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Battery Energy Storage Systems (BESS) Ordinance Guidance for Midwestern Communities



SEPTEMBER 2026



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Introduction

In the current energy landscape, clean, affordable electricity generation and grid reliability have become pressing concerns. Battery energy storage systems (BESS) are being proposed in both rural and urban communities, often outpacing the ability of local regulators to become familiar with best practices for siting them. For many Midwestern local governments, this presents a unique challenge.

BESS are critical infrastructure for both a community's electricity system and the larger grid, supporting electric system stability, peak demand management, and renewable energy integration.¹ At the same time, BESS introduce unfamiliar risks and uncertainties, raising questions about safety, emergency response needs, and compatibility with surrounding land uses.

BESS facilities have the following characteristics:

- Compact but have high-intensity uses, concentrated on small footprints²
- Operationally simple
- Highly regulated at the equipment level, addressing safety and health risks, but not regulated as a land use
- A single technology, but scalable into distinct use cases that can be appropriate in most zoning districts

Communities are now navigating a dual responsibility of supporting infrastructure that enables a modern, reliable electricity system while ensuring that siting, design, and operations are compatible with surrounding land uses and community priorities.

This ordinance guidance framework is designed to help local decision makers translate technical standards into local land use decisions. This guidance operates alongside applicable federal and state regulations. The guidance addresses a broad range of issues and concerns that communities have regarding different BESS use cases, ranging from residential use, commercial use, and large utility-scale installations to discrete stand-alone projects supporting the local grid.

BESS facilities require intentional siting, clear standards, and proactive coordination to be compatible with local land uses. The role of this ordinance guidance is not to regulate the technology itself, but to ensure that the right systems are in the right places, their associated risks are understood and managed, and that communities have clarity, consistency, and confidence in the process for siting and permitting BESS.

ASSESSING BESS FOR LOCAL BENEFITS

BESS absorb, store, and discharge electricity when needed. They help balance electric supply and demand, support reliability during peak periods, provide backup or resilience functions, and help integrate wind and solar.

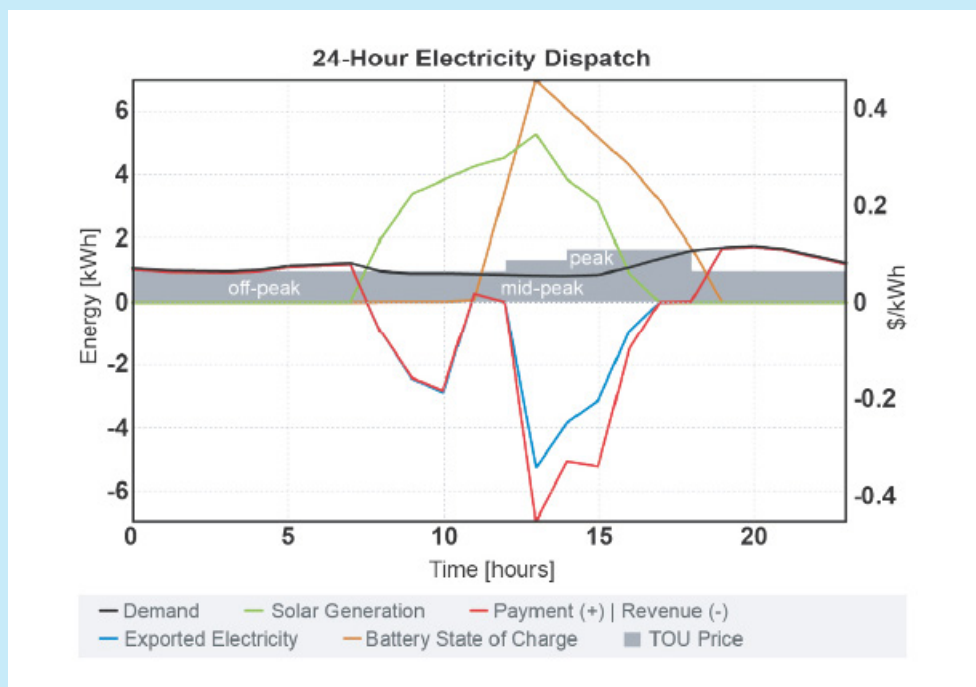
Because everyone depends on safe, reliable, and affordable electric service, local review should focus on the use cases of BESS and how it can be sited and designed to provide benefits while remaining compatible with surrounding land uses.

