

Energy Storage Market Trends



**NEW YORK BATTERY
AND ENERGY STORAGE**
TECHNOLOGY CONSORTIUM

William Acker
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NY-BEST Mission

To catalyze and grow the energy storage industry and establish New York State as a global leader.

We do this by:

1. *Communicating information and facilitating connections*
2. *Accelerating commercialization*
3. *Educating policymakers and stakeholders*
4. *Promoting New York's intellectual and manufacturing capabilities and providing access to markets*

Electrification of Transportation

The electrification of transportation is one of the largest supply chain transitions in history

- ❖ Li ion batteries continue to dominate
- ❖ Supply chain growing pains
- ❖ Opportunities and challenges with the electricity grid

Li Ion Battery Technology

Continued improvement and tiered products

- ❖ High nickel, silicon and other improvements
- ❖ Reduction in cobalt
- ❖ LFP - tiered product lines

Li Ion Battery Supply Chain

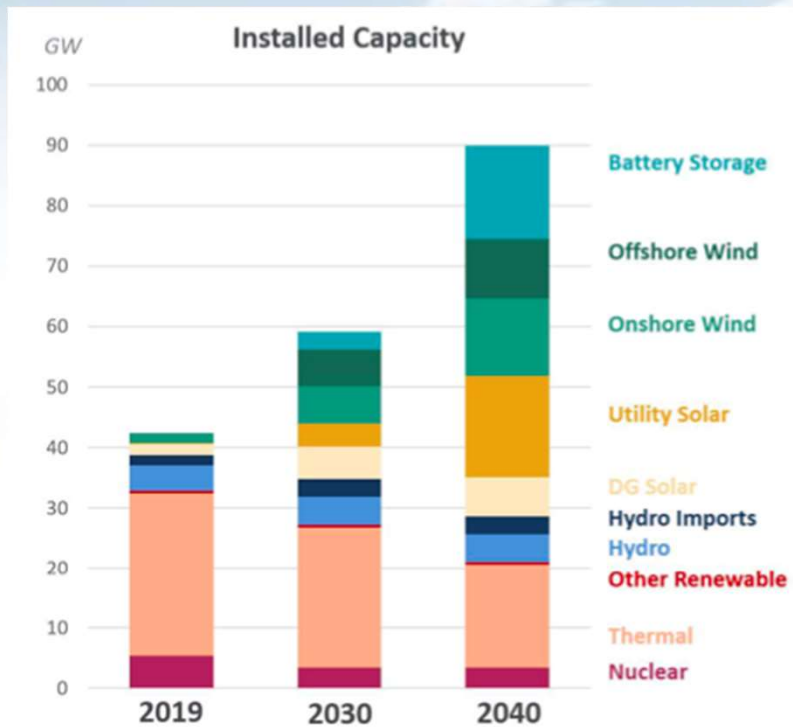
Growing pains

- ❖ Supply constraints and recent cost increases
- ❖ Longer term continued cost reduction
- ❖ Ambitions for domestic supply

Interaction with the Grid



New York Generation Growth



← Hourly storage

← Long duration storage and clean dispatchable technologies

Source: "Initial Report on the New York Power Grid Study", The Brattle Group and Pterra Consulting, prepared for NY PSC January 19, 2021

Importance of Flexible Assets

Address mismatch of generation and load over multiple time scale

- ❖ Energy Storage (fast response, hours)
- ❖ Flexible loads
- ❖ Electric Vehicles (flexible load and V2G)
- ❖ Long duration solutions (Energy Storage, Hydrogen, etc)
- ❖ Portfolio approach of aggregations and controls

