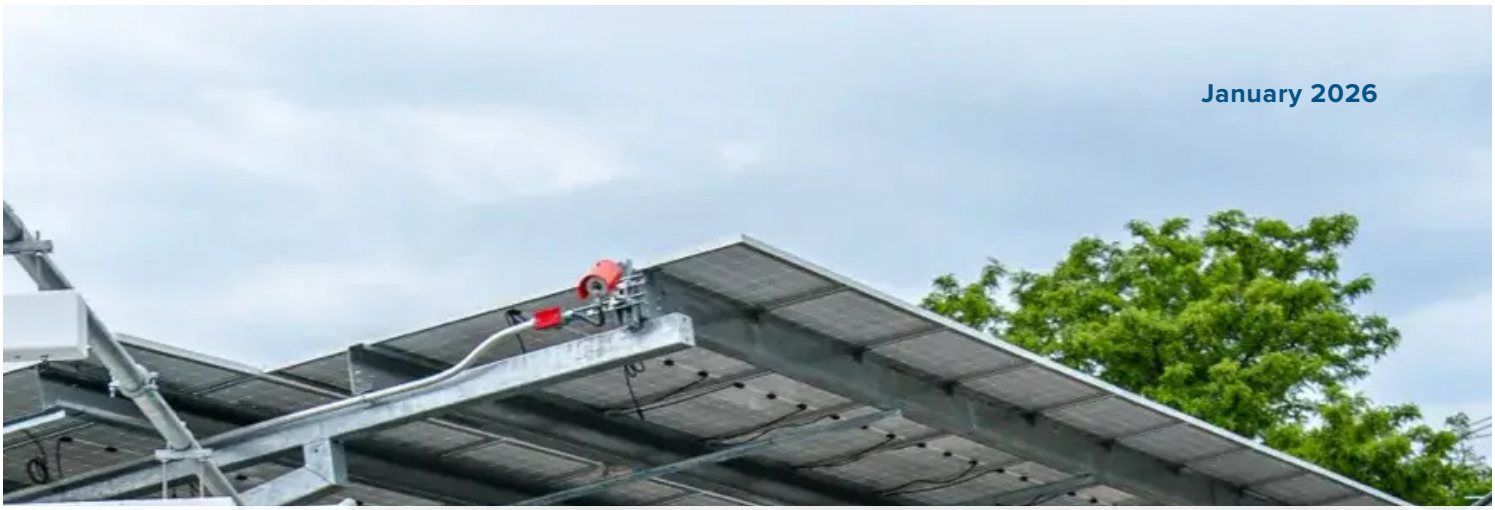
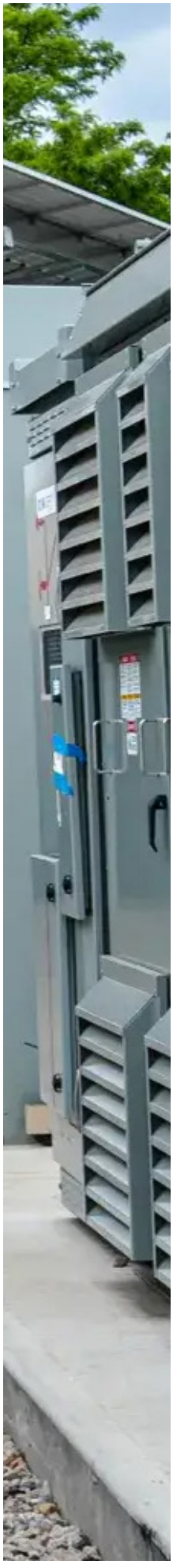


January 2026

New York Battery Energy Storage System Guidebook

for Local Governments



New York Battery Energy Storage System Guidebook

Energy storage is a smart and reliable technology that helps modernize New York's electric grid, helping to make the grid more flexible, efficient, and resilient. With thousands of energy storage sites already in place across the State, this exciting technology is playing an important role in making sure New York has affordable and dependable energy.

Energy storage makes our power grid more affordable, more resilient, and more responsive. There are many types of battery energy storage systems, including ones that can be installed at home to be used for on-site backup power, larger systems for business use, and even larger systems that can be incorporated directly into our power grid. These technologies are common across New York State and the rest of the world, helping to modernize and future-proof our energy systems.

Energy storage helps everyday New Yorkers save money on electricity and keeps the power working when we need it most. This is especially true during peak demand events like hot summer days when electricity is most costly and we rely on air conditioning to stay safe and comfortable. For vulnerable groups, grid resilience can literally save lives. Battery energy storage systems also help to balance the electricity network, providing necessary backup during power outages from severe weather events or accidents. This can prevent the need for more expensive upgrades to the power system, which helps keep electricity costs down over time.

Energy storage systems can help to replace or lower the use of polluting peaker plants. Think of energy storage like a massive battery, and peaker plants like an expensive and massive gas-powered generator releasing emissions into the air. They are older power plants that are costly to maintain and powered by fossil fuels and only operate when New York State experiences "peaks" in energy demand. Using energy storage helps limit our use of these costly fossil fuel-based power plants, which in turn helps keep the air cleaner and people healthier—especially in communities that already face the biggest environmental risks to their health.

New York State worked with top experts around the country to create and improve the regulations around energy storage. These regulations are some of the strictest in the United States and are supported by careful reviews and checks by outside experts. While there have been occasional safety issues with storage systems, these problems do not happen often. According to the Electric Power Research Institute's Battery Energy Storage Systems Failure Incident Database, the rate of incidents is extremely low—and falling—and it is important to understand that all electric infrastructure can catch on fire, making it critical to have the strictest safety standards no matter what.

Just to be safe, Governor Kathy Hochul announced the creation of an Inter-Agency Fire Safety Working Group (Working Group) in 2023 to ensure the safety and security of energy storage systems across the State. On July 25, 2025, New York officially adopted updated energy storage safety codes based on the Working Group's recommendations, further cementing the State's commitment to safe deployment. For the latest code updates and to reference the full text of the 2025 Fire Code of New York State (Section 1207 addresses Electrical Energy Storage Systems), please refer to the New York State Department of State (NYS DOS) website. The 2025 NYS Code Books can also be viewed for free on the International Code Council (ICC) website or purchased online.

As an important first step in protecting public and firefighter safety while promoting safe energy storage, the New York State Energy Research and Development Authority (NYSERDA) developed the first comprehensive set of guidelines for reviewing and evaluating battery energy storage systems. The Battery Energy Storage System Guidebook (Guidebook) helps local government officials, and Authorities Having Jurisdiction (AHJs), understand and develop a battery energy storage system permitting and inspection processes to ensure efficiency, transparency, and safety in their local communities.

The Guidebook contains the following chapters:

- **Battery Energy Storage Systems FAQ (BESS FAQs):** The BESS FAQs Chapter serves as an introduction to the common equipment and terminology used in energy storage technology. Topics of discussion include energy storage systems and components, types of batteries, safety, and siting considerations.
- **Battery Energy Storage System Model Law (Model Law):** The Model Law is intended to help local government officials and AHJs adopt legislation and regulations to responsibly accommodate battery energy storage systems in their communities. The Model Law lays out procedural frameworks and substantive requirements for residential, commercial, and utility-scale battery energy storage systems.
- **Battery Energy Storage System Model Permit (Model Permit):** The Model Permit is intended to help local government officials and AHJs establish the minimum submittal requirements for electrical and structural plan review that are necessary when permitting residential and small commercial battery energy storage systems.
- **Battery Energy Storage System Electrical Checklist (Checklist):** The Battery Energy Storage System Electrical Checklist is intended to be utilized as a guideline for field inspections of residential and small commercial battery energy storage systems. It can be used directly by local code enforcement officers or provided to a third-party inspection agency, where applicable.
- **Fire Safety Working Group Deliverables:** This Chapter consolidates in one place deliverables from Governor Hochul's Fire Safety Working Group.

When combined with all applicable provisions of the codes, regulations, and industry standards as referenced in the New York State Uniform Fire Prevention and Building Code, these resources create an all-encompassing process to safely permit all types of battery energy storage systems. The Guidebook is intended to create complementary review processes for battery energy storage systems separate from other technologies. For example, if a hybrid project contains both a battery energy storage system and solar photovoltaics, the proposed project would have to comply with both solar and battery energy storage system requirements.

NYSERDA will continue to work with permitting authorities and the industry to test the processes outlined in the guide so they can be refined and updated as the codes and standards evolve.

The Guidebook is advisory only and not legally binding. These resources are not intended for adoption precisely as they are written, and each municipality should delete, modify, or add other provisions as appropriate to suit local conditions, comprehensive plans, and existing land use and zoning provisions. Neither NYSERDA, nor any of its employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information. AHJs and other entities are welcome to use and distribute the Guidebook.

NYSERDA offers free technical assistance, including educational workshops, to local governments to help further understand the issues addressed in the Battery Energy Storage Guidebook. Workshops provide municipal planning and zoning board members, code officials, first responders, and others with the knowledge and resources to ensure responsible battery storage development in their communities. The team helps municipalities:

- Develop appropriate zoning procedures
- Draft, amend, or adopt legislation for energy storage systems
- Update a comprehensive plan to include energy storage technologies
- Improve the permitting process
- Understand new fire safety requirements
- Answer questions regarding energy storage systems

If you have any questions regarding clean energy technologies, are interested in scheduling a free training in your region, or wish to access NYSERDA's full suite of clean energy siting resources, please email the team at **cleanenergyhelp@nyserda.ny.gov** or visit **nyserda.ny.gov/Siting**.

You can download specific chapters of the New York Battery Energy Storage System Guidebook at nyserda.ny.gov/Energy-Storage-Guidebook.

NYSERDA offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean energy jobs. A public benefit corporation, NYSERDA has been advancing innovative energy solutions since 1975.

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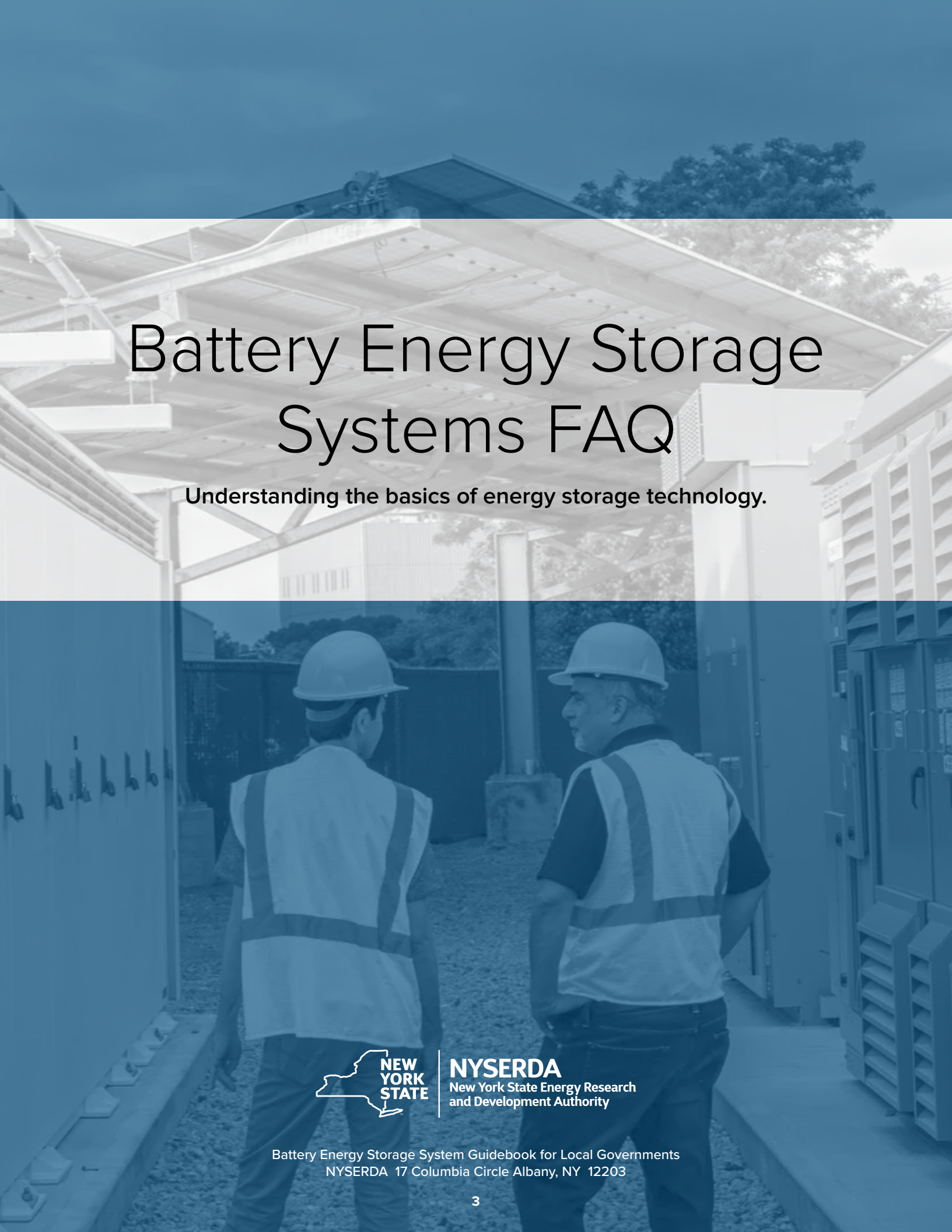


Battery Energy Storage Systems FAQ

Understanding the basics of energy storage technology.