Source: Pacific Northwest National Laboratory (PNNL), [Local Siting and Permitting for Energy Storage](#) (PNNL, 2026), PNNL-SA-221145.



Understanding the BESS technology landscape

The most commercially available system being sited on land for storing energy as electricity is the lithium-ion BESS (Li-ion BESS).³ As of August 2026, the battery chemistry that has reached its most mature state is lithium iron phosphate (LiFePO₄) or LFP. This is also the chemistry that is used in consumer products like electric vehicles and stationary home energy storage. Li-ion BESS's configuration is modular, and they have quite a small footprint for the amount of energy they store. For example, a system that powers a house for a few days may be as small as a refrigerator, while a utility-scale system on 0.5 acres can easily fit in a capacity of 100 megawatt hours (MWh) for peak-shaving purposes.⁴



Source: Reproduced with permission from PNNL, [Benefits of Energy Storage](#) (March 2026), PNNL-SA-221139.

Note: Electricity generated or stored can reduce energy bills when used during peak electricity prices, as shown in this 24-hour electricity dispatch profile from a home with a solar rooftop system and energy storage.

BESS can play a vital role in developing the infrastructure for accelerating the transition to net-zero carbon emissions since they [produce zero emissions during operation](#). As new demands come onto the electricity grid, we see the energy storage technology landscape evolving with it.

Communities should approach siting BESS in a manner that aligns with their surrounding land use and local priorities. For example, some communities may use BESS to transition to more renewable energy by helping ensure a predictable supply of power from otherwise intermittent wind and solar generation. Another example would be using BESS to support resiliency goals for the larger electric grid system.



Where BESS are sited and permitted

BESS may be appropriate in a variety of zoning districts, depending on their scale, design, and purpose. Stationary BESS fall into four general use cases: residential, commercial, stand-alone utility asset, and integrated with wholesale energy generation.⁵

BESS already incorporated into other land uses should not need separate considerations for setbacks and buffers. Similarly, smaller-scale applications (such as residential and some commercial systems) are becoming well-monitored and should not require special zoning treatment.

BESS use cases and permitting

- Small on-site systems are almost always subject to local permitting, as some are either treated as equipment or are permitted as accessory uses in all districts where the principal use is allowed, subject to standard mechanical, building, and electrical codes and permits.
- On-site systems, which are co-located with generation facilities like a wind or solar farm, should also be permitted as accessory uses in all districts where the principal use is allowed.
- Intermediate and utility-scale systems require a higher level of review due to their potential impact. These use cases could include stand-alone BESS serving either local services or the distribution grid for resiliency purposes, as well as the wholesale electricity market and transmission system.⁶ When under local jurisdiction, these systems are typically permitted through a conditional or special use process in designated zones. This approach allows communities to evaluate site-specific conditions while maintaining consistency in land use decision-making.

Where a system falls under state permitting jurisdiction, the applicant can be required to demonstrate this and provide relevant docket or case information to local decision makers. Local authority in these cases is limited to the extent permitted under state law, and local standards would have to guide application of state-established requirements rather than conflict with state standards. Regional and local priorities are set through comprehensive planning, so zoning and land use standards play a crucial role in the current permitting scenario for BESS. Comprehensive plans are the legal basis for all zoning requirements.⁷ Zoning requirements that are inconsistent with a community's comprehensive plan could lead to legal challenges.

BESS USE CASES

Residential batteries primarily serve as backup power and have resilience functions. Batteries are increasingly being deployed alongside on-site generation as an alternative to selling excess electricity back to the utility, particularly as state regulators and legislators reduce net metering compensation rates. For commercial customers, these systems can also help manage on-site energy use and reduce the demand-charge portion of electricity bills.

Source: Brian Ross and Monika Vadali, "[Zoning Practice: Battery Energy Storage Systems](#)," American Planning Association Zoning Practice 41, no.3, 2024.



