



City of Bristol Comprehensive Zoning Update

Date: 4/11/25

Recommendation 36: Battery Energy Storage Systems

Purpose: Allow battery energy storage systems (BESS) as an accessory use and ensure that the regulations provide adequate controls on their size, location, and installation.

Description: This recommendation creates a new accessory use (battery energy storage systems). It allows small-scale systems (80 kWh or less) to be permitted as of right in all zones (no Zoning Permit required). It limits the installation of 80 kWh to 600 kWh systems to commercial and industrial zones through a zoning permit requirement. Systems exceeding 600 kWh are permitted in industrial zones and require a Special Permit. This recommendation includes regulations on the size, location, screening, and security requirements for such uses.

Geographic Extents: All zones.

Potential Impacts: May facilitate the installation of such systems.

Context: Battery storage energy systems are increasingly being used as a means of storing energy on-site, particularly in association with solar energy systems and electric vehicle charging. The maximum size of systems allowed for residential use for a single dwelling is 80 kWh. These are most commonly located within or mounted to the exterior wall of the principal structure. "Tier 1" systems with a capacity of up to 600 kWh are most common in commercial applications. "Tier 2" systems are above 600 kWh and are often associated with large-scale or utility-related projects. Per the National Fire Prevention Association (NFPA) standard 855, operators of facilities with total energy storage exceeding 600 kWh must complete a hazard mitigation analysis, utilize fire suppression designs and equipment, conduct fire and explosion testing in accordance with UL 9540A, develop emergency planning, and conduct annual training of maintenance staff. Systems over 1 MWh (1,000 kWh) in size are regulated by the CT Siting Council and are not subject to local zoning control.

There are concerns over fire hazards and potential soil and groundwater contamination caused by fires at BESS systems. A March 2025 report by the Fire & Risk Alliance found that: "In none of the reviewed cases of environmental sampling related to the BESS fire events were contaminant concentrations found that would pose a public health concern or necessitate further remediation. This finding includes airborne contamination sampling conducted on-site, off-site, and within nearby communities, as well as relevant sampling of water from firefighting activities, automatic suppression system run-off, and groundwater testing in specific instances."

Recommended Zoning Amendments:

1. Add "Battery Energy Storage Systems (80 kWh-600 kWh)" to Section 5.2 Accessory Use Summary Table. Allow in all commercial and industrial zones (BN, BG, BD, BT, BHC, I, IP-1, IP-3, IP-25) with a Zoning Permit requirement.
2. Add "Battery Energy Storage Systems (>600 kWh)" to Section 5.2 Accessory Use Summary Table. Allow in only the I, IP-1, IP-3, and IP-25 zones with a Special Permit requirement.
3. Add new Section 5.4.7 Battery Energy Storage Systems and renumber existing subsections in Section 5.4 to maintain alphabetical order: (see next page)



5.4.7 Battery Energy Storage Systems

- A. Applicability:
 - 1. Battery energy storage systems with a total capacity of 80 kWh or less shall be allowed in all zones as of right and shall not require a zoning permit, but shall be subject to all applicable building, electrical, and fire safety codes. Only one system shall be permitted per principal structure.
 - 2. Battery energy storage systems with a total capacity of more than 80 kWh and up to 600 kWh per site shall be permitted in accordance with Section 5.2 subject to the requirements of Items B through E below in addition to all applicable building, electrical, and fire safety codes.
 - 3. Battery energy storage systems with a total capacity of more than 600 kWh per site shall be permitted in accordance with Section 5.2 subject to the requirements of Items B through E below in addition to all applicable building, electrical, and fire safety codes. No such system shall be located within an Aquifer Protection Area.
- B. Location:
 - 1. Shall not be located within a required yard or within 50 feet of a side or rear property line.
 - 2. Shall not be located closer to the front property line than the principal building.
 - 3. Shall not be located within 100 feet from a property containing a single, two-family, or multi-family residential use.
 - 4. Auxiliary equipment, including required transformers, may be located closer than 50 feet to a property line but shall not be located in a required yard and shall be suitably screened from public view.
- C. Height and Size:
 - 1. The maximum height, including any supporting structures, shall not exceed 15 feet.
 - 2. The maximum system footprint, excluding the enclosure area between the required fence and system, shall not exceed 300 square feet.
- D. Security and Screening:
 - 1. The system shall be substantially screened from public view using landscaping or opaque fence or wall.
 - 2. The system shall be enclosed with a fence of not less than 6 feet in height. The enclosure shall be secured with a self-locking gate or other secure locking mechanism required by relevant building and fire codes.
 - 3. A suitable vehicle mitigation barrier shall be provided if located within 25 feet of a parking area or driveway.
 - 4. Security lighting shall be provided for emergency operations and shall be reasonably shielded so as not to result in light trespass on adjacent properties.
- E. Plan Requirement
 - 1. Systems exceeding 80 kWh up to 600 kWh: A site plan based upon a Class A-2 survey and stamped by a professional engineer demonstrating compliance with this Section shall be provided prior to the issuance of a Zoning Permit for a battery energy storage system. A site plan shall not be required for a system located within the principal structure.
 - 2. Systems exceeding 600 kWh: A Site Plan is required in accordance with the Special Permit requirements of Sections 16.2.2.E and the Site Plan requirements of Section 16.3.

- 4. Add the following definition to Section 19 Use Definitions:

Battery Energy Storage System: A system consisting of batteries, electric components, and associated equipment designed to store electrical energy for use at a later time.