

Battery Energy Storage Systems (BESS): Fundamentals of Siting and Safety

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Resources for Local Governments

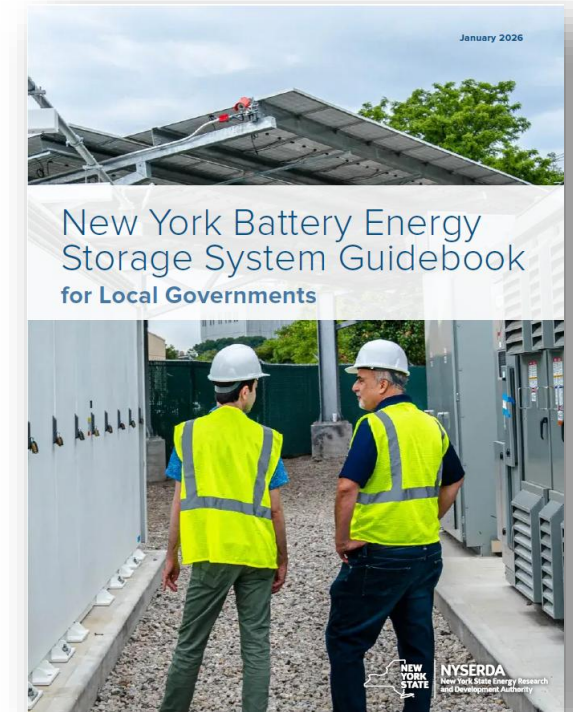
cleanenergyhelp@nyserda.ny.gov

<http://www.nyserda.ny.gov/siting>



NYSEERDA Clean Energy Siting Team:

- Clean Energy Guidebooks for Local Governments, incl. [BESS Guidebook](#)
- Hands-on **education & training opportunities**
- **Technical assistance and local laws review/ drafting support**
- **Pre-recorded trainings** (e.g. [‘Deploying Safe Lithium-Ion Energy Storage in Your Community’](#) webinar)
- Support from regional **Clean Energy Advisors** and technical contractor resources



Resources for Local Governments

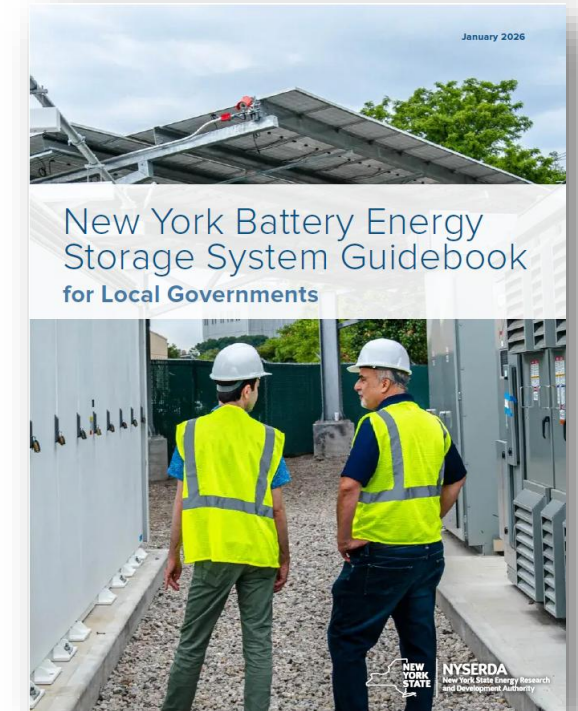
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NYSERDA Clean Energy Siting Team:

Energy Storage Guidebook

- Fact Sheets
- Links to 2025 Fire Code
- FAQ
- Model Law
- Model Permit
- Fire Safety Working Group Deliverables
 - Fire Code Recommendations
 - Press Releases
 - Air, Soil, and Water Report
 - Webinar recording
- Peer Review Resources



Battery Energy Storage Systems (BESS): Fundamentals of Siting and Safety

Agenda

- Introduction to Energy Storage
- Planning & Zoning for Energy Storage
- Fire Safety Considerations
- Resources for Local Governments



Introduction to Energy Storage

Introduction to Energy Storage

Drivers & Technologies

Why are we talking about energy storage?

Driving electric grid questions/concepts:

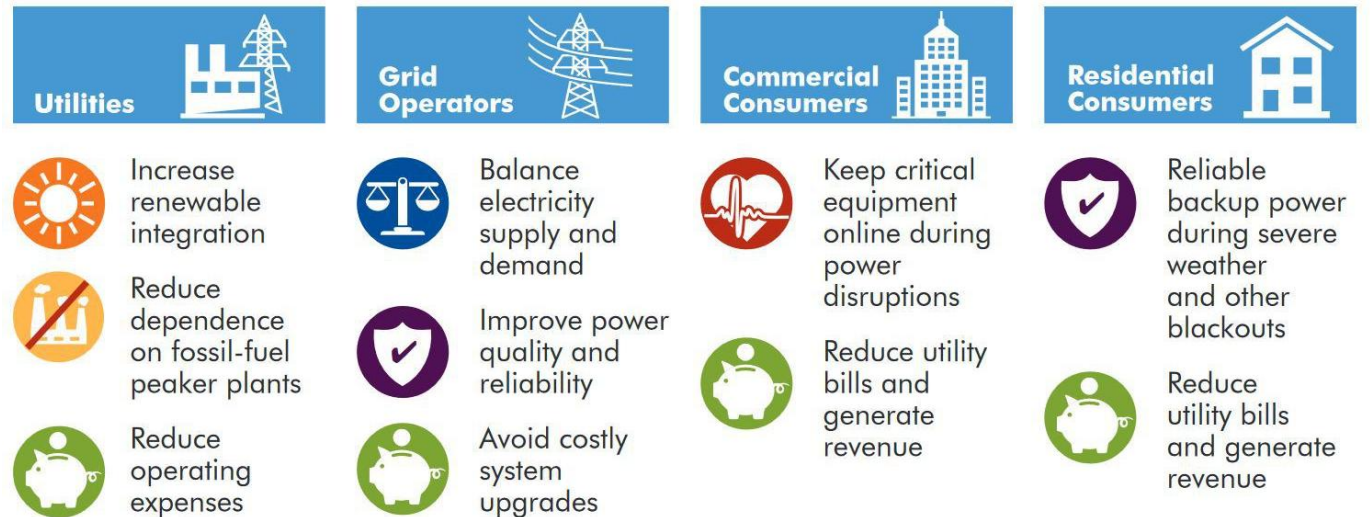
- Do we have enough (+ *when we need it*)?
→ **'Resource Adequacy'**
- Can the grid withstand strain / challenges?
→ **'Reliability' / 'Resilience'**
- Can we avoid/minimize/manage costs of grid operations, maintenance?
→ **'Affordability'**

Introduction to Energy Storage

Drivers & Technologies

Energy storage can help address these questions across 'sectors' of the grid:

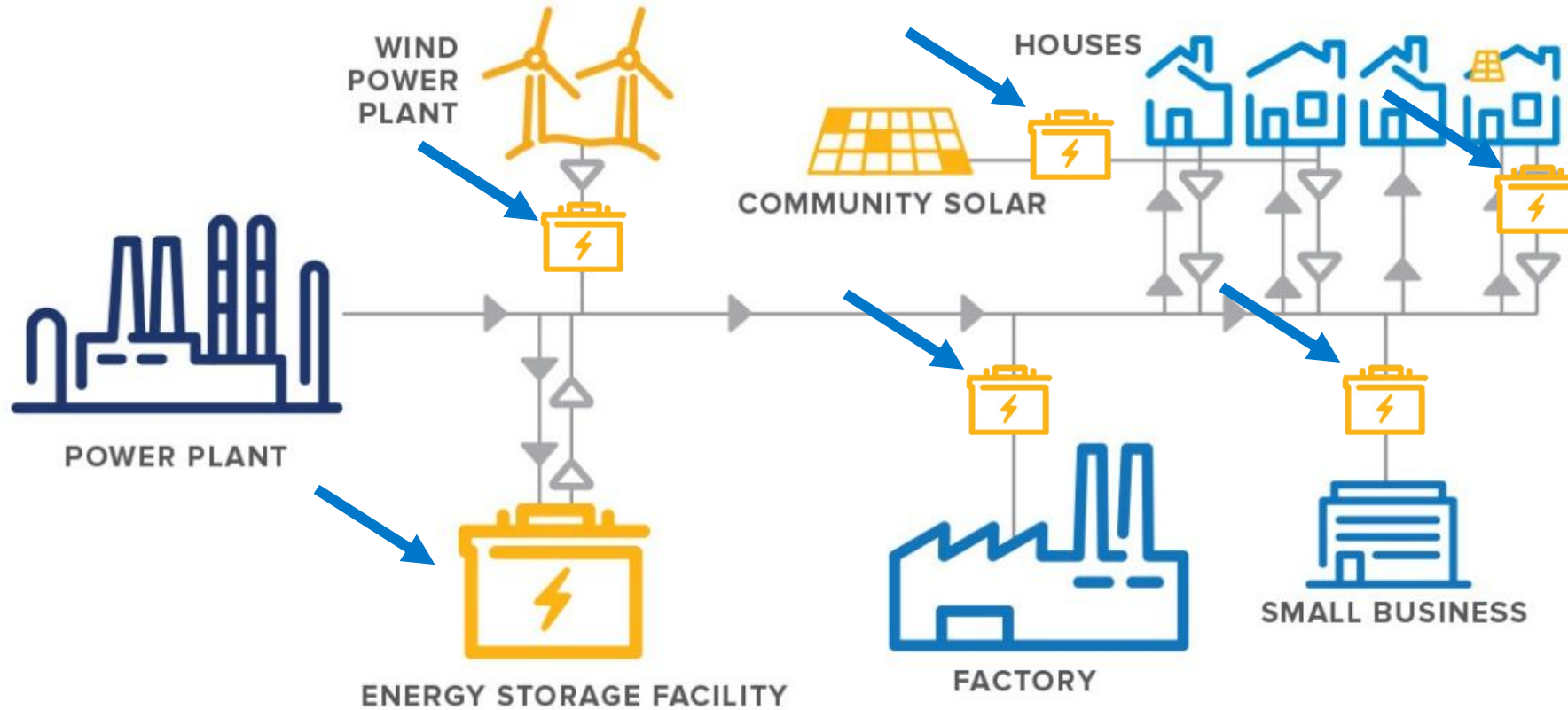
- Residential customers
- Businesses/commercial customers
- Electric service utilities (e.g. National Grid)
- Grid operators (NYISO)