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Section Contents

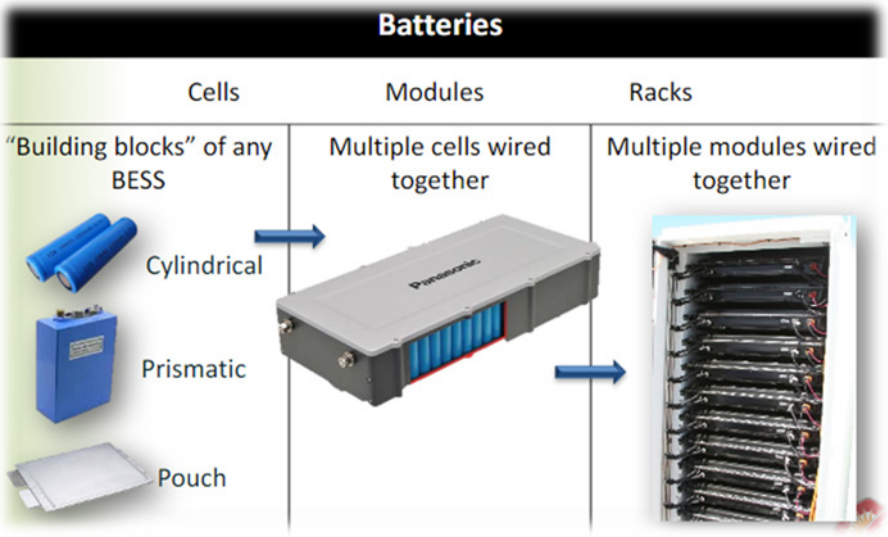
1. General Questions

1. What is a Battery Energy Storage System (BESS)?

A BESS is a group of battery cells organized into modules and then into racks that store electricity for future use via connection to the electric grid, a local electric load, or both. The energy stored can come from renewable sources (like solar or wind) or non-renewable sources (like natural gas or coal).

BESS can operate in two ways:

- Paired with a renewable energy source such as wind or solar – storing clean energy when it is produced and releasing it when needed. For example, a solar-plus-storage system may charge during sunny midday hours and discharge in the evening when demand spikes. This helps reduce curtailment, which occurs when there is an oversupply of clean energy that would otherwise be wasted.
- Standalone – charging directly from the grid during low-demand periods (for example, at night when electricity usage is much lower) and discharging during high-demand periods (for example, when many people turn on their AC units after returning home from work).



The Role of Storage and DER for California, Solar + Storage for Resiliency." Angelina Galiteva, Founder Renewables 100 Policy Institute, November 2017.

2. What are the different types of BESS?

- **Residential storage:** Primarily used for home resiliency to deliver back-up power, these systems can also shift energy consumption to off-peak hours and integrate home solar for a low-cost clean energy supply. These types of systems usually are up to 20kWh per unit.
- **Commercial storage:** Businesses can install storage systems onsite or separate from building loads, like a community solar project. These systems can be paired with solar, provide back-up power, and earn compensation from utilities for delivering grid benefits. These systems sizes vary and usually are up to 5 MW.
- **Bulk storage (utility scale):** These grid-connected storage projects enable increased integration of renewable energy sources while ensuring a resilient and reliable power supply when and where it's needed most. They provide multiple grid services which will be explained in detail in this document.

3. Why do we need BESS?

According to National Electrical Manufacturers Association study published April 2025 national electricity demand will steadily increase 2% annually, and will be more than 50% higher than 2025 by 2050 . Multiplying data centers, EV popularity and ongoing electrification of all buildings and manufacturing processes are the main drivers of this phenomenon. Additionally, New York State has a goal of achieving a zero-emissions grid by 2040. As electricity demand grows and the grid decarbonizes, ensuring power is available when and where people need it will become more challenging. Renewable sources like wind and solar are affordable technologies, but they don't always generate energy when demand for electricity is the highest. BESS can address this issue by capturing excess electricity when it's available and delivering it back to the grid when it's needed the most.

Beyond balancing variability, BESS systems also make the grid more resilient and efficient. They reduce reliance on expensive and polluting Peaker plants, lower the risk of blackouts and brownouts during times of stress on the grid and allow the grid to adapt more quickly to changing conditions. BESS makes the grid more flexible and capable of handling both growing electricity demand and a cleaner resource mix. Peaker plants are costly, highly polluting (releasing nitrogen oxide, sulfur dioxide and particulate matter), and disproportionately located in disadvantaged communities.

4. What are the components of a BESS?

BESS are carefully designed and thoroughly tested to ensure all its components work together and in harmony. These components include but are not limited to:

- **Battery cells** – which are grouped into modules and racks.
- **Battery Management System (BMS)** – which monitors every single cell and their performance. One of the most important components of the BESS, BMS can locate and control faults as well prevent any issues with the whole system.
- **Power Conversion System (PCS)** – converts electricity from Direct Current (DC) to Alternate Current (AC) which makes stored energy usable.
- **Energy Management System (EMS)** – allows to decide when to charge or discharge.
- **Cooling Systems** – HVAC systems are there to cool BESS as needed.
- **Communication Interfaces** – BESS integrate communication systems that allow grid operators to remotely control these systems and monitor them 24/7.

5. How do BESS support the electric grid?

BESS support the grid by allowing grid operators balancing supply and demand in a reliable and safe way. These ancillary grid services include:

- **Distribution and Transmission Deferral:** Defer costly upgrades to utility infrastructure borne by ratepayers and contribute to emissions reduction.
- **Energy Arbitrage:** Charge when cost/demand is low, discharge when high.
- **Frequency Regulation:** Energy storage systems can respond instantaneously to fluctuations in grid frequency, stabilizing the system and maintaining the balance between generation and consumption. Fossil fuel technologies cannot act as both grid supply and demand, and they take minutes to begin generating electricity.
- **Black Start:** Help large generators come online following system failure.
- **Energy Reserves:** Dispatch energy as needed to ensure that grid supply equals electric demand. Energy storage is among the only technologies that can serve as both grid supply and demand, enhancing its ability to balance the grid.
- **Spinning Reserve Replacement:** Storage systems can act as a "spinning reserve," providing quick-start capabilities to support the grid when there's an unexpected loss of generation or a surge in demand.

6. How do BESS contribute to New York's climate and energy goals?

New York's Climate Leadership and Community Protection Act (Climate Act) introduced a goal of 1,500 MW of energy storage by 2025 and 3,000 MW by 2030. In June 2024, New York's Public Service Commission (PSC) expanded the goal to 6,000 MW by 2030. In 2022, NYSERDA and the PSC found that deploying 6,000 MW of energy storage capacity by 2030 would generate an estimated $2 billion dollars in ratepayer savings. Energy storage will also increase the resilience and efficiency of New York's grid, which aims to be 100% carbon-free electricity by 2040.

7. What is NYSERDA's role in the deployment of BESS across the State?

NYSERDA administers financial incentive programs that make storage projects more affordable. These incentives, authorized by the PSC, support residential, commercial, and bulk storage projects across the state. Details of how the funding works are available in the program manuals on NYSERDA's website. NYSERDA's Clean Energy Siting team provides model laws, guidebooks, various resources and provides free technical assistance to municipalities as they navigate the BESS permitting process. NYSERDA also leads Governor Hochul's inter agency fire safety working group, making substantive contributions to ensuring safe development of BESS in New York.

8. How do BESS work with renewable energy sources like solar and wind?

BESS complements variable renewable energy resources like wind and solar:

- **Solar plus storage:** Excess midday solar output can be stored and dispatched during evening peak demand.
- **Wind plus storage:** Pairing wind with BESS mitigates wind's inherent variability, allowing energy to be stored when wind is strong and discharged when it's not.
- **Hybrid plants:** Pairing more than one source of renewable energy with BESS can create dispatchable capacity that can be scheduled and dispatched like conventional generation.

9. What does "in front of the meter" or "behind the meter" mean?

- "**In Front of The Meter" (FTM)** – Utility scale systems connected directly to the utility grid. These systems charge when electricity is cheap (usually overnight) or through a collocated renewable generation, and they can discharge when demand is high. These systems help utilities avoid expensive, rate-based infrastructure upgrades, benefiting all ratepayers by keeping rates in check. This type of project is usually greater than 2 MW in capacity.
- **"Behind the Meter" (BTM)** – Smaller commercial systems or residential systems that serve the owner's (the end-user's) needs. They can reduce the owner's electricity bill, provide backup power in case of an outage, and indirectly support the grid by lowering overall demand during peak hours.

10. Are BESS needed only for storing renewable energy?

No, BESS can store any type of electricity. Standalone energy storage systems charge directly from the grid during periods of surplus generation. The type of energy that is stored depends on the local generation mix at the time of charging. For example, in places with high solar penetration, midday charging might be primarily from renewable sources. Regardless of power generation source, energy storage systems contribute to a clean, affordable, reliable electric grid for New Yorkers.

11. Do 'behind the meter' systems still serve the grid?

Yes, BTM systems are crucial for grid stability. These systems can use their stored energy during peak hours and therefore alleviate strain on the grid. Having multiple owners of BTM systems using their BESS during peak hours, via an aggregator or similar market stakeholder, can provide needed grid relief .

2. Types of Batteries

1. What types of batteries are used in energy storage systems?

Battery energy storage can comprise a variety of different electrochemical makeups: lithium-ion, flow, lead acid, sodium-ion, etc. that are designed to meet specific power and duration requirements for a project. Due to varying chemical characteristics, different types of batteries can have varying advantages and disadvantages.

2. Are there alternatives to lithium-ion batteries for energy storage?

Yes, there are other types of batteries that can be used for BESS. However, lithium-ion batteries are the dominant technology due to their advanced commercial market maturity and the following additional reasons:

- **Power output:** Li-Ion batteries can withstand high power demands and provide energy support when needed at a very short time.
- **Storage capacity:** Li-ion batteries are energy dense; therefore they can store more power in smaller space than some other available chemistries.
- **Cycle Life:** Li-Ion offers many charge/discharges cycles which play role in providing ancillary services and energy arbitrage for grid stability and lower rates.
- **Cost:** Due to market maturity and penetration, the cost for lithium ion is lower than many other battery chemistries.
- **Fire Risk:** Fire Code enhancements as well as overall technological advancement and safety features of systems made these systems much safer.
- **Commercial maturity:** this is one of the most important aspects of the technology when thinking about BESS. Lithium-Ion batteries have been used for decades. There are present in consumer products of daily use (personal phones, tablets, laptops, toothbrushes, power tools, etc.) and we carry them around every day. BESS utilize the same underlying lithium-ion electrochemical principles and cell chemistry, but are engineered and scaled up to provide grid-level energy storage. Unlike consumer devices, BESS incorporate multiple layers of safety, monitoring, and control systems, and compliance with nationally recognized safety standards. The technology has been deployed globally at utility-scale, community-scale, and behind-the-meter installations. This long operating history, combined with extensive testing, certification, and regulatory oversight, demonstrates that lithium-ion BESS is a commercially mature technology rather than an experimental or emerging one.

3. What are the differences between lithium-ion batteries and other chemistries?

There are many chemistries that are available on the market but with different technology maturity which dictates also their popularity:

	Lead Acid	Sodium-Sulfur	Flow Batteries	Lithium-Ion
Round-trip Efficiency	70–85%	70–80%	60–80%	85–95%
Typical Duration	2–6 hours	2–8 hours	4–12 hours	0.25–4 hours
Time to Build	6–12 months	6–18 months	6–12 months	6–12 months
Operating Cost	High	Moderate	Moderate	Low
Space Required	Large	Moderate	Moderate	Small
Cycle Life	500–2,000	3,000–5,000	5,000–8,000+	2,000–6,000+
Technology Maturity	Mature	Commercial	Early–Moderate	Commercial

4. What is the expected lifespan of different types of batteries used in BESS?

Lifespan of a BESS depends on type of battery, usage, climate and maintenance. The range can be 15 to 25 years. Various system components need to be replaced during system's operation.

5. What advancements are being made in next-generation battery technologies?

The constant increase in energy demand is spurring the advancement of multiple technologies which could be used for the BESS as well as for EV (Electric Vehicles). Some next-generation batteries include:

- **Solid-state batteries:** In these systems, liquid electrolytes are replaced with solid ones, enabling even higher energy density than lithium-ion batteries., They also offer faster charging, improved safety, and a longer operational lifespan. However, this technology is still under development and is not yet available for commercial use.
- **Sodium Ion:** Sodium is abundant and accessible; works well for large scale energy storage; performs well in cold weather. Has lower energy density than lithium-ion and technology has not reached the level of commercial maturity reached by lithium ion.
- **Zinc-Air:** Zinc is abundant material making this type of cost effective lower energy density and shorter lifespan. Right now, most of them are not rechargeable, but the technology is evolving. This technology is still immature to be implemented and used widely for BESS.

