# Storage as a Transmission Asset (SATA)

**Factsheet** **Fall 2023**

## Overview

Over the past several years, there has been tremendous growth in the transmission portion of a customer's bill, and yet significant transmission buildout is still needed. The use of grid-enhancing technologies (GETs), such as storage, can greatly reduce costs and enhance reliability. Storage as a transmission asset can provide redundancy at less cost than wires-only alternatives. For example, by connecting battery storage to strategic points on the grid, a battery can mitigate thermal overload or provide backup power and emergency voltage support. *In short, storage can serve as a cheaper, faster backup or replacement for transmission limitations*.

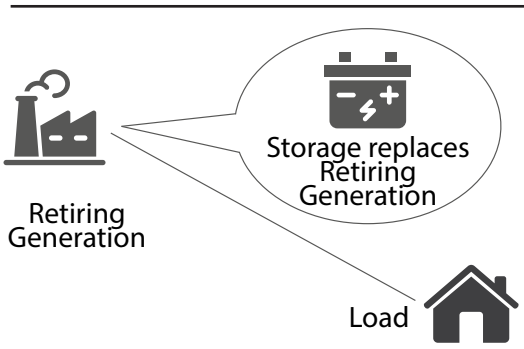
### Key Acronyms

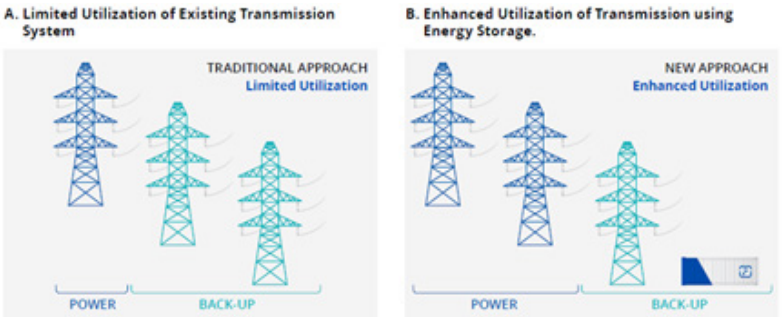
***SATA:*** Storage as a Transmission Asset

***GETs:*** Grid-Enhancing Technologies

## Types

Storage as a *regulated* transmission asset describes when storage is strategically placed to provide backup for temporary line outages that would otherwise cause a system outage.




**Source:** Kumaraswamy et al., Redrawing the Network Map: Energy Storage as Virtual Transmission, 2020

Storage can also serve *in place of* transmission. This is when storage replaces retiring generation that would otherwise necessitate a new transmission line to maintain reliability.

## Benefits of Storage as Transmission

Storage avoids the long construction timelines associated with transmission lines. It can be added on a modular basis, thereby increasing grid support over time. Finally, it often proves to be more cost-effective; see the below table for an example.

| Use Case | Battery Size | Estimated SATA Capital Cost ($M) | Estimated Wire Solution Capital Cost ($M) | Local Area Annual Cost Saving ($M) | NYCA-Wide Congestion Annual Cost Saving ($M) |
|---|---|---|---|---|---|
| #1 | 200 MW/200 MWh | 120 | 700 | 9.9* | 13.1 |
| #2 | 50 MW/50 MWh + 1,500 MVAr Reactive Power Capacity | 250 | 615 | 51** | 55 |
| #3 | 200 MW/200 MWh | 120 | 533 | 30.4*** | 17.8 |

* Congestion cost saving for Zone K
** Congestion cost saving for the Central East interface
*** Zone J LCR saving and congestion cost saving

**Source:** Quanta Technology, Storage as Transmission Asset Market Study White Paper on the Value and Opportunity for Storage as Transmission Asset in New York, 2023.

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## Federal Policy

Recognizing the dual role that storage can play as transmission or generation, FERC has held that "providing services at both cost- and market-based rates is permissible as a matter of policy," but left it up to the RTOs to develop proposals (see the 2017 policy statement). Storage and its role as a GET is especially timely since Order 2023 required grid operators to consider GETs as part of transmission planning.

## Status at PJM

PJM began a stakeholder process in 2020 but paused the proceedings, which should be renewed. CLEAR RTO seeks to reinvigorate SATA discussions to provide downward pressure on the transmission cost curve. Since FERC left the door open to RTOs to develop a cost recovery methodology that is fair to ratepayers, *consumer advocate oversight of this process at PJM is critical*.