

An Overview of Local Zoning Ordinances for Battery Energy Storage Systems

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Overview

This research intends to provide practical resources for practitioners interested in reasonable and effective local regulation of battery energy storage systems (BESS). Zoning ordinances at the city, town, and county level across the U.S. were surveyed to identify common elements and best practices for regulating the zoning and siting of BESS.

Methodology

- ◆ This poster represents qualitative research intended to illustrate how battery energy storage is regulated in local codes across the U.S. It is not a comprehensive review of all codes.
- ◆ Some surveyed ordinances were identified via stakeholder engagement.
- ◆ A keyword search (“battery energy storage,” “battery storage,” “BESS”) was conducted of the Municode database. Municode is the largest collection of U.S. codes and ordinances, although it only contains 3,900 municipal codes.
- ◆ A supplementary Google search was conducted using above terms and “code of ordinances.”
- ◆ 12 codes of ordinances were reviewed in depth and used as representative samples of the current landscape.

Common Elements of Storage Zoning Ordinances

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| <p>DEFINITIONS:</p> <ul style="list-style-type: none"> ◆ Most codes define “battery energy storage system” (or similar (“battery energy storage,” “energy storage”)) ◆ New York model law’s BESS definition (“One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time....”) commonly used or adapted, including in other states ◆ Other terms (e.g. battery, cell, NFPA) may be defined | <p>PROPERTY LINE SETBACKS:</p> <ul style="list-style-type: none"> ◆ Most codes require property line setbacks ◆ Setbacks generally range from 25-100 feet from property lines, structures, and roads ◆ Required minimum setbacks may vary by system size and/or zone (e.g. larger setbacks in residential or commercial areas and/or for Tier 2 systems) | <p>DECOMMISSIONING PLANS AND FUNDS:</p> <ul style="list-style-type: none"> ◆ Almost all codes require decommissioning plans ◆ Some require additional decommissioning fund, to be held by local government ◆ Standard language on plans and requirements copied, adapted, or adopted by reference from IFC or NFPA 855 |
| <p>SIZE TIERS OR CUTOFFS:</p> <ul style="list-style-type: none"> ◆ Many codes establish tiers or size cutoffs (usually in kWh/MWh, sometimes in kW/MW), where some or all regulations apply only to larger or “Tier 2” sizes ◆ Common “Tier 2” size is >600 kWh, adapted from NY ◆ Without tiers, regulations apply to BESS of any size | <p>FENCING AND VISUAL SCREENING:</p> <ul style="list-style-type: none"> ◆ Fencing, other visual screening, or both are commonly required, especially for larger or Tier 2 systems ◆ Minimum fencing height generally 6-8 feet ◆ Many ordinances require BESS to be fully hidden from view of all neighboring properties and roads ◆ Specific materials requirements for visual screens (e.g. decorative masonry, native trees) are common | <p>SITE PLAN REQUIREMENTS:</p> <ul style="list-style-type: none"> ◆ Standard site plan requirements for permitting include specification sheets, contact information for owners and installers, emergency plans ◆ One- or three-line diagrams may also be required ◆ Remediation plans for environmental or other impacts included in site plan requirements in some cases |
| <p>PERMITTED ZONES:</p> <ul style="list-style-type: none"> ◆ Zones where BESS permitted vary widely ◆ Larger systems often limited to industrial or energy zones ◆ BESS often prohibited in residential zones, or restricted to Tier 1 or smaller systems ◆ Special permits may be required for some or all zones ◆ Some locations severely restrict permitted zones | <p>NOISE AND LIGHTING:</p> <ul style="list-style-type: none"> ◆ Lighting commonly required to be shielded and downcast from view of neighboring properties ◆ Noise levels may be capped, with maximum generally 50-60 dBA over 1-hour average (approximate volume of normal conversation or running air conditioner) | <p>OTHER REQUIREMENTS:</p> <ul style="list-style-type: none"> ◆ Additional safety requirements are commonly adapted from standard NFPA or IFC code language ◆ Includes clearing of flammable vegetation (generally within 10 feet of system enclosure), water availability, access for fire and emergency services |

Unique and Restrictive Ordinance Elements

Some codes and ordinances include unique elements not captured above. In most cases, these additions introduce additional restrictions on BESS siting.

- ◆ **Resource impact mitigation requirements:** Medway, MA and Amelia County, VA require impact studies and mitigation plans for any disruptions to natural, cultural, or historic resources as part of site plans.
- ◆ **Large and restrictive setbacks:** One ordinance surveyed, in Amelia County, VA, requires 5,000-foot setbacks. These may be reduced to no less than 1,000 feet via special permit.
- ◆ **Stringent enclosure wall or fencing requirements:** Some ordinances require very specific characteristics for fences or visual screening. For example, Beaumont, CA requires fences to be made from concrete or decorative masonry and to be treated with graffiti-resistant coating.

Discussion and Key Takeaways

- ◆ Local zoning and siting regulations for BESS are an emerging landscape: the number of local (city, town, county) governments that specifically regulate BESS in their codes of ordinances remains limited, particularly compared to the number of codes that regulate solar PV.
- ◆ Ordinances may be adopted in response to proposed projects. Others may be responses to state policy or proactive anticipation of future development.
- ◆ Language from New York’s Battery Energy Storage System Model Law (published in 2021) for local governments (e.g. definitions, tiers) has been widely adapted outside of New York (e.g. in Massachusetts, Virginia, and Iowa), indicating strong appetite for best practices and templates for local regulators as BESS projects and policy incentives become rapidly more prevalent nationwide.
- ◆ Restrictions on BESS development vary widely, with some codes permitting systems in most or all zones, some imposing moderate restrictions, and others written to impose de facto bans via mechanisms like massive setbacks or restrictive zoning.
- ◆ Regulators’ safety concerns, especially those who may be less familiar with BESS, may drive restrictive ordinances. These concerns are meaningful and should be addressed through resources and education, not dismissed.