While all of these and more technologies are being developed, it is important to remember that these are still emerging technologies that have various characteristics that may not be feasible for immediate deployment due to their commercial immaturity.

3. Safety & Technical Aspects

1. What is a thermal runaway in BESS?

Thermal runaway is an exponentially self-accelerating temperature increase within a battery cell that can propagate and lead to off-gassing, fire, and/or explosion. It could be caused by different factors like:

- **Mechanical abuse:** physical damage of a battery
- **Electrical abuse:** short circuit, overcharging or some other faults
- **Thermal abuse:** exposure to extreme temperatures that could cause damage to the battery
- **Manufacturing defects**

Thermal runaway in BESS is rare because modern systems are designed with multiple layers of protection, including advanced battery management systems, thermal controls, and built-in safety features that detect and isolate faults before they escalate. In addition, stringent codes, standards and testing requirements further reduce the likelihood of uncontrolled heat events.

2. What safety standards do BESS projects follow in New York?

New York State is a national leader in BESS safety. The 2025 NYS Fire Code has some of the most rigorous safety standards in the nation which are based on NFPA 855 and the International Fire Code (IFC), in addition to recommendations from Governor Hochul's Inter Agency Fire Safety Working Group.

BESS safety regulations are based on multiple Codes and Standards*:

- Underwriters Laboratories (UL) 1741 – Inverters for utility interactive systems
- UL 1973 – Standard for batteries
- UL 1974 – Second use batteries.
- UL 9540 – "Standard for Energy Storage Systems and Equipment" certifies that all components of the system work safely in harmony together
- UL 9540A – Test method to evaluate system safety and inform installations
- The National Fire Protection Association (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
- 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

**this is not an exhaustive list of all of applicable standards.*

3. What is a UL 9540A test?

UL 9540A is a performance test method (not a certification program) to evaluate fire characteristics of a BESS that undergoes thermal runaway It is not a pass/fail test, but a report describing BESS behavior during a thermal runaway event. The test is done separately at different levels of the system from the cells to the modules, the units and finally the whole BESS installations are tested to understand how and if propagate occurs within these different levels. This test is required as part of the UL 9540 equipment listing required by code for all projects. Other chemistries have different thresholds that trigger this testing and they are listed in the NYS Fire Code Section: 1207.

Level	Testing Hierarchy
Cell 	• Can cell exhibit thermal runaway • Thermal runaway characteristics • Flammability/composition of vent gas
Module 	• Thermal runaway containment/characteristics • Flammability/composition of vent gas • Heat and gas release rates
Unit 	• Evaluation of fire/thermal runaway spread • Heat and gas release rates • Deflagration and re-ignition behavior
Installation 	• Effectiveness of fire protection systems • Heat and gas release rates • Deflagration and re-ignition behavior

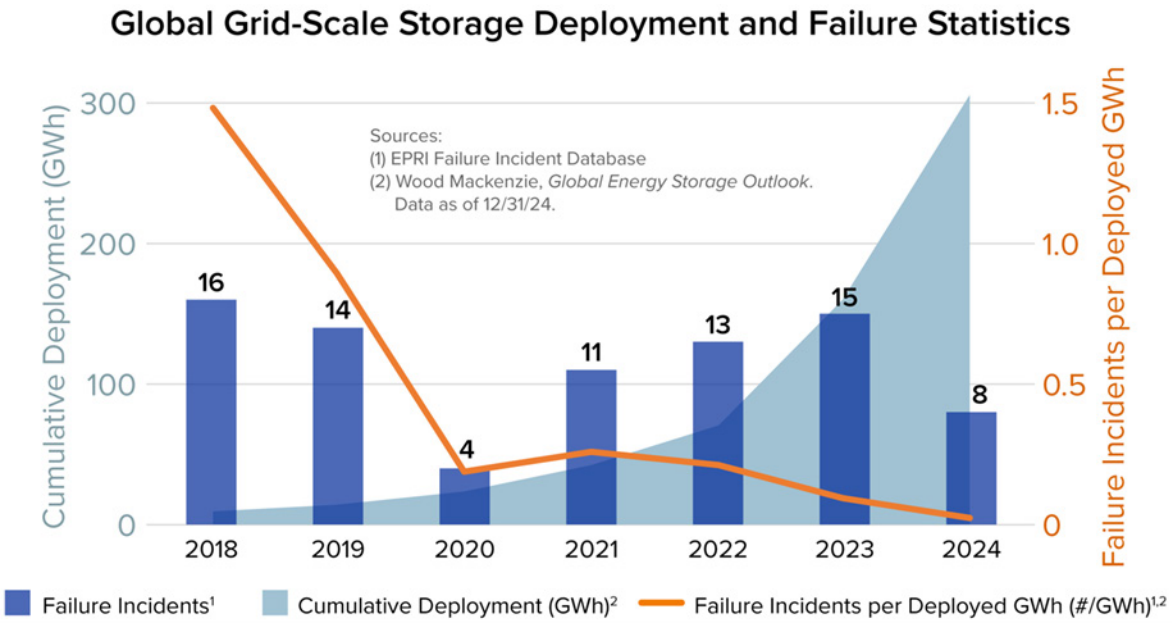
4. Do all energy storage systems need to be UL 9540 listed to meet code requirements?

It is required for types of BESS (including lithium-ion). UL 9540 is a system standard that certifies that all components of the energy storage system work safely in harmony together. UL 9540A large scale fire testing was required for UL 9540 equipment listings issued beginning in 2020.

5. Do BESS often catch fire?

BESS fires are extremely rare , and the number of incidents each year has decreased rapidly because of technological improvements and evolving safety standards f there is a failure in a battery or unit, the Battery Management System (BMS) and Central Station Monitoring is designed to inform the responsible parties of the failure and guide the response plan depending on the data provided by the EMS and the Emergency Response Plan (ERP).

Below there is a graph showing decline in the BESS incidents:



6. Are firefighters trained to respond to BESS incidents?

Yes, according to the 2025 New York State Fire Code, first responders need to be familiar with the BESS site, the ERP, and able to respond effectively if needed. Annual site trainings for local Fire Departments are required in addition to reviewing pre-incident plan. NYSERDA recommends that developers seeking approvals at a local level should contact Fire Department early with a thought-out plan for development and local emergency services engagement. In addition to site-specific training required by code, the New York State Office of Fire Prevention and Control (OFPC) offers a free lithium-ion awareness course to all first responders through the statewide learning management system.

7. What happens if a fire occurs at a BESS facility?

In the unlikely event of a fire, Hazard Support Personnel must be available to communicate with the local Fire Department. Hazard Support Personnel must be enroute to the event within 15 minutes and arrive at the site within 4 hours. Before the systems are energized, BESS developers are required to offer site familiarization, a site-specific ERP and site-specific emergency response training to local fire department. This training should occur annually for the useful life of the project. The hazard support personnel must remain on site after the incident is under control to oversee safe removal of the equipment from the property.

8. Who takes responsibility for the BESS facility in case of a fire?

The owner of the facility, their contracted Hazard Support Personnel and Remote Operations Center, and local emergency response personnel.

9. What is the 600 kWh threshold and why is it important?

This capacity is the Maximum Allowable Quantities (MAQ) threshold established by the International Fire Code and NFPA 855. Systems that are 600 kWh or greater must comply with additional safety measures or face more stringent code requirements. For lithium-ion BESS, this includes a Hazard Mitigation Analysis (HMA) and large-scale fire testing (UL 9540A).

An HMA is a report that identifies potential failure modes of a BESS under various circumstances and describes the mitigation and safety measures in place, as well as how those measures are expected to perform during such failures. The UL 9540A test will offer data that can inform safe siting decisions relating to a particular piece of equipment.

10. What is system augmentation?

BESS degrade with time and gradually lose their energy capacity (2–4% per year). Developers count on their revenue streams which are closely connected to the energy that BESS can discharge. At times, developers might decide to add new units to the system and remove the old ones. Each augmentation should be treated as new installation with the same activities: obtaining permits and filing appropriate amendments to original designs, shutdown of the BESS and re-commissioning.

4. Siting / Permitting

1. What is the process for permitting BESS in New York State?

In New York State the permitting process varies based on system size and whether system is paired with generation.

- BESS paired with Renewable Generator < 25 MW: Permitted at local level (State Environmental Quality Review Act (SEQRA), municipal/county requirements)
- Paired with Renewable Generator > 25 MW: Permitted at State level – Article 10, Office of Renewable Energy Siting and Electric Transmission (ORES)
- Standalone System, < 80 MW: Permitted at local level (SEQRA, municipal/county requirements)
- Standalone Systems > 80 MW: Subject to licensing by the Public Service Commission (PSL §68) and SEQRA (other State and local municipal reviews/approvals may apply)

In New York State, local Authorities Having Jurisdiction (AHJs) are responsible for enforcing Codes and Standards. NYSERDA provides resources to local AHJs like Battery Energy Storage Guidebook that includes Model Law and Model Permit. These are templates that can be used (and modified) by AHJs or other relevant local stakeholders to create their own law. Developers seeking approvals should contact AHJ they are seeking to obtain permits from in order to start the process. Contacting local Fire Department is also recommended to start the process.

2. What is SEQR and when is it needed?

State Environmental Quality Review (SEQR) requires all State and local government agencies to consider the environmental impacts and social and economic factors of specified actions. It is triggered whenever a “discretionary action” is proposed by any State or local government agency. The relevant agency must first determine if an action is a Type I, Type II or Unlisted Action. Type I and Unlisted Actions require further review under SEQR; Type II Actions require no further action under SEQR. See the NYS Department of Environmental Conservation’s SEQRA website for additional information.

3. Can a municipality create fire safety requirements that are more restrictive than the NYS Fire Code?

Yes, but the appropriate process for this action is not through zoning requirements, land use regulations, or local law. Any changes to the NYS Fire Code that would be specific to a local municipality must be made by petitioning the NYS Code Council through the Executive Law § 379 More Restrictive Local Standards process. It is imperative that Code Enforcement Officers and municipal attorneys are consulted in the EL 379 process. For example, requirements related to emergency personnel response times and recurring inspections are addressed in the NYS Fire Code, and they are not appropriate for a zoning requirements or inclusion in local law. Instead, Home Rule Authority would be leveraged through the More Restrictive Local Standards process with Department of State in these instances.

4. What lot size is typical and appropriate for commercial BESS projects?

Lot sizes vary depending on the total capacity of a BESS project and container sizes. Many suitable project locations can be smaller than an acre while the total project footprint of some BESS installations may occupy several acres.

For example, 5MW commercial BESS systems can typically fit in a quarter acre lot, including 10-foot clearance to exposures required by Fire Code.

5. What are important aspects when BESS site is chosen by a developer?

Choosing a suitable site for a BESS involves many technical considerations. One of the most important aspects of BESS siting is its proximity to existing grid infrastructure. The developers work with the utility company to perform a study to determine if grid infrastructure at a specific location will be able to host additional energy resources. The goal of the study is to determine whether the proposed system can safely connect to the grid without jeopardizing reliability. These studies can take several months to complete. If the study shows that existing grid infrastructure is insufficient to host additional capacity, significant upgrades costs are borne by the project developer. Developers also review all site characteristics and understand the permitting landscape (zoning, applicable codes and standards, environmental permits, etc.) before selecting a site.

6. How can an AHJ ensure that a BESS projects align with local comprehensive plans or zoning ordinances?

Local authorities must adopt local laws that will govern BESS development in their communities that will align with local comprehensive plans. Comprehensive plans are the legal basis for all zoning requirements. Zoning requirements that are not consistent with a community's comprehensive plan may be vulnerable to challenge in court. NYSERDA provides technical assistance and support to local municipalities in creation of local laws for clean energy including BESS.

7. What is the recommended minimum setback from neighboring properties?

UL 9540A test results can impact separation distances between units as well as and clearance to exposures. These test results can help in determining appropriate setback for a project. NYSERDA model law recommends that the setback requirements for BESS defer to the underlying setback requirement in the zoning district

8. Who is allowed access to a BESS facility?

Only authorized personnel are allowed to enter the BESS facility. Section 1207.4.9 Security of installations in the NY Fire Code requires that all BESS units need to be secured against unauthorized entry. Access to non-trained or non-qualified individuals must be restricted. In the event of an incident, there is not likely to be a threat to life, as it is exceedingly rare for personnel to be within the fenced perimeter of the project. Further, once batteries begin to burn, they cannot be salvaged. Therefore, there is almost never a reason to expect threat to life or property that can be addressed by emergency response personnel within the immediate vicinity of the project, so first responders should almost never have a reason to enter the project site during a fire or incident.