Energy storage technologies have the capacity to benefit each segment of the power system.

Introduction to Energy Storage

Drivers & Technologies



Introduction to Energy Storage

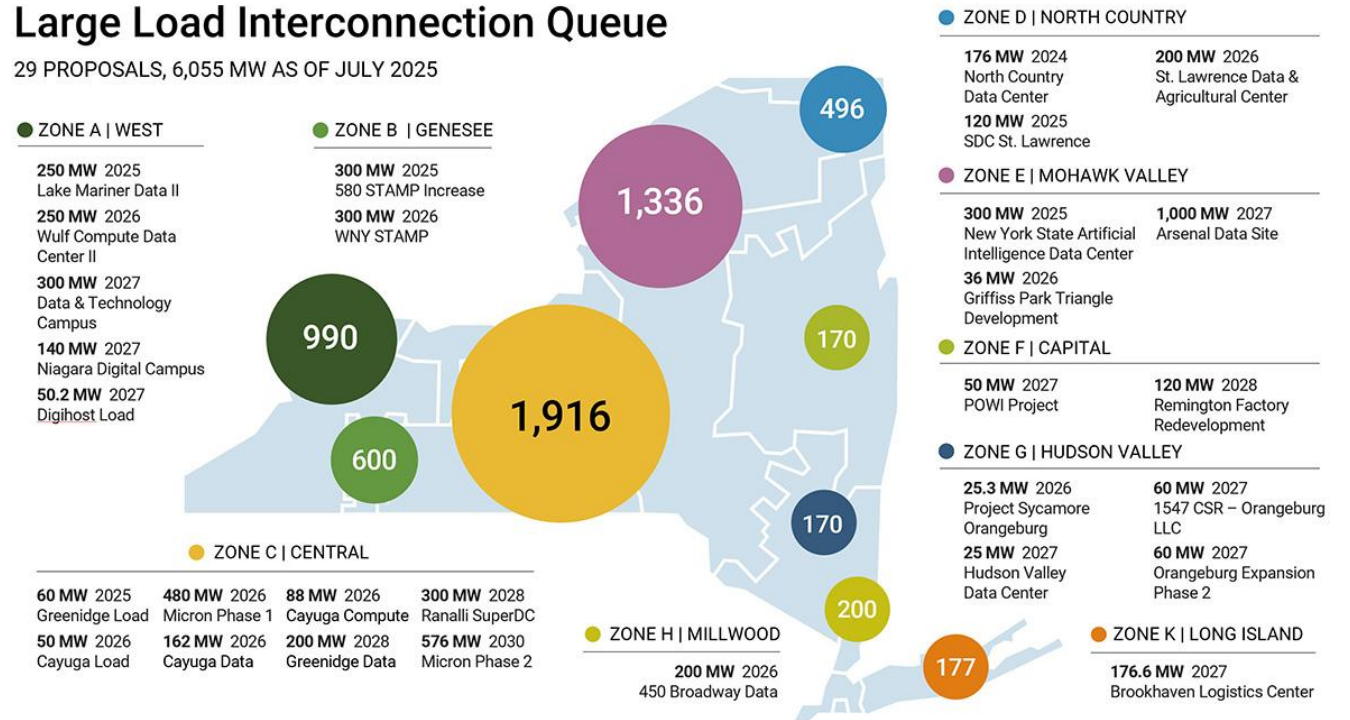
Drivers & Technologies

Why are we talking about energy storage?

- Load growth! (Manufacturing, economic development projects, data centers, electrification, etc.)