CAPACITY THRESHOLDS

If permissible, it is suggested that communities consider capacity thresholds where they serve a clear purpose, such as distinguishing small behind-the-meter systems from larger systems requiring conditional/special use review. That way, a zoning ordinance will be able to specify whether thresholds are based on energy capacity in kilowatt-hour (kWh)/megawatt-hour (MWh) or power capacity in kW/MW.

“If the primary function of the system is to provide frequency regulation, a higher power rating is preferred so that the system can charge and discharge frequently over a short duration of time. On the other hand, if the primary function is to enable peak-shifting or to provide backup power in case of an outage, the energy rating will be higher so that the battery can deliver power over a longer time.”

So, a BESS rated at 10 MW can deliver up to 10 MW of power instantaneously, while a BESS rated at 30 MWh can deliver 1 MW of power continuously for 30 hours, or 3 MW of power for 10 hours, and so on. Around 10–90 kWh is needed to provide a few days of backup power to an average American home.

Source: “[Energy Storage Energy and Power Capacity](#),” GridPIQ, PNNL.

ORDINANCE LANGUAGE EXAMPLE

“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 twelve-volt car battery or an electric motor vehicle. A battery energy storage system is classified as a Tier 1, Tier 2, or Tier 3 battery energy storage system as follows:

- (1) Tier 1 battery energy storage systems have an aggregate energy capacity less than or equal to 80 kWh and, if in a room or enclosed area, consist of only a single energy storage system technology. All Tier 1 battery energy storage systems located on residential properties shall comply with the Residential Code of New York State.
- (2) Tier 2 battery energy storage systems have an aggregate energy capacity between 81 and 600 kWh or are comprised of more than one energy storage system technology in a room or enclosed area.
- (3) Tier 3 battery energy storage systems have an aggregate energy capacity greater than 600 kWh and, if in a room or enclosed area, consist of only one energy storage system technology.”

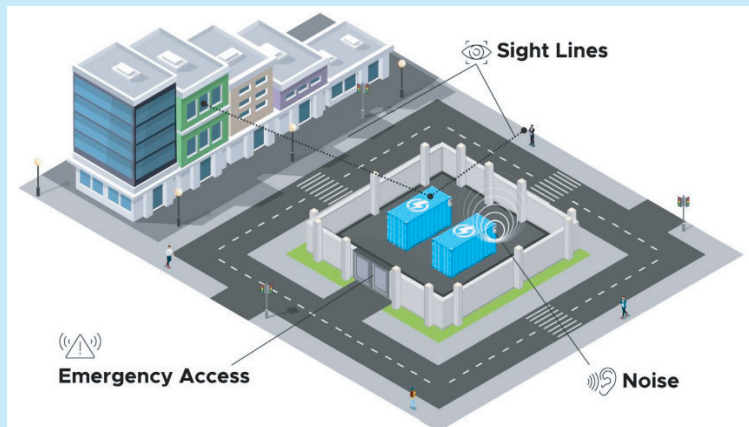
Source: Town of Islip, New York, [§ 68-456 Battery energy storage systems](#).



Required approvals

For permitting BESS, the level of approval required reflects the scale and complexity of the system. Behind-the-meter use cases usually only require standard building and electrical permits, unless the BESS is located outside the existing building. In a co-located project, BESS and the energy generation components can be considered as two distinct principal land uses in proximity, sometimes even on the same property.⁸ Larger or stand-alone use cases can require conditional or special use permits, site plan approval, and all applicable construction permits, depending on their impact.

Local authority over BESS varies by state and by permit type. A zoning ordinance should identify the local government's authority over land use approvals while recognizing that building, electrical, and fire code compliance may be administered through separate permits by the local code official, fire official, state agency, or other authority having jurisdiction (AHJ).⁹ Where state siting authority applies, the applicant should identify the applicable state process and demonstrate how local zoning, site design, emergency access, and compatibility standards will be addressed to the extent permitted by state law.¹⁰



Potential local impacts and considerations for siting a utility-scale energy storage system, including visual impacts, noise, and first responder access.

Source: Reproduced with permission from PNNL, [Local Siting and Permitting for Energy Storage](#).