9. How does NYSERDA support permitting efforts of BESS?

NYSERDA supports BESS development in multiple ways:

- NYSERDA offers resources to empower local governments with knowledge, training, and best practices to manage responsible clean energy development in their communities.
- NYSERDA's Clean Energy Siting Team supports municipalities in person by offering trainings and one-on-one guidance. NYSERDA facilitates workshops and tailored education sessions for different audiences.
- NYSERDA offers "Contractor Pool" which consists of Subject Matter Experts (SME) who can help local governments with many different issues like local law drafting, zoning, permitting, siting, etc.
- NYSERDA provides different types of incentives for BESS projects.
- NYSERDA retail and bulk incentive programs require Peer Review of BESS projects – third party (SME) review of BESS design and inspection once project is built to confirm that it matches the original project plans.
- NYSERDA leads the NYS Inter-Agency Fire Safety Working Group to ensure the safety and security of energy storage systems across the State.

10. What is the Uniform Code, and how does it apply to BESS?

Uniform Code (Uniform Fire Prevention and Building Code) is state law that establishes minimum safety standards for construction, fire protection and other safety considerations in the built environment. The code is enforced by local governments and the Department of State to protect community members, property owners, and first responders. It ensures that developers address fire hazards, structural integrity and emergency access in their designs. Section 1207 of the New York State Fire Code specifically pertains to Battery Energy Storage Systems and outlines the requirements for their safe installation and operation.

11. What is a decommissioning plan? Is it required?

The decommissioning plan required by the fire code is a comprehensive description of how the BESS will be taken out of operation, removed from the site, and how the site will be returned to its previous condition There are multiple stages in the decommissioning plan: de-energization, disconnection from the utility grid, removal and disposal of the equipment, and site restoration. The decommissioning plan should address decommissioning at the end of a project's useful life and decommissioning in the event of a thermal or other incident involving the battery and identify who is responsible for it.

5. Local and Environmental Considerations

1. What types of local benefits can a community expect from hosting a utility scale BESS project? How are they taxed?

As part of New York's Real Property Tax Law (RPTL) § 487, BESS projects may be eligible to receive a 15-year real property tax exemption of the added value of the system. BESS projects are still required to pay property tax on the value of the land, as well as the special district taxes. Local AHJs who have not opted out of RPTL 487 are able to negotiate a payment in lieu of taxes (PILOT) agreement to compensate them for the tax exemption. Or a more common approach is having the County Industrial Development Agency (IDA) negotiate a PILOT agreement on behalf of all involved taxing jurisdictions which can provide more flexibility and can be longer than the 15 years RPTL 487 PILOT.

Host communities may also work directly with the project developer to negotiate Host Community Agreements (HCA). HCAs are usually developed in alongside a PILOT agreement but offer local benefits tailored directly to the community hosting the project. Such benefits may include direct payments to the community, contributions to local schools or environmental initiatives, local economic or workforce development, etc.

2. Are Battery Energy Storage Systems loud?

Only a limited number of BESS components generate sound, and when present, it is comparable to common equipment already found in everyday environments. Inverters and transformers create sound ranging usually from 50-60 dBA, cooling fans, like those used in everyday HVAC systems, could range from 60 to 90 dBA when measured very close to the equipment (within 3 feet from the source) . Under normal operating conditions, sound levels decrease significantly with distance and usually are not heard from outside of the fence line of the facility.

Developers may submit equipment and component manufacturers noise ratings to demonstrate compliance with local laws.

NYSERDA guidance recommends 1-hour average noise generated from the battery energy storage systems, components, and associated ancillary equipment shall not exceed a noise level of 60 dBA as measured at the outside wall of any non-participating residence or occupied community building.

3. In the event of a fire, what are the possible environmental impacts?

Based on the data gathered to date and findings presented by both the American Clean Power Association (Assessment of Potential Impacts of Fires at BESS Facilities) and the U.S. Environmental Protection Agency (EPA), there have been no reports of harmful levels of environmental contaminants detected following outside the immediate vicinity, or project fence perimeter, of BESS fire incidents in the United States. Air, soil, and water sampling conducted at multiple sites - including those investigated by the New York State by the Fire Safety Working Group (FSWG) found no evidence of pollutants requiring remediation or posing risks to public health. EPA's emergency monitoring following incidents such as the Moss Landing facility fire similarly reported no harmful concentrations of contaminants or particulates in surrounding communities. These reviews indicate that while emissions such as carbon monoxide, hydrogen fluoride, and trace metals can occur, they tend to dissipate quickly and to date have consistently remained in concentrations below the threshold of potential harm to human health.

It is important to recognize, however, that all fires carry inherent environmental risks. The severity and composition of emissions depend on the materials involved, fire duration, and suppression methods used. BESS fires present a different risk profile, but current monitoring and containment practices have proven effective in preventing off-site contamination. The evidence to date demonstrates that, under proper management and emergency response protocols, BESS fires do not result in lasting environmental harm.

Environmental analysis from real world energy storage fire incidents consistently shows that fire and harmful levels of smoke or other contaminants do not migrate outside the immediate vicinity, or fence line, of the project.

6. Fact vs. Fiction

1. MYTH: BESS easily catch fire

FACT: While high-profile in the news, battery fire incidents are rare! All energy infrastructure comes with inherent risk. The ratio of incidents reported to BESS capacity deployed has declined significantly due to improved system design and new, broadly applicable safety standards designed to reduce risk.

2. MYTH: What happened at Moss Landing can happen here.

FACT: The Moss Landing battery facility's structure was globally unique. New York's battery facilities are sited only in buildings or enclosures that were specifically designed to safely house them. New York has strict equipment testing and listing requirements designed to ensure that fires do not spread.

3. MYTH: Battery storage fires release toxic fumes that are extremely hazardous to nearby residents and will negatively impact air, soil, and water.

FACT: Studies show battery storage fires results in emissions similar to a house or building fire. Environmental reviews of soil, water, and air consistently show no harmful contamination from battery fires. Fossil fuel plants, which emit fumes by design whenever in operation, are of greater concern to human health and safety.

4. MYTH: A battery storage fire would require evacuation of everyone in the immediate vicinity.

FACT: Safety experts DO NOT RECOMMEND evacuations in response to a battery storage fire. Instead, the same precautions are taken as for a structure fire, with residents advised to avoid smoke inhalation or shelter in place, depending on the severity of the event.

5. MYTH: Battery energy storage systems should not be located near residents or schools.

FACT: Battery storage projects that comply with testing and safety regulations are safe to site near residences and schools when following all applicable rules and regulations. Community storage can provide important services to the neighborhood grid and utility bill discounts to community members.

6. MYTH: Firefighters are not trained or prepared to deal with a battery fire.

FACT: All projects are required to have emergency response plans and annual training must be offered to local fire department. Hazard Support Personnel must be en route to an incident within 15 minutes and arrive on site within 4 hours (2 hours in NYC). Battery fires don't require special equipment, apart from standard haz-mat emergency response tools.

7. MYTH: We shouldn't build battery storage because it requires critical mineral mining.

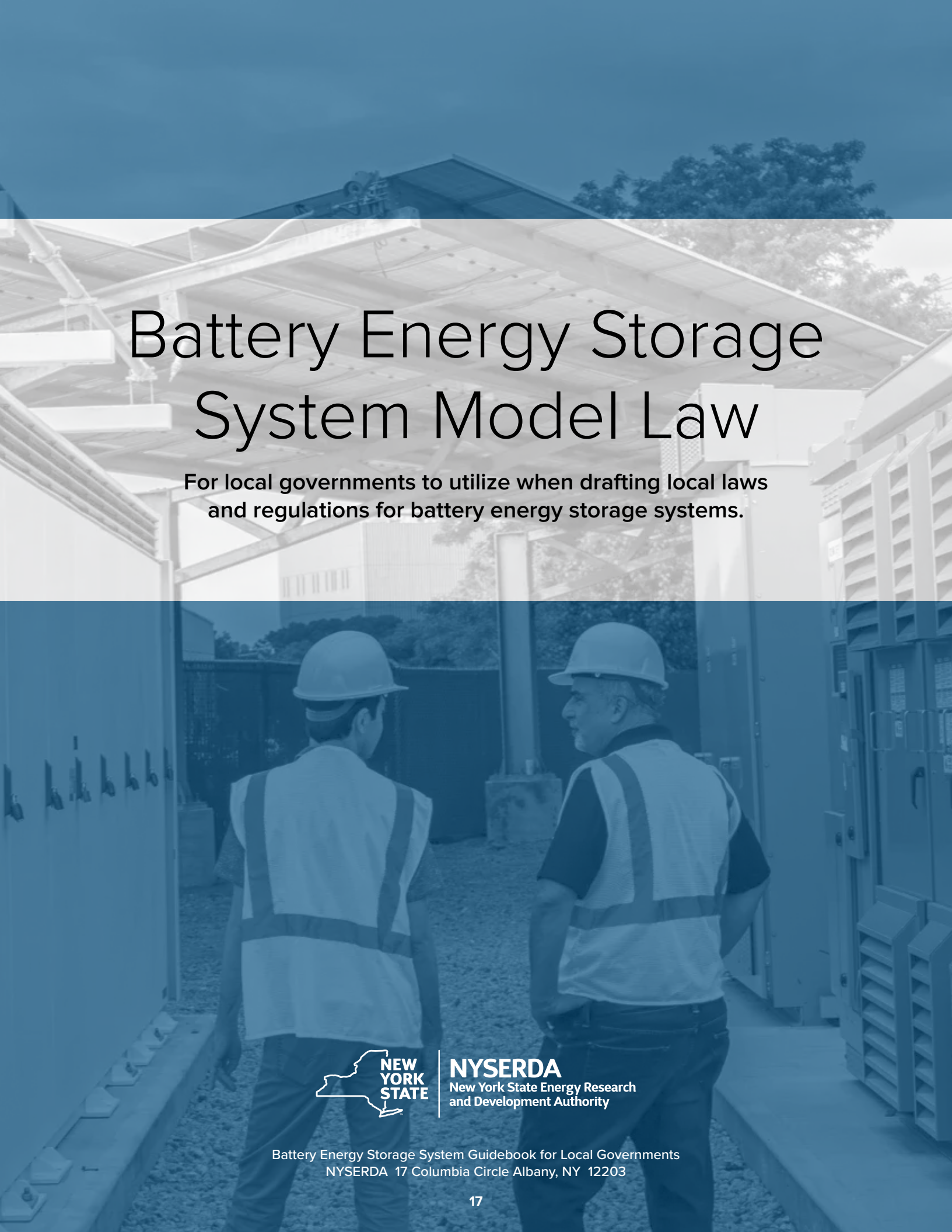
FACT: Promoting a sustainable and humane supply chain is critical to a just energy transition. Policy efforts underway include improved traceability standards and investment in domestic manufacturing. Critical minerals are also used for phones, TVs, AI data centers, EVs, and other technologies; avoiding BESS doesn't solve the problem.

8. MYTH: These systems are only needed or appropriate in dense population centers

FACT: Demand for energy is steadily growing and that will require new sources of energy everywhere. They are needed for resilience, grid stability, elimination of Peaker plans, integration of renewable energy.

Questions?

If you have any questions about the Battery Energy Storage Systems FAQ, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/Energy-Storage-Guidebook. The NYSERDA team looks forward to partnering with communities across the State.



Battery Energy Storage System Model Law

For local governments to utilize when drafting local laws and regulations for battery energy storage systems.

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Section Contents

Overview

The Model Law is intended to help local government officials and AHJs adopt legislation and regulations to responsibly accommodate battery energy storage systems in their communities. The Model Law lays out procedural frameworks and substantive requirements for residential, commercial, and utility-scale battery energy storage systems.

The workable version of this document can be found at nyserda.ny.gov/Energy-Storage-Guidebook, under Battery Energy Storage System Model Law tab.

1. Instructions

1. This Model Law can be adopted by the governing board of cities, towns, and villages (hereinafter "local governments" or "municipalities") to regulate the installation, operation, maintenance, and decommissioning of battery energy storage systems. The Model Law is intended to be an "all-inclusive" local law, regulating the subject of battery energy storage systems under typical zoning and land use regulations and it includes the process for compliance with the State Environmental Quality Review Act. Municipalities should review this Model Law, examine their local laws and regulations and the types, size range and number of battery energy storage system projects proposed, and adopt a local law addressing the aspects of battery energy storage system development that make the most sense for each municipality, deleting, modifying, or adding other provisions as appropriate.
2. This Model Law references a "Battery Energy Storage System Model Permit" that is available as part of NYSERDA's Battery Energy Storage Guidebook. The Model Permit is intended to help local government officials and AHJs establish the minimum submittal requirements for electrical and structural plan review that are necessary when permitting residential and small commercial battery energy storage systems.
3. In some cases, there may be multiple approaches to regulate a certain aspect of battery energy storage systems. The word "OR" has been placed in the text of the model law to indicate these options. Municipalities should choose the option that works best for their communities. The content provided in brackets and highlighted is optional. Depending on local circumstances, a municipality may want to include this content or choose to adopt a different standard.
4. The Model Law is not intended for adoption precisely as it is written. It is intended to be advisory only, and users should not rely upon it as legal advice. A municipality is not required to adopt this Model Law. Municipal officials are urged to seek legal advice from their attorneys before enacting a battery energy storage system law. Municipalities must carefully consider how the language in this Model Law may be modified to suit local conditions, comprehensive plans, and existing land use and zoning provisions.