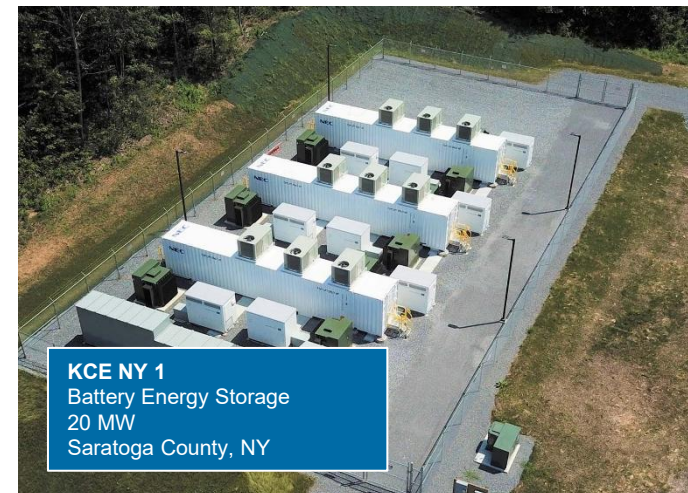
Large Load Interconnection Queue

29 PROPOSALS, 6,055 MW AS OF JULY 2025



Introduction to Energy Storage Drivers & Technologies

NOT Hypothetical - Energy Storage Technologies Exist in NYS:



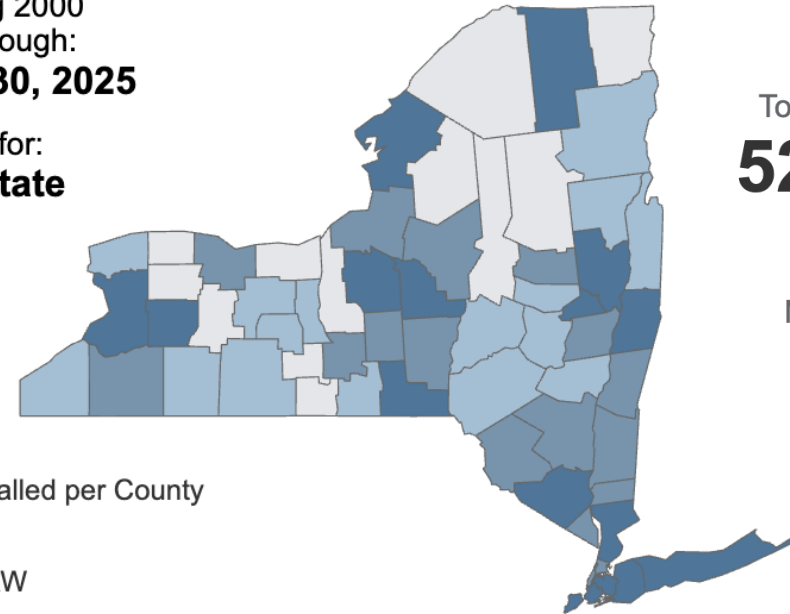
Introduction to Energy Storage

Drivers & Technologies

NOT Hypothetical - Energy Storage Technologies Exist in NYS:

