

Explanation of Transmission Security and Minimum Evaluation Requirements for Distribution-Connected Energy Storage Solutions

What is Transmission Security?

At its core, Transmission Security is about "delivery." It ensures the grid is physically strong enough to withstand sudden, violent shocks, such as lightning strikes or short circuits while continuing to deliver energy to customers. Unlike other metrics that look at long-term averages, this is a deterministic measure: it is a "pass/fail" stress test of the system's ability to survive worst-case scenario(s).

The Engineering Mechanics: Transmission Security is fundamentally governed by physics. To prevent a domino effect that could lead to cascading outages, the system must maintain specific operating parameters (thermal, voltage, and frequency). If a contingency occurs, the grid must have the physical "strength," specifically reactive power support and thermal capacity, to stay within its safe operating envelopes.

Why "Firm" Resources are Essential: While assessments are often conducted for "peak hours," the risks to reliability are not uniquely load-dependent. Failure can propagate through the system in milliseconds, leaving no time for manual intervention. Because Transmission Security has zero tolerance for load shedding (*i.e.*, NYC), the grid must be designed to survive these shocks without an operator needing to "drop customers" to save the infrastructure. This necessitates "firm" resources: dependable power sources that are already synchronized to the grid and physically capable of providing the instantaneous support needed to keep the system stable under any condition, at any moment.

Transmission-Connected Energy Storage Resources: The New York Independent System Operator (NYISO) determines when a transmission connected resource may be counted as a "firm" resource in the database that is to be used in the Transmission Security Assessment. The NYISO inclusion rules are documented in NYISO's Reliability Planning Process Manual (Manual 26).

What are the minimum evaluation requirements for Distribution-connected energy storage solutions?

Distribution-connected energy storage included as a "firm" resource by the NYISO: While the Distribution system does not have an equivalent classification for "firm" resources, Distribution-connected energy storage projects that have registered for direct participation in wholesale markets and which have been classified as "firm" by the NYISO will be regarded as "firm" resources available to support the Transmission Reliability Needs.

All other proposed full or partial energy storage solutions will be considered for evaluation if they meet the following general requirements:

- The solution(s) must, at a minimum, be online all Weekday/Weekend hours identified in the Company's Transmission Security Needs Report during the NYISO-Defined Summer Capability Period (May 1 through October 31); and
- The solutions must comply with all legal and technical requirements applicable to the technologies proposed.

Additional consideration will be given to solutions that provide enhanced reliability beyond minimum requirements, including but not limited to, solutions that:

- Do not create local reliability problems (E.g., local peaks, overloads)
- Can provide 24-hour dispatchability and/or year-round availability
- Meet Distribution Area Substation local reliability criteria (e.g. the loss of the largest or two largest elements in that distribution area, sometimes referred to as N-1 or N-2, criteria)