

Town of Fairfield Planning Commission
December 7, 2022

Battery Storage Uses in the Industrial East Zone

I. Battery Storage Overview

a. What is battery storage?

- “Storage” refers to technologies that can capture electricity, store it as another form of energy (chemical, thermal, mechanical), and then release it for use when needed.
 - When electricity is fed into a battery, it causes a chemical reaction, and energy is stored. When a battery is discharged, this chemical reaction is reversed, which creates voltage between two electrical contacts, causing current to flow out of the battery.
 - The most common chemistry for battery cells is lithium-ion, but other common options include lead-acid, sodium, and nickel-based batteries.¹

b. How does battery storage work?²

- **Step One:** During daylight, the battery storage system is charged by clean energy generated by solar or wind.
- **Step Two:** Intelligent battery software uses algorithms to coordinate solar production, usage history, utility rate structures, and weather patterns to optimize when the stored energy is used.
- **Step Three:** Energy is discharged from the battery storage systems during times of high usage, reducing or eliminating costly demand charges.

c. Why is battery storage important and what are its benefits?

- Battery storage is a technology that enables power system operators and utilities to store energy for later use.³ It allows homes and businesses to be powered by renewable sources of energy regardless of time of day or weather conditions.

¹ <https://www.energy.gov/eere/solar/solar-integration-solar-energy-and-storage-basics>

² <https://www.idealenergysolar.com/how-battery-energy-storage-works/>

³ <https://www.nationalgrid.com/stories/energy-explained/what-is-battery-storage>

- Sample images of Battery Storage Facilities



Source: <https://www.prosperevents.com/americas-grid-scale-battery-storage-facilities-experience-240-growth/>



Source: <https://www.energyacuity.com/blog/2019-top-10-energy-storage-battery-projects/>



Source: <https://www.bizjournals.com/austin/news/2020/09/16/broad-reach-power-to-spend-100m.html>



Source: <https://www.borregoenergy.com/energy-storage>

II. Battery Storage as a Permitted Use – Substantially Similar to Other Uses Permitted in Industrial East Zone

a. Existing Ordinance – Relevant Light Industrial East Zone Permitted Uses

1. public services
2. public utility stations with sewer
3. storage containers
4. warehouse flex space

ii. A battery storage facility is substantially similar in terms of use, design and potential impact on adjacent uses as the permitted uses in the Light Industrial East Zone.

iii. Public Services and Public Utility Stations

1. The current Light Industrial East Zone ordinance currently permits both public services and public utility stations with sewer as a permitted use.
2. Battery storage facilities are not dissimilar from other public utility stations, such as substations, or other utility facilities related to power, electricity, light, heat, gas, water or wastewater systems.
3. Due to the utility nature of battery storage and its function as part of the electrical grid, a battery storage facility can be defined as a public service as it supports the supply of electricity to the general public.

iv. Warehouse and Storage Uses

1. Battery storage sites are substantially similar to warehouse uses and storage containers in terms of site design and layout.
2. Battery storage facilities are even less intensive land uses than warehouse uses given the low traffic volume and minimal infrastructure requirements for battery storage.

v. Battery storage is not listed under the Prohibited Uses.