Data beginning 2000 and current through: **November 30, 2025**

Showing Data for: **New York State**



Total Capacity (MW AC)
523.99 MW

Number of Projects
7,311

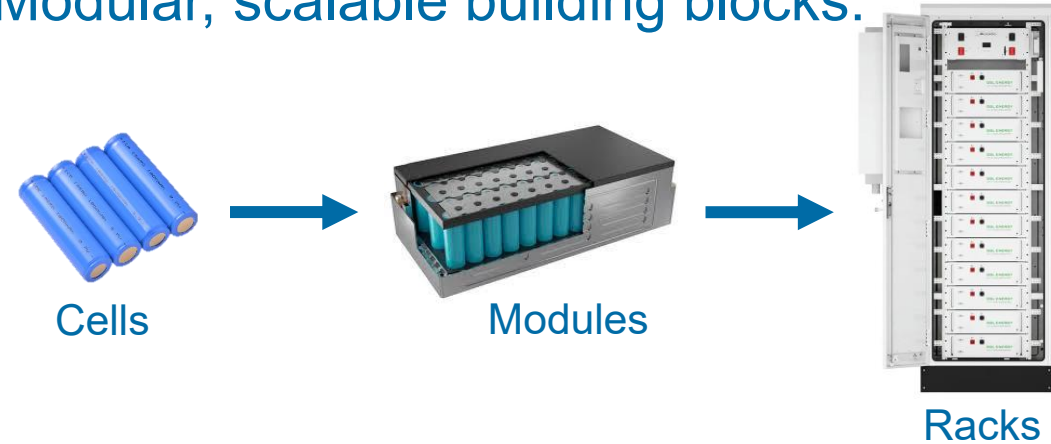
Megawatts installed per County

- 0 kW
- >0 to 100 kW
- >100 to 1000 kW
- >1 MW to 10 MW
- >10 MW

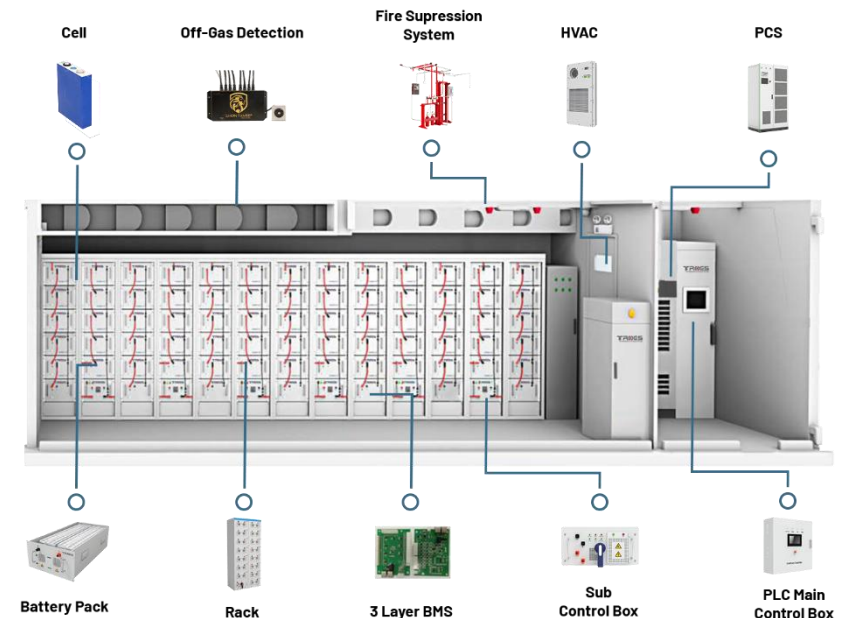
Introduction to Energy Storage Drivers & Technologies

Battery Energy Storage Systems (BESS):

- Modular, scalable building blocks:



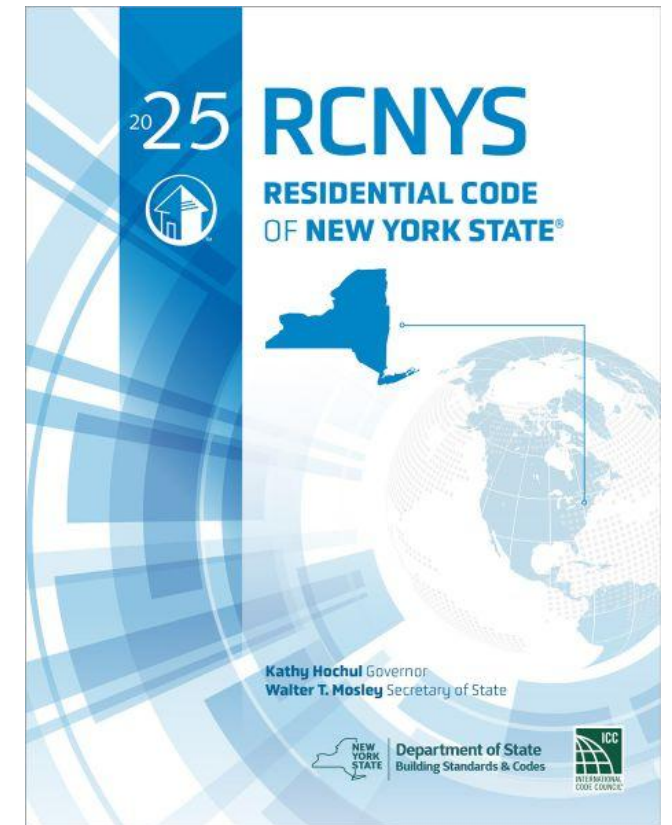
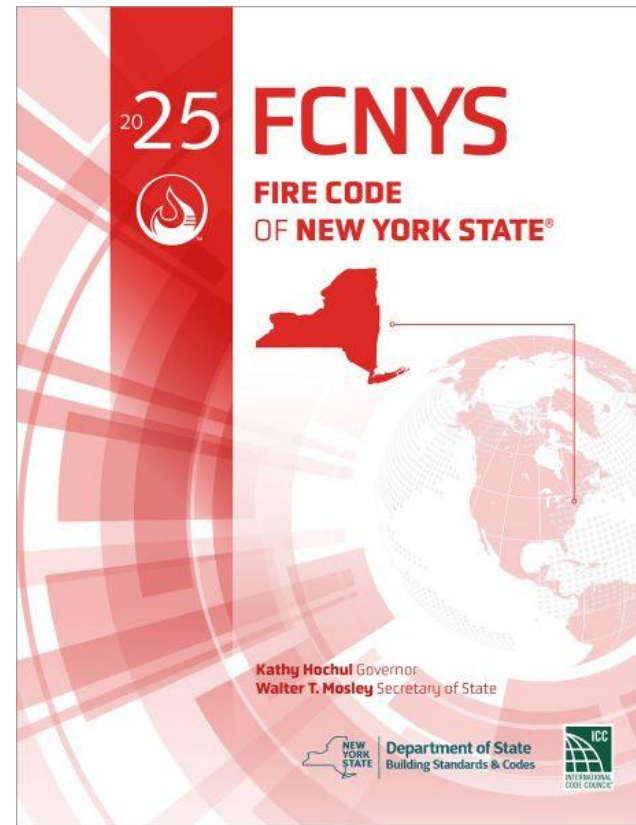
- Battery management system (BMS)
- Balance of system (BOS) equipment



Planning & Zoning for Energy Storage

Planning & Zoning for Energy Storage

Each of your communities already has robust, enforceable regulations in place to ensure safety of BESS installations:



More on that to come!