Application requirements

For zoning or site plan review, applications should include information necessary to evaluate land use compatibility and ordinance compliance, including parcel boundaries, setbacks, adjacent land uses, access drives, emergency access, equipment layout, fencing, screening, lighting, grading, drainage, stormwater features, and decommissioning areas. Some important documents may not be available during the site plan approval stage and may fall under a post-construction reporting process.¹¹ Technical documents such as electrical documents, equipment listings, and fire code documentation should be submitted to the appropriate AHJ and may be included in the zoning application package where the local review process is integrated or where needed to demonstrate compliance with adopted standards.¹²

Fire and electrical codes, like National Fire Protection Association (NFPA) 855, Underwriters Laboratories (UL) 9540, UL 9540A, or International Fire Code (IFC), as adopted through applicable state or local code, establish the core system safety requirements for BESS.¹³ The zoning ordinance should not duplicate those technical standards but should require applicants to submit documentation showing the latest required fire safety, hazard mitigation, and emergency response materials to the appropriate AHJ. For larger systems, the ordinance could also require a site-specific emergency response plan (ERP) and documented coordination with local emergency responders as part of the site plan or special use review.¹⁴



Applicants should also submit operations, maintenance, and decommissioning plans, and should provide financial assurance (bond or similar) to ensure long-term site responsibility. Environmental and stormwater compliance documentation should be included where applicable.

Definitions

For the purposes of this guidance, key terms are defined to ensure consistency in interpretation and application.

- **Battery energy storage system (BESS):** A system consisting of batteries and associated equipment, including inverters, transformers, control systems, and thermal management components, that stores energy for later use and delivers electricity to a facility, the grid, or other loads. A BESS may be installed as a stand-alone facility or co-located with other energy generation or electrical infrastructure.
- **Co-located system:** A BESS that is installed on the same site as, and functionally integrated with, another energy facility or electrical infrastructure, such as an existing principal use solar or wind energy system or electrical substation.
- **Decommissioning:** The process of safely removing a BESS from service at the end of its operational life or upon abandonment, including the removal of equipment, site restoration, and proper disposal or recycling of system components in accordance with applicable regulations.
- **Emergency response plan (ERP):** A site-specific plan developed by the system owner or operator that outlines procedures for responding to emergency conditions, including fire, thermal runaway, system failure, or other hazardous events. The plan shall identify hazards, provide shutdown procedures, establish communication protocols, and document coordination with local emergency responders.
- **Energy capacity:** The total amount of electrical energy that a BESS can store and deliver over time, expressed in megawatt hours (MWh). Energy capacity reflects the duration for which a system can operate at or near its nameplate capacity.
- **Nameplate capacity:** The maximum instantaneous electrical output of a BESS, expressed in megawatts (MW), as specified by the manufacturer or system design. Nameplate capacity represents the system's maximum discharge rate to the grid or connected load.
- **Non-participating property:** A parcel that is not owned by the BESS owner/operator and is not subject to a lease, easement, participation agreement, compensation agreement, or other written agreement authorizing the siting, construction, operation, or impacts of the BESS.
- **Participating property:** A parcel of land that is owned by or subject to a written agreement with the BESS owner or operator, granting permission for the siting, construction, or operation of the system or associated infrastructure. Participating properties may include parcels on which the system is located or that are otherwise contractually involved in the project.



Setbacks and separation distances

Setbacks are a primary tool for ensuring compatibility between BESS facilities and surrounding land uses. They provide a buffer that addresses safety considerations by providing distance between equipment and people or structures, reduces potential impacts by minimizing exposure in the unlikely event of fire or system failure, and supports community compatibility by minimizing visual, noise, and perceived impacts on neighboring properties. Setback distances should be aligned to the specific risk that is being minimized.

Minimum setbacks should be established from non-participating property lines, occupied structures, public rights-of-way, and environmentally sensitive areas.

Greater setbacks are typically warranted for non-participating properties, where landowners have not consented to the project. These distances should be informed by both local land use priorities and applicable technical standards.¹⁵ Most communities already have setbacks for land uses with energy storage (gas stations, ammonia storage, propane, etc.) that should inform setbacks for BESS.¹⁶

As with other land uses with fire, electrical, or safety considerations, BESS setback standards should be informed by both local land use compatibility goals and applicable technical safety standards. NFPA 855 and related fire/electrical codes address equipment-level safety, separation, testing, access, and hazard mitigation. Local governments could translate those requirements into site-level standards, including setbacks from non-participating property lines, occupied structures, rights-of-way, and sensitive resources. A range of minimum setback distances has been adopted between 25 and 300 feet, depending on the surrounding land use. A general setback of 100 feet comes from NFPA 855.¹⁷

Setbacks can also be used for mitigating sound during normal operating conditions (NFPA 855 standards are based on abnormal condition testing), although sound standards may be a more direct way to regulate that impact.

