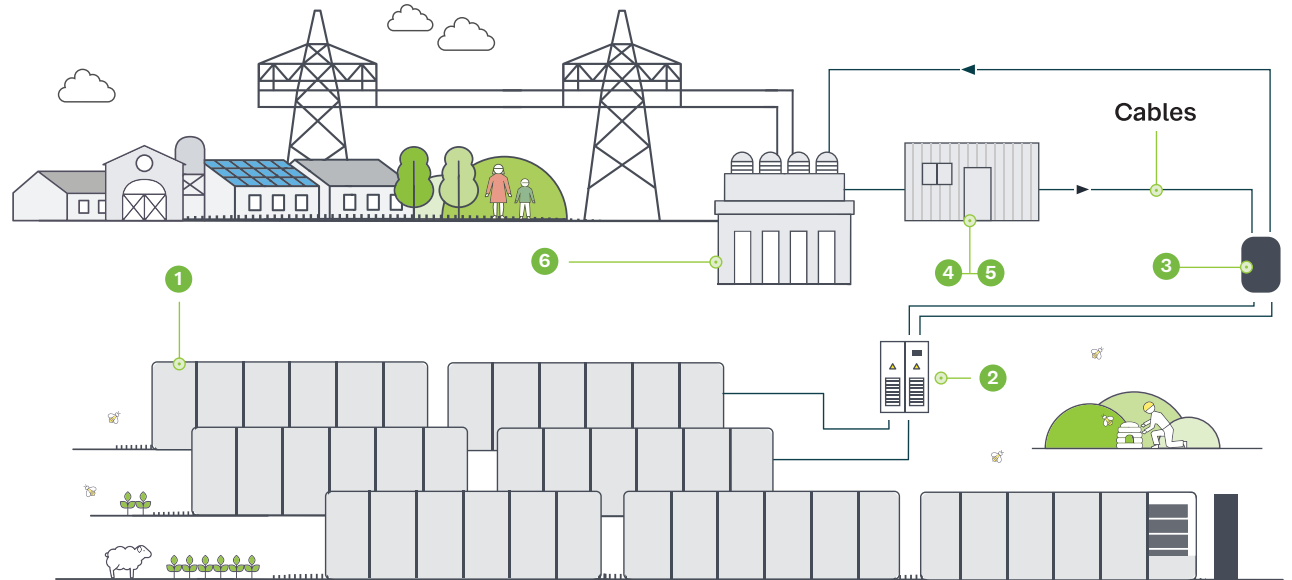


BESS 101

BESS, standing for Battery Energy Storage Systems, are large rechargeable batteries that store electricity generated from sources like solar panels, wind turbines, or the power grid. At their core lies a simple yet powerful concept: storing excess energy during low-demand periods and releasing it rapidly when demand peaks.

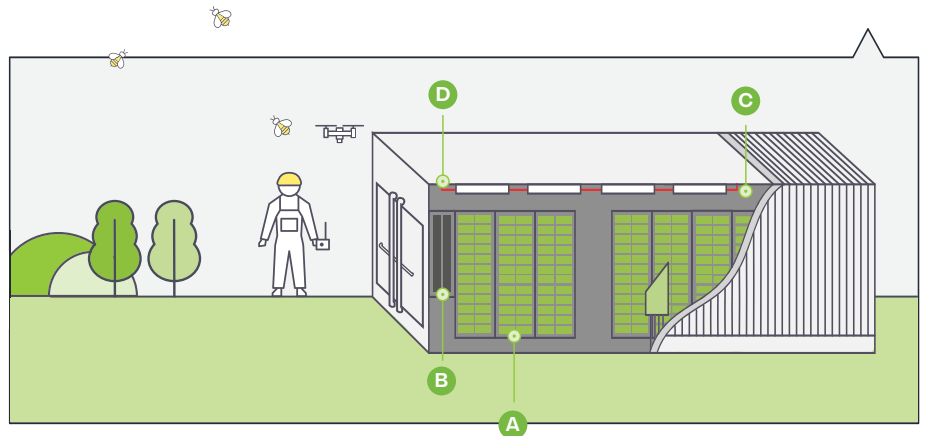
BESS Site Layout

- 1 Batteries:** Store energy utilizing lithium-ion batteries, ideal because of their high energy density and lightweight structure.
- 2 Power Conversion System (PCS):** Converts direct current (DC) stored in the batteries to alternating current (AC) for grid use and vice versa.
- 3 Transformers:** Step voltage up so that the energy can be exported onto the grid.
- 4 Energy Management System (EMS):** Controls energy charging and discharging. It also coordinates the PCS, BMS and fire control system to ensure safety and optimize system operation.
- 5 Supervisory Control and Data Acquisition System (SCADA):** Ensures all components work together seamlessly and releases information to electric meters and transformers.
- 6 Substation:** Connects BESS and distributes energy to the power grid.



Inside a BESS Container

- A Battery Racks**
- B Battery Management System (BMS):** Monitors voltage, current, and temperature to ensure optimal and safe operation.
- C HVAC System:** Maintains optimal temperature within BESS to ensure peak performance.
- D Fire Detection and Suppression System:** Contains smoke sensors. Releases an agent to provide a cooling effect in case of thermal runaway.



BESS Safety

BESS are equipped with state-of-the-art safety technology which allows the systems to be monitored and maintained 24/7/365. This immediately alerts to any operational variances that need attention.

1. Routine on-site maintenance is performed in accordance with federal, state, and local safety requirements.



2. HVAC and Fire Suppression Systems maintain optimal temperature and provide shut-off function in case of extreme temperatures.



3. Emergency Safety Training is provided to local first responders and fire departments to ensure proper response in case of safety events.



4. BESS do not create air or water pollution. Like lithium-ion batteries used in cell phones, BESS also do not emit electromagnetic radiation.



BESS projects are typically built near renewable energy sites or electrical infrastructure to ensure seamless energy flow between systems. This enables renewable sources, such as solar and wind, to contribute to the infrastructure more consistently, even when they are not actively generating power. BESS play a key role in sustaining renewable energy's contribution to our grid, regardless of weather conditions.