Planning & Zoning for Energy Storage

Why should local governments proactively consider / plan for energy storage?

- Variety of use cases



20 kWh, residential



White Plains, NY

940 kWh, commercial



Yorktown, NY

1.85 MWh, DER



Blasdell, NY

45.6 MWh, Bulk

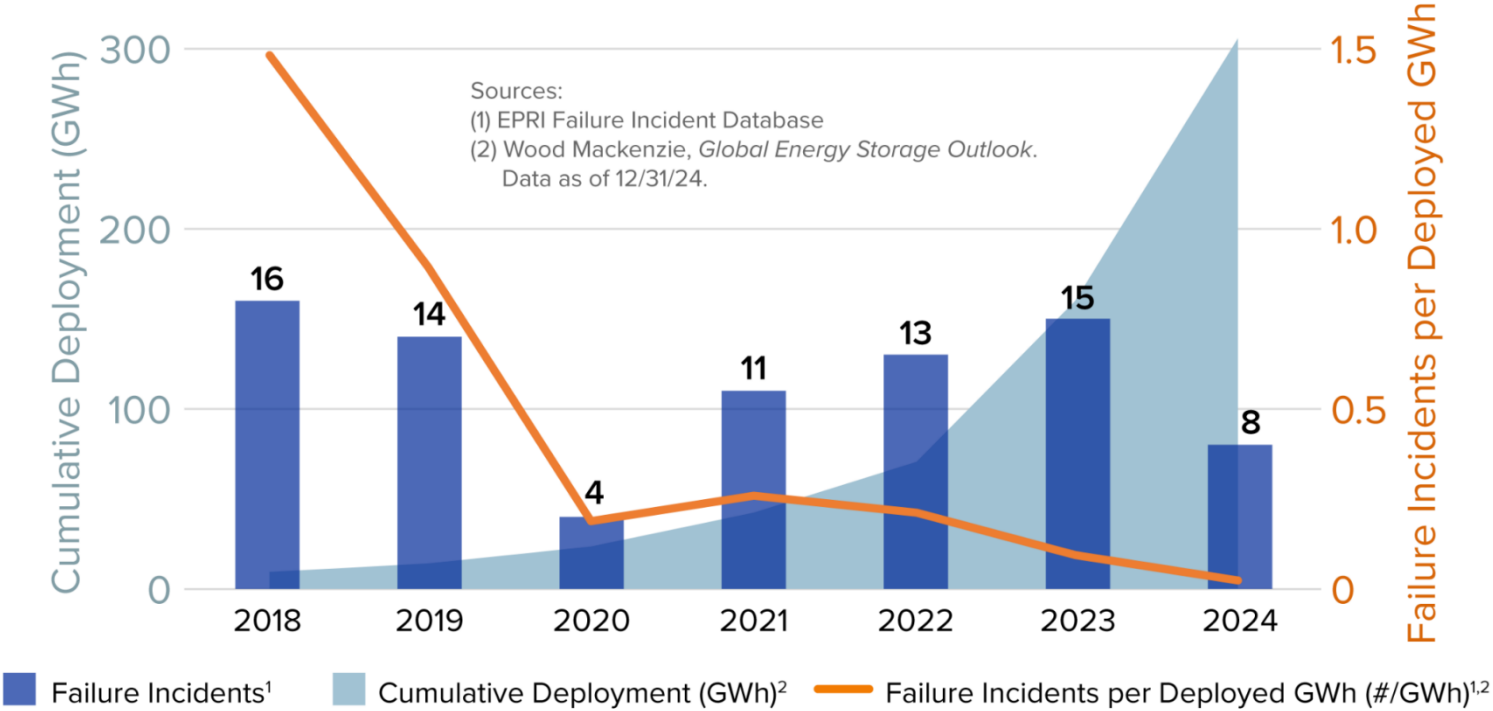
A row of large, grey metal electrical enclosures or cabinets outdoors on a gravel surface. The enclosures are arranged in a line, receding into the distance. They have multiple doors with handles and locks. The background shows a clear sky and some greenery.

Fire Safety Considerations: Codes, Standards, and Peer Review

Fire Safety & the 2025 NYS Fire Code

BESS failure incident rates continue to decline year-over-year; fire safety and code compliance as well as technology advancements played a role in this trend.

Global Grid-Scale Storage Deployment and Failure Statistics



Fire Safety & the 2025 NYS Fire Code

NYS Inter-Agency Fire Safety Working Group

In July 2023, in response to fires at three BESS sites, Governor Hochul convened an Inter-Agency Fire Safety Working Group (Working Group).