Site design: Height, screening, and visual integration

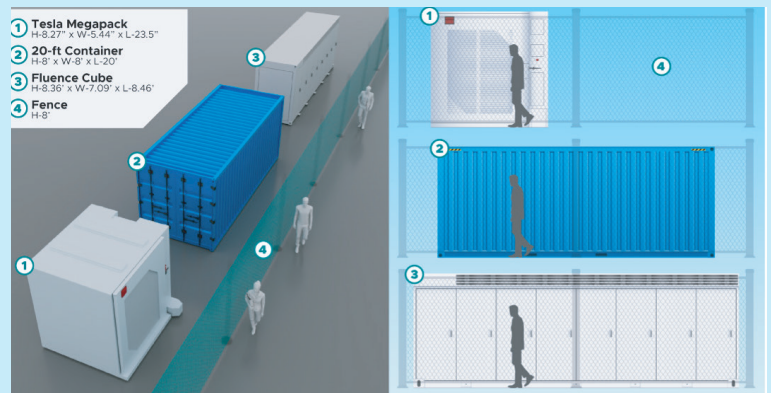
While BESS facilities are relatively low-profile compared to energy infrastructure, such as wind turbines and power lines, they could still have visual impacts. Standards for maximum equipment height should reflect typical system configuration design or safety standards. The

ORDINANCE LANGUAGE EXAMPLE

Setbacks

“Minimum setbacks, as measured from BESS equipment (excluding any perimeter fencing and sound barrier), to the property line shall be 25 feet from any agricultural, commercial, industrial, government and institutional land use and 100 feet from any residential land use.”

Source: Village of Bristol, Wisconsin, [BESS ordinance amendment, 13-1-177 Conditional Uses](#).



Standard 8-foot screening fence against common commercial BESS installations.

Source: Reproduced with permission from PNNL, [Local Siting and Permitting for Energy Storage](#).



batteries are housed in electrical enclosures, cabinets, or modified shipping containers, which are about 8 feet tall.¹⁸ Screening and landscaping requirements should be applied along non-participating property boundaries to reduce visual impacts and have minimal combustion risk. The goal is not to eliminate visibility entirely, but to ensure that facilities are integrated into the landscape in a predictable and consistent way.

Security and access control are also essential components of BESS site design. As required in the electrical code, BESS facilities must be enclosed by appropriate fencing with controlled access points to prevent unauthorized entry. Generally, the fencing and screening minimums for large BESS are around 6–8 feet.¹⁹ Signage should clearly identify hazards, provide emergency contact information, and communicate system characteristics relevant to first responders. Access features such as lockboxes should be included where required by local emergency services.

ORDINANCE LANGUAGE EXAMPLE

Height

“No component of a battery, cell, racking system, container or Dedicated-Use Building shall exceed twelve (12) feet in height above ground level.”

Source: Fulton County, Illinois, [ESS Storage System Siting Ordinance Height standard for Tier 2 BESS](#).

ORDINANCE LANGUAGE EXAMPLE

Screening/Vegetative Management

“Screening and Vegetative Management. All utility-scale battery energy storage system sites shall meet the screening and vegetative management requirements of Section 5 of this Ordinance applicable to solar energy systems, unless specifically exempted or modified by the County in the approval of a permit or in subsequent statements from the County. Except for any vegetation or fencing around the perimeter of the utility-scale battery energy storage system planted for visual screening or noise-reduction purposes, there shall be a minimum 20-foot clear zone around the storage system enclosure and its surrounding screening vegetation/fencing that is maintained free of combustible vegetation or materials taller. This clear zone requirement may be modified as part of a comprehensive emergency management plan approved by the County Board and local fire departments and shall meet all applicable fire and safety code requirements, if more restrictive.”

Source: Swift County, Minnesota, [Wind, Solar, and Energy Storage Draft Ordinance, Battery Energy Storage Systems, Section 12, Subd c., 2025](#).