5. Before enacting this Model Law, a comprehensive plan outlining the goals and policies for the installation, operation, maintenance, and decommissioning of battery energy storage systems must be adopted by the local governing board (city or common council, town board, village board of trustees). Some local governing boards can satisfy this requirement by updating an existing comprehensive plan while others must adopt a new comprehensive plan. Suggestions on how local governing boards can develop and adopt in their existing or new comprehensive plans battery energy storage system friendly policies and plans that provide local protection are listed below:

   A. Adopt a resolution or policy statement that outlines a strategy for municipal-wide battery energy storage system development. The chief executive officer of a local government (like a town supervisor or city or village mayor) may choose to issue in accordance with its local charter or other valid local law or regulations an executive order, proclamation or other declaration to advance battery energy storage system development.

   B. Appoint a Battery Energy Storage Task Force ("Task Force") that represents all interested stakeholders, including residents, businesses, interested non-profit organizations, the battery energy storage industry, utilities, and relevant municipal officials and staff to prepare an action plan, adopt or amend a comprehensive plan to include battery energy storage system planning goals and actions, and develop local laws and/or other regulations to ensure the orderly development of battery energy storage system projects.

   C. Charge the Task Force with conducting meetings on a communitywide basis to involve all key stakeholders, gather all available ideas, identify divergent groups and views, and secure support from the entire community. The Task Force should also conduct studies and determine whether existing policies, plans, and land use regulations require amendments to remove barriers to and facilitate battery energy storage system development goals.

   D. Establish a training program for local staff and land use boards. Municipalities are encouraged to utilize State and Federal technical assistance and grants for training programs when available.

   E. Partner with adjacent communities to adopt compatible policies, plan components, and zoning provisions for battery energy storage system projects. County or regional planning agencies may also advise participating local governments on locally addressing these issues.

2. Model Law

1. Authority

This Battery Energy Storage System Law is adopted pursuant to Article IX of the New York State Constitution, §2(c)(6) and (10), New York Statute of Local Governments, § 10 (1) and (7); [Select one: sections 261-263 of the Town Law / sections 7-700 through 7-704 of the Village Law / sections 19 and 20 of the City Law and section 10 of the Municipal Home Rule Law] of the State of New York, which authorize the [Village/Town/City] to adopt zoning provisions that advance and protect the health, safety and welfare of the community.

2. Statement of Purpose

This Battery Energy Storage System Law is adopted to advance and protect the public health, safety, welfare, and quality of life of [Village/Town/City] by creating regulations for the installation and use of battery energy storage systems, with the following objectives:

A. To provide a regulatory scheme for the designation of properties suitable for the location, construction and operation of battery energy storage systems;

B. To ensure compatible land uses in the vicinity of the areas affected by battery energy storage systems;

C. To mitigate the impacts of battery energy storage systems on environmental resources such as important agricultural lands, forests, wildlife and other protected resources; and

D. To create synergy between battery energy storage system development and [other stated goals of the community pursuant to its Comprehensive Plan].

3. Definitions

As used in this [Article/Chapter], the following terms shall have the meanings indicated:

ANSI: American National Standards Institute

BATTERY(IES): A single cell or a group of cells connected together electrically in series, in parallel, or a combination of both, which can charge, discharge, and store energy electrochemically. For the purposes of this law, batteries utilized in consumer products are excluded from these requirements.

BATTERY ENERGY STORAGE MANAGEMENT SYSTEM: An electronic system that protects energy storage systems from operating outside their safe operating parameters and disconnects electrical power to the energy storage system or places it in a safe condition if potentially hazardous temperatures or other conditions are detected.

BATTERY ENERGY STORAGE SYSTEM: One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time, not to include a stand-alone 12-volt car battery or an electric motor vehicle. A battery energy storage system is classified as a Tier 1 or Tier 2 Battery Energy Storage System as follows:

A. Tier 1 Battery Energy Storage Systems have an aggregate energy capacity less than or equal to 600kWh and, if in a room or enclosed area, consist of only a single energy storage system technology.

B. Tier 2 Battery Energy Storage Systems have an aggregate energy capacity greater than 600kWh or are comprised of more than one storage battery technology in a room or enclosed area.

CELL: The basic electrochemical unit, characterized by an anode and a cathode, used to receive, store, and deliver electrical energy.

COMMISSIONING: A systematic process that provides documented confirmation that a battery energy storage system functions according to the intended design criteria and complies with applicable code requirements.

DEDICATED-USE BUILDING: A building that is built for the primary intention of housing battery energy storage system equipment, is classified as Group F-1 occupancy as defined in the International Building Code, and complies with the following:

1) The building's only use is battery energy storage, energy generation, and other electrical grid-related operations.
2) No other occupancy types are permitted in the building.
3) Occupants in the rooms and areas containing battery energy storage systems are limited to personnel that operate, maintain, service, test, and repair the battery energy storage system and other energy systems.
4) Administrative and support personnel are permitted in areas within the buildings that do not contain battery energy storage system, provided the following:
    a. The areas do not occupy more than 10 percent of the building area of the story in which they are located.
    b. A means of egress is provided from the administrative and support use areas to the public way that does not require occupants to traverse through areas containing battery energy storage systems or other energy system equipment.

ENERGY CODE: The New York State Energy Conservation Construction Code adopted pursuant to Article 11 of the Energy Law, as currently in effect and as hereafter amended from time to time.

FIRE CODE: The fire code section of the New York State Uniform Fire Prevention and Building Code adopted pursuant to Article 18 of the Executive Law, as currently in effect and as hereafter amended from time to time.

NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL): A U.S. Department of Labor designation recognizing a private sector organization to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards.

NEC: National Electric Code.

NFPA: National Fire Protection Association.

NON-DEDICATED-USE BUILDING: All buildings that contain a battery energy storage system and do not comply with the dedicated-use building requirements.

NON-PARTICIPATING PROPERTY: Any property that is not a participating property.

NON-PARTICIPATING RESIDENCE: Any residence located on non-participating property.

OCCUPIED COMMUNITY BUILDING: Any building in Occupancy Group A, B, E, I, R, as defined in the International Building Code, including but not limited to schools, colleges, daycare facilities, hospitals, correctional facilities, public libraries, theaters, stadiums, apartments, hotels, and houses of worship.

PARTICIPATING PROPERTY: A battery energy storage system host property or any real property that is the subject of an agreement that provides for the payment of monetary compensation to the landowner from the battery energy storage system owner (or affiliate) regardless of whether any part of a battery energy storage system is constructed on the property.

UNIFORM CODE: the New York State Uniform Fire Prevention and Building Code adopted pursuant to Article 18 of the Executive Law, as currently in effect and as hereafter amended from time to time.

4. Applicability

A. The requirements of this Local Law shall apply to all battery energy storage systems permitted, installed, or modified in [Village/Town/City] after the effective date of this Local Law, excluding general maintenance and repair.

B. Battery energy storage systems constructed or installed prior to the effective date of this Local Law shall not be required to meet the requirements of this Local Law.

C. Modifications to, retrofits or replacements of an existing battery energy storage system that increase the total battery energy storage system designed discharge duration or power rating shall be subject to this Local Law.

5. General Requirements

A. A building permit and an electrical permit shall be required for installation of all battery energy storage systems.

B. Issuance of permits and approvals by the [Reviewing Board] shall include review pursuant to the State Environmental Quality Review Act [ECL Article 8 and its implementing regulations at 6 NYCRR Part 617 ("SEQRA")].

C. All battery energy storage systems, all Dedicated Use Buildings, and all other buildings or structures that (1) contain or are otherwise associated with a battery energy storage system and (2) subject to the Uniform Code and/or the Energy Code shall be designed, erected, and installed in accordance with all applicable provisions of the Uniform Code, all applicable provisions of the Energy Code, and all applicable provisions of the codes, regulations, and industry standards as referenced in the Uniform Code, the Energy Code, and the [Village/Town/City] Code.

6. Permitting Requirements for Tier 1 Battery Energy Storage Systems

Tier 1 Battery Energy Storage Systems shall be permitted in all zoning districts, subject to the Uniform Code and the "Battery Energy Storage System Permit," and exempt from site plan review.

7. Permitting Requirements for Tier 2 Battery Energy Storage Systems

Tier 2 Battery Energy Storage Systems are permitted through the issuance of a [special use permit] within the [XXXXXXXXXXXX, XXXXXXXXXX, XXXXXXXXXX] zoning districts, and shall be subject to the Uniform Code and the site plan application requirements set forth in this Section.

A. Applications for the installation of Tier 2 Battery Energy Storage System shall be:

1) reviewed by the [Code Enforcement/Zoning Enforcement Officer or Reviewing Board] for completeness. An application shall be complete when it addresses all matters listed in this Local Law including, but not necessarily limited to, (i) compliance with all applicable provisions of the Uniform Code and all applicable provisions of the Energy Code and (ii) matters relating to the proposed battery energy storage system and Floodplain, Utility Lines and Electrical Circuitry, Signage, Lighting, Vegetation and Tree-cutting, Noise, Decommissioning, Site Plan and Development, Special Use and Development, Ownership Changes, Safety, and Permit Time Frame and Abandonment. Applicants shall be advised within [10] business days of the completeness of their application or any deficiencies that must be addressed prior to substantive review.

2) subject to a public hearing to hear all comments for and against the application. The [Reviewing Board] of the [Village/Town/City] shall have a notice printed in a newspaper of general circulation in the [Village/Town/City] at least [5] days in advance of such hearing. Applicants shall have delivered the notice by first class mail to adjoining landowners or landowners within [200] feet of the property at least [10] days prior to such a hearing. Proof of mailing shall be provided to the [Reviewing Board] at the public hearing.

3) referred to the [County Planning Department] pursuant to General Municipal Law § 239-m if required.

4) upon closing of the public hearing, the [Reviewing Board] shall take action on the application within 62 days of the public hearing, which can include approval, approval with conditions, or denial. The 62-day period may be extended upon consent by both the [Reviewing Board] and Applicant.

B. Utility Lines and Electrical Circuitry. All on-site utility lines shall be placed underground to the extent feasible and as permitted by the serving utility, with the exception of the main service connection at the utility company right-of-way and any new interconnection equipment, including without limitation any poles, with new easements and right-of-way.

C. Signage.

1) The signage shall be in compliance with ANSI Z535 and shall include the type of technology associated with the battery energy storage systems, any special hazards associated, the type of suppression system installed in the area of battery energy storage systems, and 24-hour emergency contact information, including reach-back phone number.

2) As required by the NEC, disconnect and other emergency shutoff information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations.

D. Lighting. Lighting of the battery energy storage systems shall be limited to that minimally required for safety and operational purposes and shall be reasonably shielded and downcast from abutting properties.

E. Vegetation and tree-cutting. Areas within [10] feet on each side of Tier 2 Battery Energy Storage Systems shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt provided that they do not form a means of readily transmitting fire. Removal of trees should be minimized to the extent possible.

F. Noise. The [1-hour] average noise generated from the battery energy storage systems, components, and associated ancillary equipment shall not exceed a noise level of [60] dBA as measured at the outside wall of any non-participating residence or occupied community building. Applicants may submit equipment and component manufacturers noise ratings to demonstrate compliance. The applicant may be required to provide Operating Sound Pressure Level measurements from a reasonable number of sampled locations at the perimeter of the battery energy storage system to demonstrate compliance with this standard.

G. Decommissioning.

1) Decommissioning Plan. The applicant shall submit a decommissioning plan, developed in accordance with the Uniform Code, to be implemented upon abandonment and/or in conjunction with removal from the facility. The decommissioning plan shall include:

   a. A narrative description of the activities to be accomplished, including who will perform that activity and at what point in time, for complete physical removal of all battery energy storage system components, structures, equipment, security barriers, and transmission lines from the site;

   b. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations;

   c. The anticipated life of the battery energy storage system;

   d. The estimated decommissioning costs and how said estimate was determined;

   e. The method of ensuring that funds will be available for decommissioning and restoration;

   f. The method by which the decommissioning cost will be kept current;

   g. The manner in which the site will be restored, including a description of how any changes to the surrounding areas and other systems adjacent to the battery energy storage system, such as, but not limited to, structural elements, building penetrations, means of egress, and required fire detection suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed; and

   h. A listing of any contingencies for removing an intact operational energy storage system from service, and for removing an energy storage system from service that has been damaged by a fire or other event.

