New York ISO
Independent System Operator

Storage as Transmission

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Agenda

- Project Background
- Market Design Concept Proposal
- Next Steps

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Project Background

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Project Background

- **Project Description:**
  - The characteristics of energy storage allow these assets to provide many potential services to grid operators. When operating as a market resource, storage can have positive impacts on transmission systems by shifting demand, supporting ancillary services, and managing transmission congestion
  - In some select instances, storage used exclusively as a regulated transmission asset, instead of a market resource, could provide similar services as traditional transmission solutions
  - The NYISO's current market rules consider storage to be a market-based Generator that competes and is scheduled in parallel with other suppliers. The current rules do not allow assets that are suppliers, such as energy storage, to be considered with traditional transmission resources to be eligible for cost-of-service rate recovery

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Project Background

- **In 2023, the NYISO completed a study on the integration of Storage as Transmission ("SAT") into the planning processes, presented at the November 27, 2023, MIWG**
  - The effort identified a number of topics to be addressed in developing a storage as transmission model
  - The 2023 project also concluded with a recommendation to move forward with the project in 2024
- **2024 Deliverable: Market Design Concept Proposed**
  - Many aspects of the market design will be determined; however, tariff will not be developed

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Project Background

- **Design Principle:**
  - Explore additional avenues for utilizing energy storage resources while maintaining the integrity of the competitive wholesale markets

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Market Design Concept Proposal

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Market Impacts

- **The NYISO-administered markets provide the foundation for supplying consumers in New York with reliable electricity in the most cost-effective manner**
- **Storage inherently impacts the wholesale markets, regardless of whether it receives regulated rate recovery, as it could in a storage as transmission ("SAT") model**
  - Therefore, it is critical to consider the impacts that the implementation and operation of SAT will have on the wholesale markets, and thus its impact on market signals for attracting and retaining market resources needed to meet NY's reliability needs

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Establishing the Market Mechanism

- Within the current planning processes, energy storage is eligible to be proposed as a market-based solution
- In the SAT concept proposal, energy storage may be proposed as a regulated transmission resource that is eligible for cost-of-service rate recovery in response to identified transmission needs
  - The SAT proposal will describe how the resource can charge or inject to resolve the identified need
  - SAT will be evaluated consistent with the NYISO's planning processes
- SAT will not be dispatched via the NYISO-administered wholesale markets, and SAT will not operate in the wholesale markets beyond what is necessary to act as a transmission resource
  - More details on the operations of SAT may be found on slides 12-14

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SAT Eligibility

- **With the concept proposal, SAT will be eligible to be considered as a transmission solution for needs that are identified through the Economic Planning Process, the Reliability Planning Process, or the Public Policy Transmission Planning Process**
  - Market based solutions are preferred in the CSPP, if storage is submitted as a resource solution, it will still be considered prior to SAT solutions
  - SAT will not be selected as a solution if a proposed resource participating in the NYISO-administered markets can meet the need
- **SAT may only be considered as a transmission solution for a need that arises from an N-1-1 contingency event**
  - N-1-1 contingencies are lower-probability events. Using SAT for more infrequent events aims to minimize potential adverse market impacts that result from the SAT injecting and/or withdrawing Energy
  - The SAT will be dispatched manually and not via the NYISO markets

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SAT Evaluation

- **Consistent with the NYISO planning processes, SAT will be included in the evaluation process with other solutions to determine the more efficient or cost-effective solution to address an identified need**
  - This creates incentives to maximize the benefits of transmission development to ratepayers

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SAT Operations

- **The NYISO will have operational control to dispatch the SAT, which will be dispatched manually**
  - The SAT will not be dispatched via the NYISO-administered wholesale markets
  - The NYISO will coordinate the dispatch of the SAT, similar to the operation of Phase Angle Regulators (PARs)
  - The NYISO will direct the charging and discharging of the SAT
    - This may include charging and discharging required for maintenance of the asset

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SAT Operations

- **Because SAT will be manually dispatched, the NYISO proposes the implementation of the following limitations:**
  - 20 MW of SAT at a single substation
  - 200 MW in aggregate of SAT across the NYISO
    - These limits reduce the burden on NYISO grid operators, potentially during a complex event
    - Additionally, implementing such limits reduces the impacts on the market due to a sudden injection or withdrawal of Energy

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SAT Operations

- **If a SAT is selected as a solution to an identified need, a coordination agreement may be developed, which may include:**
  - Scenarios/system conditions in which the SAT may be dispatched to meet the need for which it was selected
    - Whether the SAT may be used in additional emergency conditions
  - Metering and communications protocols
  - Plans for replacement and/or augmentation of the system, if necessary
  - Duration of the contract
  - Consequences for non-performance
- **When developing further design details in a later phase, the NYISO will propose tariff revisions and a pro forma agreement that could be reviewed on a case-by-case basis**

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SAT Settlements and Treatment of Market Revenues

- The cost of the SAT will be allocated consistent with the methods of the planning process under which it was selected
- Because a SAT will be charging from and injecting onto the grid to act as a transmission resource, there will be resulting costs and revenues from interacting with the wholesale markets
  - Any resulting costs and/or revenues will offset the cost allocation

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Next Steps

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Next Steps

- Further design details will be worked through as part of the market design complete and associated tariff development

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