Safety, access, and emergency coordination

Fire safety is a central consideration in BESS permitting and site design. The ordinance does not need to restate most fire and electrical code standards and can incorporate these by reference.²⁰

Where not already required by state law, fire code, or permit condition, the ordinance should require the owner/operator to notify the local fire department, fire code official, zoning administrator, and other applicable AHJs of fires, thermal events, explosions, releases, or other safety incidents within a specified timeframe.²¹

The operator should provide follow-up documentation describing the incident, response actions, corrective measures, and any changes to the ERP or operating procedures.

Local ordinances should require, as part of the permit submittal requirements for BESS:

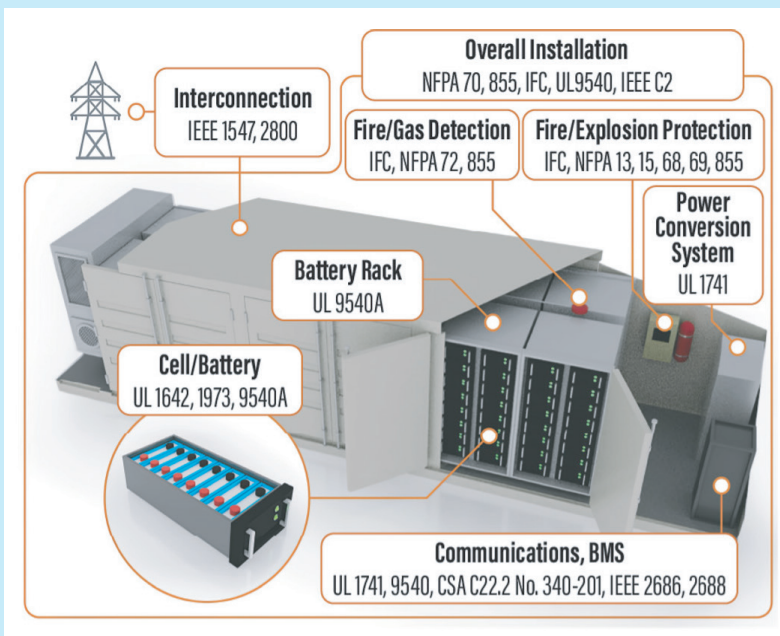
- Clear identification of the AHJs
- ERP tailored to the specific site
- Coordination with local fire departments prior to approval
- Site access features, including lockboxes and clear signage as directed by NFPA 855

An ERP is usually required for larger systems and must include site-specific information, shutdown procedures, hazard identification, and coordination protocols with local emergency services.²² The ordinance should clearly identify the AHJ for the enforcement of fire, building, and electrical codes.

TECHNICAL STANDARDS FOR BESS

NFPA 855 has become the primary national fire safety standard for the installation, design, and operation of stationary energy storage systems for stationary energy storage systems. It addresses site layout and separation distances, fire detection and suppression, thermal management, electrical safety, battery monitoring, hazard mitigation, emergency response planning, and decommissioning. NFPA 855 needs to be incorporated by reference in order to enforce it and by their latest applicable edition in compliance with the market standards.

Related UL standards, which ensure compliance with product certification and testing standards, also play an important role. UL 9540 certifies complete energy storage systems, UL 1973 certifies battery modules and packs, and UL 9540A provides thermal runaway fire propagation testing data used to inform fire prevention and hazard mitigation.



Key codes and standards for Battery Energy Storage System

Source: Reproduced with permission from Jeremy B Twitchell, Devyn W Powell, Matthew D Paiss, [Energy Storage in Local Zoning Ordinances](#) (PNNL, October 2023).



In areas where local inspection capacity is limited, the ordinance should specify requirements for third-party certification, state inspections, or professional engineering review to ensure compliance. Importantly, ordinances should recognize that technical standards govern system design.²³ Local governments need to ensure those standards are understood, implemented, and enforceable in their planning and zoning context.

To mitigate the potential risks associated with the gas plumes released during thermal runaway, communities could consider adding a Toxic and Flammable Gas Plume Dispersion Analysis as part of the ERP requirements for site plan review.²⁴ This would help communities understand the potential spread and toxicity of gas plumes on surrounding areas.