Agency Participants

- Division of Homeland Security Emergency Services (DHSES)
- Office of Fire Prevention and Control (OFPC)
- New York State Energy Research and Development Authority (NYSERDA)
- Department of Environmental Conservation (DEC)
- Department of Public Service (DPS)
- Department of State (DOS)

Working Group Partners

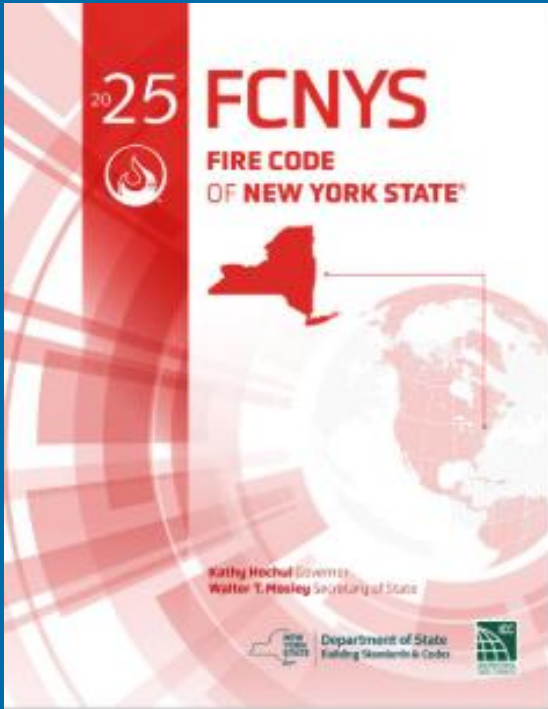
Highly specialized Subject Matter Experts (SME)/fire protection engineering firms, national labs, and New York Power Authority

Fire Safety & the 2025 NYS Fire Code

NYS Inter-Agency Fire Safety Working Group

1. Release **preliminary Air, Soil, and Water Data Findings Report**. No reported injuries, no detected harmful levels of contaminants linked to the fires. *Issued December 2023*
2. Issuance of final **Fire Code Recommendations** for NYS Uniform Code. Resulted in 11 recommendations for large, grid-scale systems. Draft code language to reflect the recommendations now incorporated into the Notice of Proposed Rule Making. *Issued March 2025*
3. **Field Inspections and Quality Assurance** – inspected 57 in-service projects with SME collaboration resulting in an enhanced NYSERDA inspection process. *Completed Dec 2024*
 - *Through lessons learned, incorporated peer review into NYSERDA program*
4. State-wide **Webinar for local communities**. Q2 2025

NYS Uniform Code

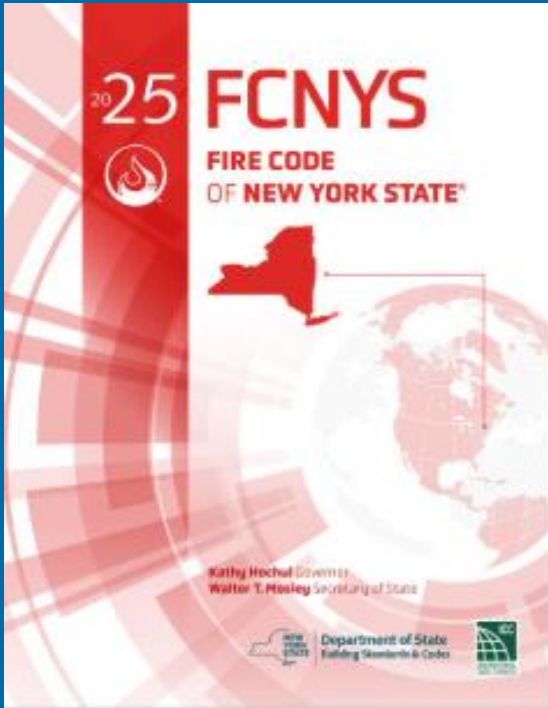


Energy Storage in the NYS Uniform Fire Prevention and Building Code (Uniform Code):

- **May 2020:** 2020 Uniform Code cycle goes into effect; codifies requirements for BESS in multiple codes.
- **July 2025:** NYS Code Council adopts the 2025 Uniform Code, codifying recommendations from the Fire Safety Working Group.

The 2024 IFC is the basis of the 2025 Fire Code of New York State, which is in full effect Jan 1, 2026.