2) Decommissioning Fund. The owner and/or operator of the energy storage system, shall continuously maintain a fund or bond payable to the [Village/Town/City], in a form approved by the [Village/Town/City] for the removal of the battery energy storage system, in an amount to be determined by the [Village/Town/City], for the period of the life of the facility. This fund may consist of a letter of credit from a State of New York licensed-financial institution. All costs of the financial security shall be borne by the applicant.

H. Site plan application. For a Tier 2 Battery Energy Storage System requiring a Special Use Permit, site plan approval shall be required. Any site plan application shall include the following information:

1) Property lines and physical features, including roads, for the project site.

2) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, and screening vegetation or structures.

3) A [one- or three-line] electrical diagram detailing the battery energy storage system layout, associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and over current devices.

4) A preliminary equipment specification sheet that documents the proposed battery energy storage system components, inverters and associated electrical equipment that are to be installed. A final equipment specification sheet shall be submitted prior to the issuance of building permit.

5) Name, address, and contact information of proposed or potential system installer and the owner and/or operator of the battery energy storage system. Such information of the final system installer shall be submitted prior to the issuance of building permit.

6) Name, address, phone number, and signature of the project Applicant, as well as all the property owners, demonstrating their consent to the application and the use of the property for the battery energy storage system.

7) Zoning district designation for the parcel(s) of land comprising the project site.

8) Commissioning Plan. Such plan shall document and verify that the system and its associated controls and safety systems are in proper working condition per requirements set forth in the Uniform Code. Where commissioning is required by the Uniform Code, Battery energy storage system commissioning shall be conducted by a New York State (NYS) Licensed Professional Engineer after the installation is complete but prior to final inspection and approval. A corrective action plan shall be developed for any open or continuing issues that are allowed to be continued after commissioning. A report describing the results of the system commissioning and including the results of the initial acceptance testing required in the Uniform Code shall be provided to [Code Enforcement/Zoning Enforcement Officer or Reviewing Board] prior to final inspection and approval and maintained at an approved on-site location.

9) Fire Safety Compliance Plan. Such plan shall document and verify that the system and its associated controls and safety systems are in compliance with the Uniform Code.

10) Operation and Maintenance Manual. Such plan shall describe continuing battery energy storage system maintenance and property upkeep, as well as design, construction, installation, testing and commissioning information and shall meet all requirements set forth in the Uniform Code.

11) Erosion and sediment control and storm water management plans prepared to New York State Department of Environmental Conservation standards, if applicable, and to such standards as may be established by the Planning Board.

12) Prior to the issuance of the building permit or final approval by the [Reviewing Board], but not required as part of the application, engineering documents must be signed and sealed by a NYS Licensed Professional Engineer.

13) Emergency Operations Plan. A copy of the approved Emergency Operations Plan shall be given to the system owner, the local fire department, and local fire code official. A permanent copy shall also be placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders. The emergency operations plan shall include the following information:

   a. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.

   b. Procedures for inspection and testing of associated alarms, interlocks, and controls.

   c. Procedures to be followed in response to notifications from the Battery Energy Storage Management System, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous conditions in the event of a system failure.

d. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions. Procedures can include sounding the alarm, notifying the fire department, evacuating personnel, de-energizing equipment, and controlling and extinguishing the fire.

e. Response considerations similar to a safety data sheet (SDS) that will address response safety concerns and extinguishment when an SDS is not required.

f. Procedures for dealing with battery energy storage system equipment damaged in a fire or other emergency event, including maintaining contact information for personnel qualified to safely remove damaged battery energy storage system equipment from the facility.

g. Other procedures as determined necessary by the [Village/Town/City] to provide for the safety of occupants, neighboring properties, and emergency responders.

h. Procedures and schedules for conducting drills of these procedures and for training local first responders on the contents of the plan and appropriate response procedures.

I. Special Use Permit Standards.

1) Setbacks. Tier 2 Battery Energy Storage Systems shall comply with the setback requirements of the underlying zoning district for principal structures.

2) Height. Tier 2 Battery Energy Storage Systems shall comply with the building height limitations for principal structures of the underlying zoning district.

3) Fencing Requirements. Tier 2 Battery Energy Storage Systems, including all mechanical equipment, shall be enclosed by a [7-foot-high] fence with a self-locking gate to prevent unauthorized access unless housed in a dedicated-use building and not interfering with ventilation or exhaust ports.

4) Screening and Visibility. Tier 2 Battery Energy Storage Systems shall have views minimized from adjacent properties to the extent reasonably practicable using architectural features, earth berms, landscaping, or other screening methods that will harmonize with the character of the property and surrounding area and not interfering with ventilation or exhaust ports.

J. Ownership Changes. If the owner of the battery energy storage system changes or the owner of the property changes, the special use permit shall remain in effect, provided that the successor owner or operator assumes in writing all of the obligations of the special use permit, site plan approval, and decommissioning plan. A new owner or operator of the battery energy storage system shall notify the [Code Enforcement/Zoning Enforcement Officer] of such change in ownership or operator within [30] days of the ownership change. A new owner or operator must provide such notification to the [Code Enforcement/Zoning Enforcement Officer] in writing. The special use permit and all other local approvals for the battery energy storage system would be void if a new owner or operator fails to provide written notification to the [Code Enforcement/Zoning Enforcement Officer] in the required timeframe. Reinstatement of a void special use permit will be subject to the same review and approval processes for new applications under this Local Law.

8. Safety

A. System Certification. Battery energy storage systems and equipment shall be listed by a Nationally Recognized Testing Laboratory to UL 9540 (Standard for battery energy storage systems and Equipment) or approved equivalent, with subcomponents meeting each of the following standards as applicable:

1) UL 1973 (Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail Applications),

2) UL 1642 (Standard for Lithium Batteries),

3) UL 1741 or UL 62109 (Inverters and Power Converters),

4) Certified under the applicable electrical, building, and fire prevention codes as required.

5) Alternatively, field evaluation by an approved testing laboratory for compliance with UL 9540 (or approved equivalent) and applicable codes, regulations and safety standards may be used to meet system certification requirements.

B. Site Access. Battery energy storage systems shall be maintained in good working order and in accordance with industry standards. Site access shall be maintained, including snow removal at a level acceptable to the local fire department and, if the Tier 2 Battery Energy Storage System is located in an ambulance district, the local ambulance corps.

C. Battery energy storage systems, components, and associated ancillary equipment shall have required working space clearances, and electrical circuitry shall be within weatherproof enclosures marked with the environmental rating suitable for the type of exposure in compliance with NFPA 70.

9. Permit Time Frame and Abandonment

A. The Special Use Permit and site plan approval for a battery energy storage system shall be valid for a period of [24] months, provided that a building permit is issued for construction [and/or] construction is commenced. In the event construction is not completed in accordance with the final site plan, as may have been amended and approved, as required by the [Reviewing Board], within [24] months after approval, [Village/Town/City] may extend the time to complete construction for [180] days. If the owner and/or operator fails to perform substantial construction after [36] months, the approvals shall expire.

B. The battery energy storage system shall be considered abandoned when it ceases to operate consistently for [more than one year]. If the owner and/or operator fails to comply with decommissioning upon any abandonment, the [Village/Town/City] may, at its discretion, enter the property and utilize the available bond and/or security for the removal of a Tier 2 Battery Energy Storage System and restoration of the site in accordance with the decommissioning plan.

10. Enforcement

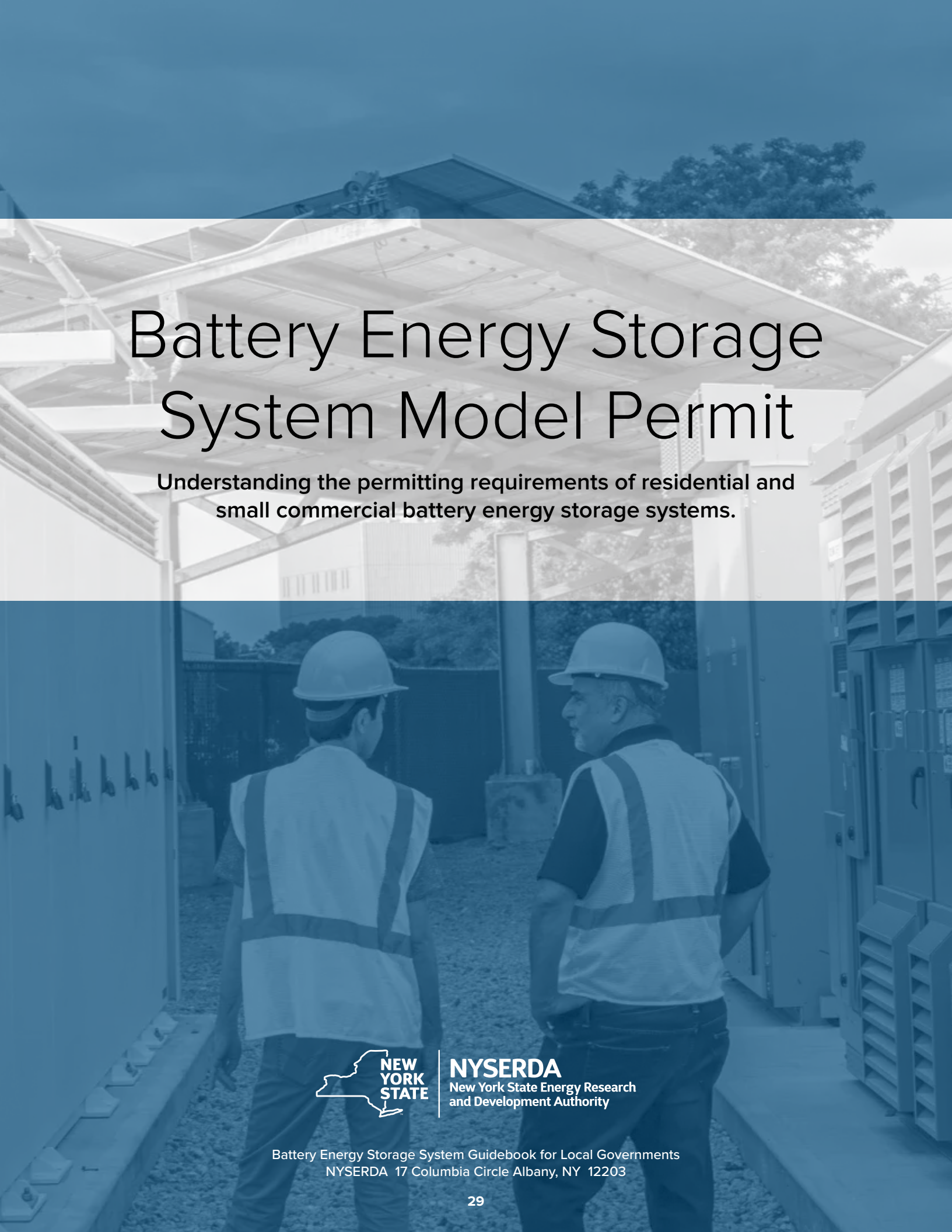
Any violation of this Battery Energy Storage System Law shall be subject to the same enforcement requirements, including the civil and criminal penalties, provided for in the zoning or land use regulations of [Village/Town/City].

11. Severability

The invalidity or unenforceability of any section, subsection, paragraph, sentence, clause, provision, or phrase of the aforementioned sections, as declared by the valid judgment of any court of competent jurisdiction to be unconstitutional, shall not affect the validity or enforceability of any other section, subsection, paragraph, sentence, clause, provision, or phrase, which shall remain in full force and effect.

Questions?

If you have any questions about the Battery Energy Storage System Model Law, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/Energy-Storage-Guidebook. The NYSERDA team looks forward to partnering with communities across the State.



Battery Energy Storage System Model Permit

Understanding the permitting requirements of residential and small commercial battery energy storage systems.

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Section Contents

Overview

The Model Permit is intended to help local government officials and AHJs establish the minimum submittal requirements for electrical and structural plan review that are necessary when permitting residential and small commercial battery energy storage systems.

Additionally, battery energy storage systems shall comply with all applicable provisions of the codes, regulations, and industry standards as referenced in the New York State Uniform Fire Prevention and Building Code.

The Battery Energy Storage System Model Permit is based on the 14th Edition of the National Electric Code (NEC), which is anticipated to be adopted by New York State in 2020. NYSERDA will continue to update the Guidebook as these codes and standards evolve.

The workable version of this document can be found at nyserda.ny.gov/Energy-Storage-Guidebook, under Battery Energy Storage System Model Permit tab.

PERMIT APPLICATION

Battery Energy Storage System Model Permit

Note: Language in [ALL CAPS] below indicates where local jurisdictions need to provide information specific to the jurisdiction. Language in italics indicates explanatory notes from the authors of this document that may be deleted from the distributed version.

SUBMITTAL INSTRUCTIONS

This application and the following attachments will constitute the Battery Energy Storage System Permitting Package.

- This application form, with all fields completed and bearing relevant signatures.
- Permitting fee of $[ENTER FEE HERE], payable by [ENTER VALID PAYMENT METHODS, If checks are allowed INCLUDING WHO CHECKS SHOULD BE MADE PAYABLE TO]
- Required Construction Documents for the battery energy storage system being installed, including required attachments.