Noise and operational impacts

The ordinance should manage operational impacts such as lighting and noise to ensure compatibility with surrounding land uses. Ideally, all standards should refer to the requirements in the underlying zoning district. Lighting should be designed to minimize spillover and maintain compatibility with surrounding uses, particularly in rural or residential contexts. Lighting should be downward-directed and shielded, with motion-activated controls used where feasible.²⁵

BESS facilities generate noise primarily from inverters used in their cooling/ventilation systems. While typically modest when measured at the property line, noise can become a concern when facilities are located near residences or when BESS facilities are operating at night. Such noise should comply with state and local noise standards at the property line.²⁶ Some states have set noise standards as part of pollution regulation (e.g., Minnesota and Illinois), which can be used as a benchmark. NYSEDA guidance says, “the 1-hour average noise generated from the BESS and associated ancillary equipment does not exceed a noise level of 60 dBA as measured at the outside wall of any non-participating residence or occupied community building.”²⁷

ORDINANCE LANGUAGE EXAMPLE

Emergency Response

“Emergency Response Plan – Submission Requirements. Prior to the approval of a Final Siting Permit for a Commercial Wind or Solar Energy System, and/or a Commercial Battery Energy Storage System, the Developer shall submit an Emergency Response Plan, which contains response procedures to be followed in the event of any emergency related to a C-WES, C-SES or C-BESS. . .

The Plan shall accommodate specialized training for Fire Departments and other emergency response personnel, to be offered on an annual basis, as well as the acquisition of any specialized equipment necessary for responding to an emergency at a C-WES, C-SES and/or C-BESS. All such training and equipment shall be provided by the Owner and/or Operator at no cost to the applicable Fire Department(s).”

Source: Lee County, Iowa, [County Code of Ordinances, Regulations for the Siting and Operation of Wind, Solar, and Battery Energy systems, Title VI, Chapter 13, Article 12, Section B](#), adopted May 6, 2025.

ORDINANCE LANGUAGE EXAMPLE

Noise

“Noise generated from the BESS, components, and associated ancillary equipment shall not exceed Illinois Pollution Control Board (IPCB) limits.”

Source: Washington County, Illinois, [Battery Energy Storage Systems Ordinance, Chapter 1, Section 8, Subsection I](#).



Repair, augmentation, and repowering

As described by the University of Michigan guidance, in addition to repairing or replacing BESS components for maintenance, BESS may often be “augmented” or repowered without the need to submit a new site plan. Provided that there is no significant change in the battery chemistry, this could occur within the same project footprint, including within the same dedicated-use building or on the same foundation in the location authorized by the original permit. When it is likely that a BESS will be augmented, an augmentation plan should also be provided during the site plan application.

Decommissioning and long-term land use

BESS facilities have a defined operational life, making decommissioning an essential component of the ordinance. For larger BESS use cases, ordinances should require filing a decommissioning plan and identification of any financial surety needed, all prepared by a licensed engineer, so that the host community is not at risk for funding removal and cleanup. The ordinance should define standards that the plan must address:

- Clear trigger events for decommissioning, including cessation of operations, abandonment, or expiration of permits.
- Extent of decommissioning, such as what facilities must be removed at the end of their operational life, including all above-ground equipment and, where appropriate, subsurface components.
- Site restoration standards, such as defining that sites must be restored to a stable and usable condition with native vegetation or reflective of previous land use.

The ordinance should identify what financial assurance must be established prior to construction and maintained over time to ensure that decommissioning obligations are met regardless of ownership changes, in a form acceptable to the jurisdiction.²⁸

Not every BESS will need a decommissioning plan. For co-located use cases, decommissioning can be part of the total project. BESS that are an accessory to essential services, such as substations, or to institutional uses that do not have a decommissioning requirement, may not need a decommissioning plan. Some states have established decommissioning standards or decommissioning plan requirements or have minimum standards for the disposal of decommissioned equipment.²⁹ Local requirements should reference state standards. States that have jurisdictional permitting authority over BESS may have such standards identified in permits that local governments can use as examples.