NYS Uniform Code



Energy Storage in the NYS Uniform Fire Prevention and Building Code (Uniform Code):

Key takeaways:

- Numerous key code sections were **previously discretionary; now required!**
- Requires **application peer reviews**, to ensure subject matter experts are involved in all approvals
- Requires project-specific **Pre-Incident Plans** to be developed in consultation with local fire department
- Requires project owners to **provide annual on-site visits, Plan reviews/trainings**
- Requires project owner to furnish **Hazard Support Personnel** to support and collaborate with local first responders

National Standards for BESS

Applicable Codes & Standards:



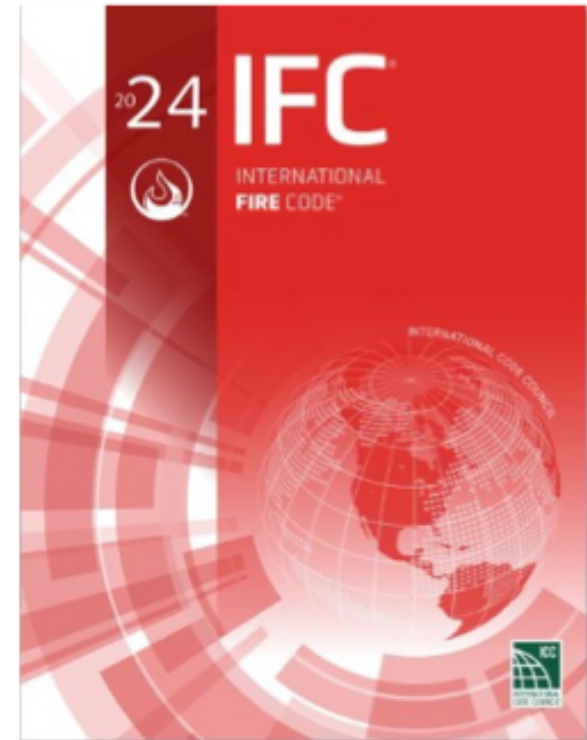
- **UL 9540:** “Standard for Energy Storage Systems and Equipment” certifies that all components of the system work safely in harmony together
- **UL 1741:** Inverters for utility interactive systems listed for use with distributed energy resources
- **UL 9540A:** Test method to evaluate system safety pertaining to thermal runaway



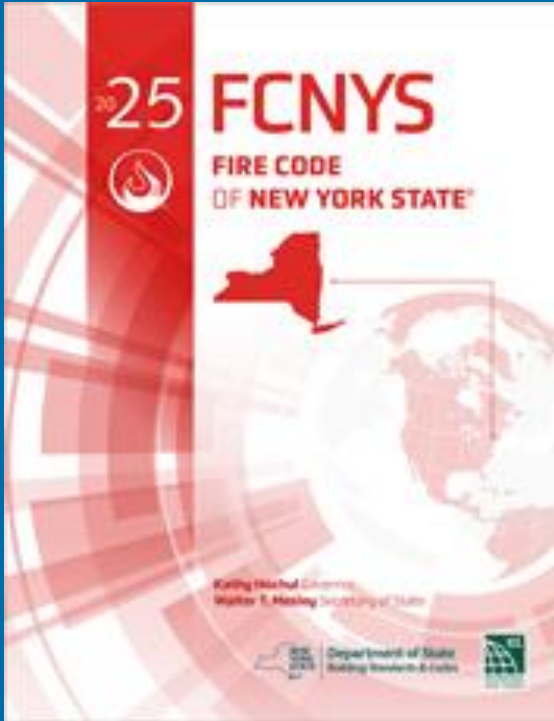
- **International Fire Code (IFC) Chapter 1207, Energy Storage Systems**
 - This is the basis for 2020 FCNYS section 1206 and section 1207 of the 2025 FCNYS



- **NFPA 12** – Standard on CO₂ Extinguishing Systems
- **NFPA 13** – Standard for the Installation of Sprinkler Systems
- **NFPA 15** – Standard for Water Spray Fixed Systems for Fire Protection
- **NFPA 68** – Standard on Explosion Protection by Deflagration Venting
- **NFPA 69** – Standard on Explosion Prevention Systems
- **NFPA 70** – National Electric Code (NEC)
- **NFPA 72** – National Fire Alarm and Signaling Code
- **NFPA 750** – Standard on Water Mist Fire Protection Systems
- **NFPA 855** – Standard for the Installation of Stationary Energy Storage Systems*
- **NFPA 1142** – Standard on Water Supplies for Suburban and Rural Firefighting
- **NFPA 2001** – Standard on Clean Agent Fire Extinguishing Systems
- **NFPA 2010** – Standard for Fixed Aerosol Fire-Extinguishing Systems



Resources for Local Governments



NYS State Fire Prevention and Building Code Council:

- [New York 2025 Code Books](#)

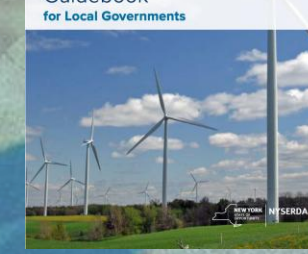
Office of Fire Prevention & Control (OFPC):

- [BESS Fire Service Response Guide](#)
- [Battery Emergencies Training](#) (DHSES Learning Management)



Clean Energy

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NineDot installation sited across the street from a school in the Bronx