Controls and Aggregations

Aggregations are possible at a number of levels

- ❖ “Virtual Peakers” and demand load management
- ❖ NYISO markets and FERC 2222

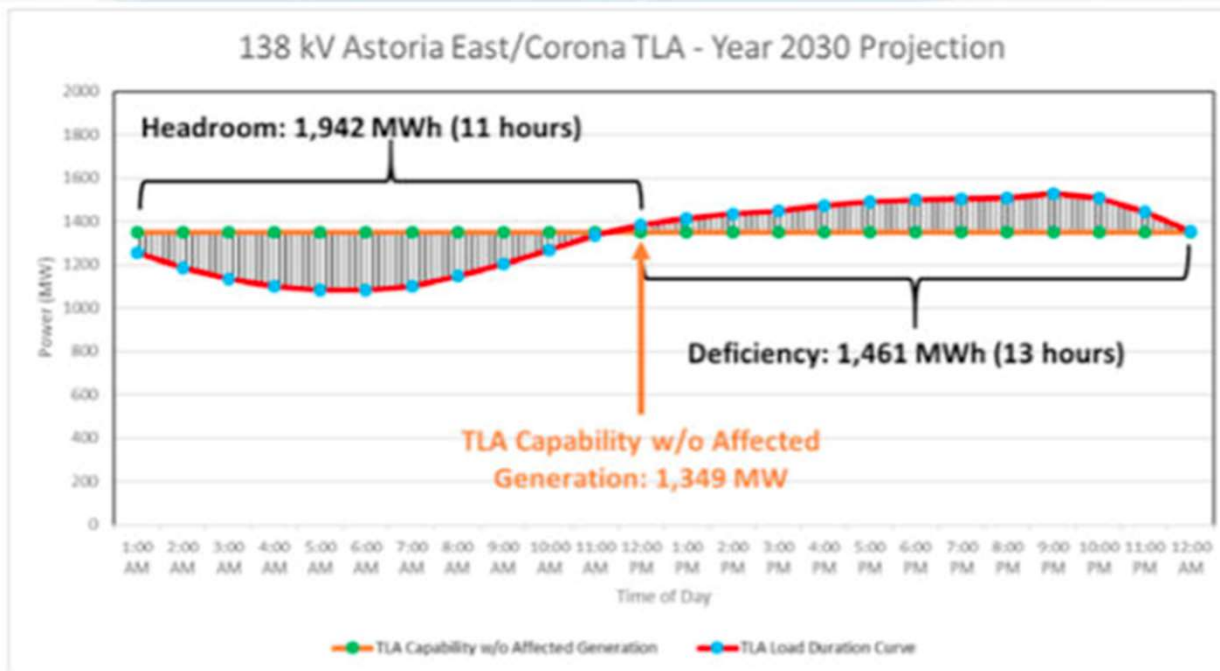
Interconnection and Energy Delivery



Hosting Capacity

- ❖ Hybrid systems
- ❖ Dynamic hosting capacity

Virtual Transmission

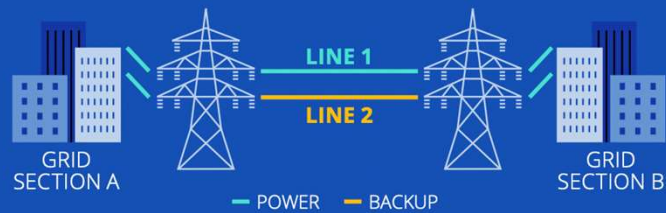


Source: Utility Transmission and Distribution Investment Working Group Report filed with PSC Nov 2, 2020

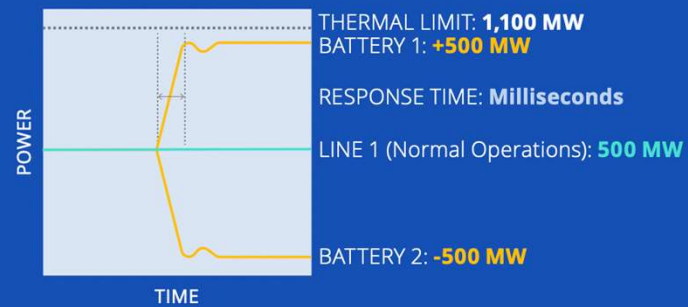
Virtual Transmission

FIGURE 1. Example: Meeting N-1 Contingency Criteria with Virtual Transmission

Typical Augmentation with 2nd 500 MW Line



Augmentation with 2 x 500 MW Virtual Transmission Assets



Source: Fluence White Paper: “Building Virtual Transmission: Critical Elements of Energy Storage for Network Services” WP-009-01-EN 2020

Going Forward



We expect continued growth in established use cases supporting goal of at least 6 GW storage deployment in NY State by 2030

Thank You

Capture the Energy 2022
Albany, NY
May 24th – 26th



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