ORDINANCE LANGUAGE EXAMPLE

Decommissioning Plan Submittal

“Prior to receiving siting approval under this Ordinance, the County and the Applicant, Owner, and/or Operator must formulate a Decommissioning Plan to ensure that the BESS Project is properly decommissioned. . . Prior to issuance of a building permit, the Applicant shall provide a contractor cost estimate for demolition and removal of the BESS facility and will provide financial assurance in an amount at least equal to said demolition and removal contractor cost estimate, through the use of a bond, letter of credit or other security acceptable to the County, for the cost of decommissioning each BESS to be constructed under that building permit, which security shall be released when such BESS is properly decommissioned as determined by the Warren County Building Commissioner.”

Source: Warren County, Indiana, [*An Ordinance Regulating Siting of Battery Energy Storage Systems, Section VIII, Decommissioning Plan \(for BESS with more than 1 MW of rated capacity\)*](#).



Endnotes

- ¹ Massachusetts Executive Office of Energy and Environmental Affairs, Massachusetts Department of Environmental Protection, Massachusetts Department of Energy Resources, and Massachusetts Department of Fire Services, [Battery Energy Storage Systems: Frequently Asked Questions on Fire Safety and Public Health](#) (Commonwealth of Massachusetts, 2026).
- ² Sarah Mills and Madeleine Krol, [Planning & Zoning for Battery Energy Storage Systems: A Guide for Michigan Local Governments](#) (University of Michigan Center for EmPowering Communities, 2024).
- ³ Vikram Linga, “[Most Utility-Scale Batteries in the United States Are Made of Lithium-Ion](#),” Today in Energy, US Energy Information Administration, October 30, 2019.
- ⁴ “[Types of Energy Storage](#),” New York State Energy Research and Development Authority (NYSERDA).
- ⁵ Brian Ross and Monika Vadali, “[Zoning Practice: Battery Energy Storage Systems](#),” *American Planning Association Zoning Practice* 41, no.3, 2024.
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- ¹⁰ Devyn W. Powell and Jeremy B. Twitchell, [Principles and Options for Designing Battery Energy Storage Zoning Ordinances](#) (Pacific Northwest National Laboratory (PNNL), July 2025), PNNL-37956.
- ¹¹ Sarah Mills and Madeleine Krol, *Planning & Zoning for Battery Energy Storage Systems*.
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- ¹⁴ NYSERDA, *New York State Battery Energy Storage System Guidebook for Local Governments*.
- ¹⁵ Brian Ross and Monika Vadali, “Zoning Practice: Battery Energy Storage Systems.”
- ¹⁶ Great Plains Institute, [Fact Sheet: Battery Energy Storage Systems and Land Use](#) (Great Plains Institute, 2026).
- ¹⁷ Pacific Northwest National Laboratory, [Local Siting and Permitting for Energy Storage](#) (PNNL, March 2026), PNNL-SA-221145.
- ¹⁸ PNNL, *Local Siting and Permitting for Energy Storage*.
- ¹⁹ PNNL, *Local Siting and Permitting for Energy Storage*.
- ²⁰ Jeremy Twitchell, Devyn Powell, and Matthew Paiss, [Energy Storage in Local Zoning Ordinances](#) (PNNL, 2023), PNNL-34462.
- ²¹ Clean Air Task Force, [Battery Energy Storage Systems in the Southwest](#) (Clean Air Task Force, 2026).
- ²² United States Environmental Protection Agency (US EPA), “[Battery Energy Storage Systems: Main Considerations for Safe Deployment](#),” last updated July 31, 2026.
- ²³ American Clean Power Association, [Emergency Preparedness for Battery Energy Storage Systems](#) (American Clean Power Association, May 2026).
- ²⁴ Sarah Mills and Madeleine Krol, *Planning & Zoning for Battery Energy Storage Systems*.
- ²⁵ PNNL, *Local Siting and Permitting for Energy Storage*.
- ²⁶ Sarah Mills and Madeleine Krol, *Planning & Zoning for Battery Energy Storage Systems*.
- ²⁷ NYSERDA, *New York State Battery Energy Storage System Guidebook for Local Governments*.
- ²⁸ Brian Ross and Monika Vadali, “Zoning Practice: Battery Energy Storage Systems.”
- ²⁹ Sarah Mills and Madeleine Krol, *Planning & Zoning for Battery Energy Storage Systems*.