Completed permit applications can be submitted electronically to [EMAIL ADDRESS] or in person at [BUILDING DEPARTMENT ADDRESS] during business hours [INDICATE BUSINESS HOURS].

APPLICATION REVIEW TIMELINE

Permit determinations will be issued within [TIMELINE] calendar days upon receipt of complete and accurate applications. The municipality will provide feedback within [TIMELINE] calendar days of receiving incomplete or inaccurate applications.

FOR FURTHER INFORMATION

Questions about this permitting process may be directed to [MUNICIPAL CONTACT INFORMATION].

PROPERTY OWNER

Property Owner's First Name | Last Name | Title

Property Address

City | State | Zip

Section | Block | Lot Number

EXISTING USE

❑ Residential ❑ Commercial

PROVIDE THE TOTAL SYSTEM CAPACITY RATING

Total System Capacity Rating:_____ kWh Power Rating:_____ kW (Select One) ❑ AC or ❑ DC

SELECT SYSTEM CONFIGURATION

❑ AC Coupled ❑ DC Coupled ❑ Standalone

SELECT BATTERY TYPE

❑ Lithium-ion, all types ❑ Lead-acid, all types ❑ Nickel-cadmium (Ni-Cd) ❑ Flow batteries ❑ Other: _____

SELECT INSTALLATION TYPE

❑ Indoor ❑ Outdoor ❑ Attached/Detached/Open Garage ❑ Rooftop ❑ Dedicated Use Building

BATTERY ENERGY STORAGE SYSTEM INSTALLATION CONTRACTOR

Contractor Business Name

Contractor Business Address | City | State | Zip

Contractor Contact Name | Phone Number

Contractor License Number(s) | Contractor Email

Electrician Business Name

Electrician Business Address | City | State | Zip

Electrician Contact Name | Phone Number

Electrician License Number(s) | Electrician Email

Please sign below to affirm that all answers are correct and that you have met all the conditions and requirements to participate in this unified process.

Property Owner's Signature | Date

Battery Energy Storage System Company Representative Signature | Date

PERMITS AND APPROVALS REQUIRED

The following permits are the minimum requirements for battery energy storage systems installed with an aggregate energy capacity less than or equal to 600kWh and, if in a room or indoor area, where only a single energy storage system technology is provided.

1. Battery Energy Storage System Permit
2. [LIST TYPE OF PERMIT(S) REQUIRED BY THE LOCAL JURISDICTION, i.e., ELECTRICAL OR BUILDING PERMIT].

SUBMITTAL REQUIREMENTS

In order to submit a complete permit application for a new battery energy storage system, the applicant must include:

a) Completed Application form.

b) Construction Documents, with listed attachments. Construction Documents must be stamped and signed by a New York State Licensed Professional Engineer.

General Requirements

- Minimum plan size is 11"x17" with a minimum font of 10.
  - Include 4 full sets of plans and 2 sets of supporting documents.
- Include the applicable codes on the cover sheet for the project.
- Include the complete scope of work on the cover sheet for the project.
- All battery energy storage systems, all dedicated use buildings, and all other buildings or structures that (1) contain or are otherwise associated with a battery energy storage system and (2) subject to the NYS Uniform Fire Prevention and Building Code (Uniform Code) and/or the NYS Energy Conservation Construction Code(Energy Code) shall be designed, erected, and installed in accordance with all applicable provisions of the Uniform Code, all applicable provisions of the Energy Code, and all applicable provisions of the codes, regulations, and industry standards as referenced in the Uniform Code, the Energy Code, and the [Village/Town/City] Code.

Site Plan and Floor Plan Requirements

- Include a legend or key for the site and floor plan with equipment symbols.
- The site plan shall include:
  - The location of the structure and the location where the system is to be installed.
  - Show conduit/cable routing of battery energy storage system.
  - Include underground trench detail, if applicable.
  - Show overhead runs, if applicable.
  - Show method and location of required ventilation equipment (if required) for indoor installations.
- Identify the total number of batteries.
- The floor plan shall include:
  - New equipment for the battery energy storage system.
  - Existing equipment for interconnection.
  - Show required working clearances for all existing/new electrical equipment.
  - Show whether the equipment is to be installed indoors or outdoors.
  - Show method and location of requirement ventilation equipment (if required) for indoor installations.
  - Show method of protection from physical damage for the battery energy storage system.
  - Show means of access to battery energy storage system.
  - Denote whether conductors are routed indoors or outdoors.
- Provide an elevation drawing of the system equipment and specify elevation in relation to flood plains.
  - If the building is in a flood zone, it shall be above base flood elevation.
- Provide supporting documents from manufacturer if equipment is subject to physical damage.

Electrical

- Installations shall be in compliance with the Battery Energy Storage System Electrical Checklist. The Battery Energy Storage System Electrical Checklist provides an overview of common points of inspection for which the applicant should be prepared to show compliance.
- One or Three-Line Diagram
  - Show grounding and bonding for the battery energy storage system, including the ground return path.
  - Show method of interconnection.
  - Show overcurrent protection method and rating when required.
  - Include detailed wiring information for all new circuits, including:
    > Conductor size/type
    > Number of conductors
    > Conduit size
    > Conduit type
  - Show all disconnection means.
  - Show ratings (voltage, ampacity, environmental, etc) for new and existing service equipment.

• Specifications and installation instructions
  - Provide specification sheets and installation instructions for the following equipment:
    > Batteries
    > Inverter
    > Transformer or autotransformer
    > Transfer switch(es)
    > ESS support or racking
    > Converters
    > Interconnecting cables and connectors
    > Management system, including charge controller(s)
    > Panelboards
    > HVAC/thermal management system
    > Fire rated material
  - An approved energy storage management system shall be provided for battery technologies other than lead-acid and nickel cadmium for monitoring and balancing cell voltages, currents, and temperatures within the manufacturer's specifications. The system shall transmit an alarm signal to an approved location if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

Fire Requirements

• All battery energy storage systems must be designed and installed in accordance with all applicable provisions of the New York State Uniform Code. Provide documentation on how this system will meet these requirements.
  - - Most one-to-two family residential systems will be subject to Section R327 (Energy Storage Systems) of the 2020 Residential Code of New York State. . All other systems are subject to Section 1206 (Electrical Energy Storage Systems) of the 2020 Fire Code of New York State.

PLAN REVIEW

Permit applications can be submitted to [DEPARTMENT NAME] in person at [ADDRESS] and electronically through: [WEBSITE/EMAIL/FAX CONTACT INFORMATION, IF APPLICABLE].

FEES

[PROVIDE CLEAR FEE SCHEDULE]

DEPARTMENTAL CONTACT INFORMATION

Once all permits to construct the battery energy storage system installation have been issued and the system has been installed, it must be inspected before final approval is granted for the battery energy storage system. On-site inspections can be scheduled by contacting [DEPARTMENT] by telephone at [PHONE NUMBER] or electronically at [WEBSITE OR EMAIL ADDRESS].

Inspection requests received within business hours are typically scheduled for the next business day. If next business day is not available, inspection should happen within a five-day window. [IF MUNICIPALITY ACCEPTS THIRD PARTY INSPECTIONS, INDICATE THIS AND PROVIDE A LIST OF APPROVED INSPECTORS].

In order to receive final approval, the following inspection is required:

[FINAL INSPECTION] The applicant must contact [INSERT CONTACT INFORMATION] when ready for a final inspection. During this inspection, the inspector will review the complete installation to ensure compliance with codes and standards, as well as confirming that the installation matches the records included with the permit application. The applicant must have ready, at the time of inspection, the following materials and make them available to the inspector:

- Copies of as-built drawings and equipment specifications, if different than the materials provided with the application.
- Photographs of key hard to access equipment.

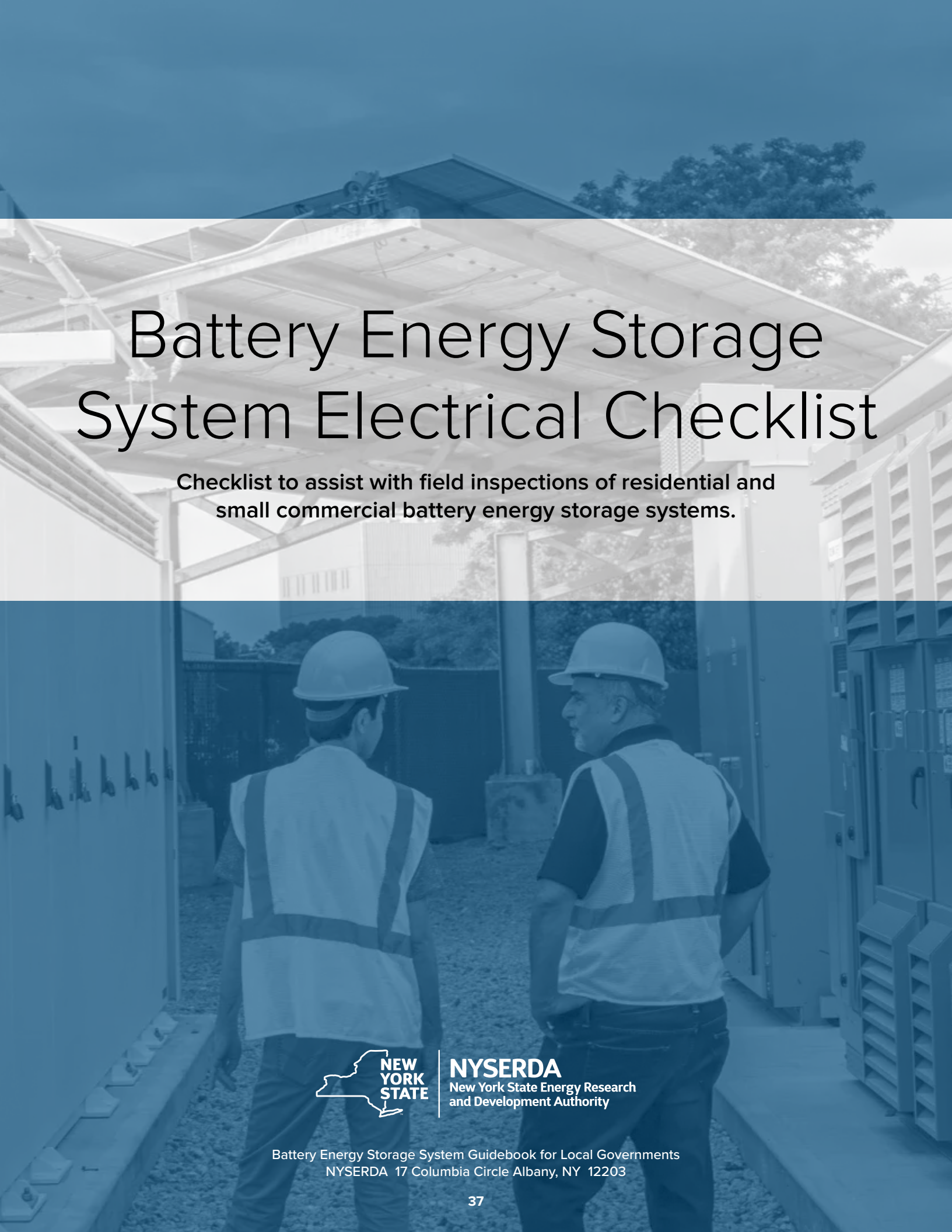
[MUNICIPALITY NAME] has adopted a standardized “Battery Energy Storage System Electrical Checklist”, which can be found here: [WEBSITE ADDRESS].

DEPARTMENTAL CONTACT INFORMATION

For additional information regarding this permit process, please consult our departmental website at [WEBSITE] or contact [DIVISION NAME] at [PHONE NUMBER].

Questions?

If you have any questions about the Battery Energy Storage System Model Permit, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/Energy-Storage-Guidebook. The NYSERDA team looks forward to partnering with communities across the State.



Battery Energy Storage System Electrical Checklist

Checklist to assist with field inspections of residential and small commercial battery energy storage systems.

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Section Contents

Overview

The Electrical Checklist is intended to be utilized as a guideline for field inspections of residential and small commercial battery energy storage systems. It can be used directly by local code enforcement officers or provided to a third-party inspection agency, where applicable.

The Battery Energy Storage System Electrical Checklist is based on the 14th Edition of the National Electric Code (NEC), which is anticipated to be adopted by New York State in 2020. NYSERDA will continue to update the Guidebook as these codes and standards evolve.

The workable version of this document can be found at nyserda.ny.gov/Energy-Storage-Guidebook, Battery Energy Storage System Electrical Checklist tab.

