traditional reinforcement costs
  - e. Methodology will consider proposals developed by other RTOs/ISOs
10. Identify potential operations and/or markets impacts that may need to be addressed as part of Phase 2.



PJM recognizes the potential dual use of storage as a transmission asset at times and as a market participant at other times. PJM recognizes the complexity of dual use and feels it is prudent to take a measured approach to this topic. Therefore, defining the criteria used to effectively evaluate and compare storage as a transmission solution in the RTEP will be the focus of phase I of this stakeholder effort in order to determine if any further discussion of dual use of the storage as a transmission asset and allowing market participation is feasible. PJM recognizes that the evaluation of the cost-effectiveness of a given storage solution to a transmission Reliability or Market Efficiency need could be impacted by the question of whether and how the unit would participate in the market. Nevertheless, this issue is derivative of the primary question, to be answered in this Phase I as to the feasibility of evaluation energy storage purely as a transmission asset. Further evaluation of the impact of the storage resource's ability to participate in markets and earn revenue (and its resulting impact on the evaluations to be undertaken in this phase) can most effectively be accomplished once additional experience is gained from additional storage participation and the advancement of storage technology over time. For these reasons, additional consideration of market participation and its impact on the analysis to be undertaken in this phase would be addressed through a new issue charge to be worked in a task force setting to acknowledge the cross functional planning, operations and markets issues that would need to be explored.

This activity is exploratory in nature and a first step for identifying gaps in existing PJM rules and for developing rules for incorporating SATA into the RTEP. Stakeholders will have additional opportunities in future to weigh in on subsequent proposed changes to the manuals and governing documents.

**Out of Scope Phase 1 (Potential Future Stakeholder Phases):**

- Operational mechanics of implementation (model, telemetry requirements, etc.)
- Evaluation of Planning / Operations / Markets issues and development of rules to address dual usage (storage as transmission asset and market participation).

**Expected Deliverables**

Deliverables are expected to include proposals to changes in PJM Manual(s) and other governing documents.

**Decision-Making Method**

Tier 1, consensus (unanimity) on a single proposal

**Stakeholder Group Assignment**

Recommend special PC sessions

**Expected Duration of Work Timeline**

The duration of activities in the group are expected to be completed prior to the end of the fourth quarter of 2020.

Start Date	Priority Level	Timing	Meeting Frequency
5/13/2020	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium	<input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Near Term	<input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Monthly



## Issue Charge

<input type="checkbox"/> Low	<input type="checkbox"/> Far Term	<input type="checkbox"/> Quarterly
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### Charter

*(check one box)*

<input checked="" type="checkbox"/>	This document will serve as the Charter for a new group created by its approval.
<input type="checkbox"/>	This work will be handled in an existing group with its own Charter (and applicable amendments).