1. Electrical Checklist

Applicable Codes: NEC 2017, [add any additional local codes required]

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

Project Information

Permit Number	
Primary Contractor	
Project Address	
Date	

Pre-Inspection

	De-energize electrical panels prior to removing the dead-front. All equipment shall be open and ready for inspection
	The approved plans, permit, and installation instructions shall be on site at time of inspection
	Major changes, including revisions, to the installation shall be submitted to the AHJ for review and approval prior to inspection

Inspection

General

	Exact match of component product number and rating with plan
	All equipment shall bear the appropriate listing mark of a Nationally Recognized Testing Laboratory where such marking is required as part of the listing, and installed in accordance with its listing (NEC Article 110.3(B))
	Battery energy storage system includes a manual (system description, operating and safety instructions, maintenance requirements, safe battery handling requirements/recommendations)
	A personnel door(s) intended for entrance to and egress from rooms designed as BESS rooms shall open in the direction of egress and shall be equipped with listed panic hardware, (NEC 706.10(D))
	Provide sufficient working spaces and clearances for batteries. Working space shall be measured from the edge of the battery cabinet, racks, or trays, (NEC 480.9, 110.26)
	Spaces about the ESS shall comply with NEC 110.26. Working space shall be measured from the edge of the ESS modules, battery cabinets, racks, or trays, (NEC 706.10(C)) • For battery racks, there shall be a minimum clearance of 1 inch between a cell container and any wall or structure on the side not requiring access for maintenance. • ESS modules, battery cabinets, racks, or trays shall be permitted to contact adjacent walls or structures, provided that the battery shelf has a free air space for not less than 90% of its length. • Pre-engineered and self-contained ESSs shall be permitted to have working space between components within the system in accordance with the manufacturer's recommendations and listing of the system.

Equipment

	Flexible Battery DC conductors are listed as hard service use and/or moisture resistant, (NEC 690.74, 706.32)
	Fine stranded flexible cables (if used) terminated in accordance with NEC 110.14, (NEC 110.14, 690.74, 706.32)
	Ungrounded conductor is not marked using white, grey, or white striped conductors to avoid confusion with grounded conductor markings, (NEC 200.7)
	Electrochemically dissimilar metals are not in direct physical contact, (NEC 110.14)
	All connections shall be secure, (NEC 110.14, 706.31)
	All metallic raceways and equipment shall be bonded and electrically continuous, (NEC 110.3(B), 250.8)
	Unused opening shall be close with protection equivalent to the wall of enclosure, (NEC 110.3(B), 408.7)
	The selected wiring methods are appropriate for the location and installed in accordance with their intended use, (NEC 310, 706)
	All live parts of batteries must be guarded regardless of voltage or battery type, (NEC 706.10(B))
	Batteries' live parts shall be guarded in accordance with (NEC 110.27, 480.10(B))
	Verify that the attachment of the battery storage unit to the wall or floor is per the approved plans. If the wall or floor construction differs from the approved plans, a revision is required prior to inspection

Grounding

	Any conductive battery racks, cases or trays must be connected to an equipment grounding conductor. (NEC 250.110)
	Equipment grounding conductor is properly identified as either bare, green, or green with continuous yellow stripe(s), (NEC 250.119)
	If there is no existing AC grounding electrode, the ESS contractor shall install (2) ground rods at the main electrical service. If there Is only (1) ground rod, a second one shall be installed. Ground rods shall be a minimum of 6' apart, (NEC Exhibit 250.25, Article 250.53, 706)

Main Electric Service

	Circuit breakers shall be of the same manufacturer as the main service panel, (NEC 110.3)

Ventilation

	Provide adequate ventilation for batteries per manufacturer's requirements. (NEC 706.10(A))
	Batteries/enclosures contain ventilation equipment to prevent excessive accumulation of gas pressure and/or gas ignition, (NEC 706.10)

Connections and Terminations

	Cell terminations have measures taken to prevent corrosion
	Electrical connections do not put mechanical strain on battery terminals, (NEC 706.31, 110.14(A))
	Overcurrent protection of ungrounded conductors shall have overcurrent protection device(s) located as close as practicable to the battery terminals in an unclassified location, (NEC 480.5, 706.7)
	Battery circuit and equipment shall be protected by overcurrent protective devices as close as practicable to the storage battery terminals in accordance with the requirements of NEC Article 240, (NEC 240.21(H), 705.65(A))
	Unless the short-circuit currents from all sources do not exceed the ampacity of the conductors, storage battery inverters shall be protected by overcurrent protective devices from all other sources, (NEC 705.65(A))
	A listed current-limiting overcurrent protective device shall be installed adjacent to the ESS for each dc output circuit, (NEC 706.21(C))
	In an ac-coupled system, the plug-in type circuit breaker connected to the output of the storage battery or multimode inverter is required to be secured, (NEC 408.36(D), 710.15(E))
	Storage battery, multimode, and utility-interactive inverter output circuit breakers that are marked "Line" and "Load" are not permitted to be back-fed, (NEC 710.15(E), 110.3(B), 705.12(B)(4))
	Single 120-volt inverter in ac coupled systems should not supply back-up loads containing multiwire branch circuit or any 240 volt outlets. Such action can overload the common neutral in such a wiring method, (NEC 710.15(C))

Monitoring and Charge Control

	Charge controllers shall be compatible with the battery or ESS manufacturer's electrical ratings and charging specifications, (NEC110.3(B))
	Charge controller is properly installed to prevent overcharging or damaging batteries, (NEC 690.72, 706.23)
	Diversionary charge controllers with utility-interactive and multimode inverters shall have a second independent controller to prevent battery overcharge in the event the diversion loads are unavailable or the diversion charge controller fails, (NEC 706.23(B)(3)(b))

Disconnecting Means

	A disconnecting means is provided for all ungrounded conductors derived from a dc stationary battery system with a voltage of over 60 volts dc, (NEC 480.7)
	A disconnecting means shall be provided for all ungrounded conductors derived from an ESS. A disconnecting means shall be readily accessible and located within sight of the ESS, (NEC 706.7(A))
	Battery circuits subject to field servicing where exceeding 240 volts nominal between conductors or to ground, shall have provisions to disconnect the series-connected strings into segments not exceeding 240 volts nominal for maintenance by qualified persons. Non-load-break bolted, or plug-in disconnects shall be permitted, (NEC 706.30(B))
	ESS exceeding 100 volts between conductors or to ground shall have a disconnecting means, accessible only to qualified persons, that disconnects ungrounded and grounded circuit conductor(s) in the electrical storage system for maintenance. This disconnecting means shall not disconnect the grounded circuit conductor(s) for the remainder of any other electrical system. A non-load-break-rated switch shall be permitted to be used as a disconnecting means, (NEC 706.30(C))
	Where battery energy storage system input and output terminals are more than 5ft from the connected equipment, or where these terminals pass through a wall or partition must comply with all of NEC 706.7(E)) (1) A disconnecting means shall be provided at the energy storage system end of the circuit. Fused disconnecting means or circuit breakers shall be permitted to be used. (2) A second disconnecting means located at the connected equipment shall be installed where the disconnecting means required by 706.7(E)(1) is not within sight of the connected equipment. (3) Where fused disconnecting means are used, the line terminals of the disconnecting means shall be connected toward the energy storage system terminals. (4) Disconnecting means shall be permitted to be installed in energy storage system enclosures where explosive atmospheres can exist if listed for hazardous locations. (5) Where the disconnecting means in (1) is not within sight of the disconnecting means in (2), placards or directories shall be installed at the locations of all disconnecting means indicating the location of all other disconnecting means. (NEC 706.7(E))
	Where a disconnecting means, located in accordance with NEC 480.7(A) (out of sight of the battery storage system), is provided with remote controls to activate the disconnecting means and the controls for the disconnecting means are not located within sight of the stationary battery system, the disconnecting means shall be capable of being locked in the open position, (NEC 480.7(B))
	The equipment grounding lug shall be as specified by the manufacturer, (NEC 110.3(B))
	Remove any insulating finish, such as paint, under the equipment grounding lug prior to installation (NEC 250.8, 250.12)
	Maximum height requirements for disconnects applies to integrated disconnect (e.g., Tesla PowerWalls or similar applications)

Interconnection

	The interconnection methods comply with NEC Article 705.12 (if connected to other energy sources)

Signage

	The signage shall be in compliance with ANSI Z535 and shall include the following information 1. Labeled “Energy Storage Systems” with symbol of lightning bolt in a triangle 2. Type of technology associated with the ESS 3. Special hazards associated 4. Type of suppression system installed in the area of the ESS 5. Emergency contact information
	A permanent plaque or directory denoting the location of all electric power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected. The marking shall comply with NEC 110.21(B) (NEC 706.11)
	Equipment containing overcurrent devices in circuits supplying power to a busbar or conductors supplied from multiple sources shall be marked to indicate the presence of all sources. (NEC 705.12(B)(3))
	PV system output circuit conductors shall be marked to indicate the polarity where connected to battery energy storage systems. (NEC 690.55)
	DC system conductors of 4 AWG or larger shall be identified using colored marking tape, (NEC 210.5(C)(2))
	Where controls to activate the disconnecting means of a battery are not located within sight of a stationary battery system, the location of the controls shall be field marked on the disconnecting means. (NEC 480.7(B))
	Where controls to activate the disconnecting means of an ESS are not located within sight of the system, the disconnecting means shall be capable of being locked in the open position, in accordance with 110.25, and the location of the controls shall be field marked on the disconnecting means. (NEC 706.7(B))
	Where the sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording: (NEC 705.12(B)(2)(3)(c)): **WARNING:** **THIS EQUIPMENT FED BY MULTIPLE SOURCES.** **TOTAL RATING OF ALL OVERCURRENT DEVICES,** **EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE,** **SHALL NOT EXCEED AMPACITY OF BUSBAR**
	Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. The busbar shall be sized for the loads connected in accordance with Article 220. A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the power source that displays the following or equivalent wording: (NEC 705.12(B)(2)(3)(b)): **WARNING:** **INVERTER OUTPUT CONNECTION;** **DO NOT RELOCATE THIS OVERCURRENT DEVICE.**
	All battery and battery management equipment and associated switchgear are marked and labeled according to all applicable codes including arc flash incident calculations for the safety of operation and maintenance personnel required by the National Electrical Code and OSHA: (NEC 110.16)
	If a battery dc disconnecting means is not provided at the batteries, the disconnecting means shall be legibly marked in the field. The marking shall be of sufficient durability to withstand the environment involved and shall include the following (NEC 480.7(D)): • Nominal battery voltage • Maximum available short-circuit current derived from the stationary battery system • Date the calculation was performed for the value above • The battery disconnecting means shall be marked in accordance with 110.16

Questions?

If you have any questions about the Battery Energy Storage System Electrical Checklist, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/Energy-Storage-Guidebook. The NYSERDA team looks forward to partnering with communities across the State.

Fire Safety Working Group Deliverables

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

Section Contents

1. Fire Safety Working Group Deliverables

Governor Hochul's Inter-Agency Fire Safety Working Group produced numerous documents that provide useful information and resources with respect to energy storage fire safety. Links to copies of those deliverables are provided below for reference.

1. Fire Code Recommendations Report

On February 26, 2024 Governor Kathy Hochul released recommendations from the Inter-Agency Fire Safety Working Group, outlining enhanced safety standards for battery energy storage systems. The recommendations informed development of the 2025 Fire Code of New York State, adopted on July 25, 2025. These recommendations helped codify enhanced safety standards that continue to position New York as a national leader in responsible and reliable battery energy storage development.

Fire Code Recommendations Report [PDF]

2. Press Releases to Date:

- July 26, 2024: Draft Fire Code Announced to Enhance Safety Standards for Battery Energy Storage Systems
- February 6, 2024: Governor Hochul Releases Initial Recommendations From Inter-Agency Fire Safety Working Group
- December 21, 2023: Initial Findings Released From Inter-Agency Fire Safety Working Group On Emergency Response
- July 28, 2023: Governor Hochul Convenes Inter-Agency Fire Safety Working Group Following Fires in Jefferson, Orange, & Suffolk Counties

3. New York State Inter-Agency Fire Safety Working Group Air, Soil, and Water Data Findings

On December 21, 2023, Governor Kathy Hochul released initial findings from the Inter-Agency Fire Safety Working Group, which was convened following fires at battery energy storage systems at facilities in Jefferson, Orange and Suffolk Counties this summer. The Working Group has made significant progress in evaluating both preventive and reactive standards and practices for battery system fire safety, in addition to analyzing the impacts of the fires. Based on available analyses of air quality, soil, or water data collected in the days following the incidents, the Working Group concluded that there were no reported injuries and no harmful levels of toxins detected. Additionally, statewide battery system project assessments and fire code reviews are currently underway with draft recommendations expected to be released for public comment in the first quarter of 2024.

NYS Data Collection Report [PDF]

4. Local Government Webinar: Deploying Safe Lithium-Ion Energy Storage in Your Community

- View Webinar
- Download Presentation Slides [PDF]

Questions?

If you have any questions about the Fire Safety Working Group Deliverables, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/Energy-Storage-Guidebook.
The NYSERDA team looks forward to partnering with communities across the State.

NEW YORK STATE | NYSERDA
New York State Energy Research and Development Authority

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