

# How energy storage works

1

## **Battery energy storage system (BESS):**

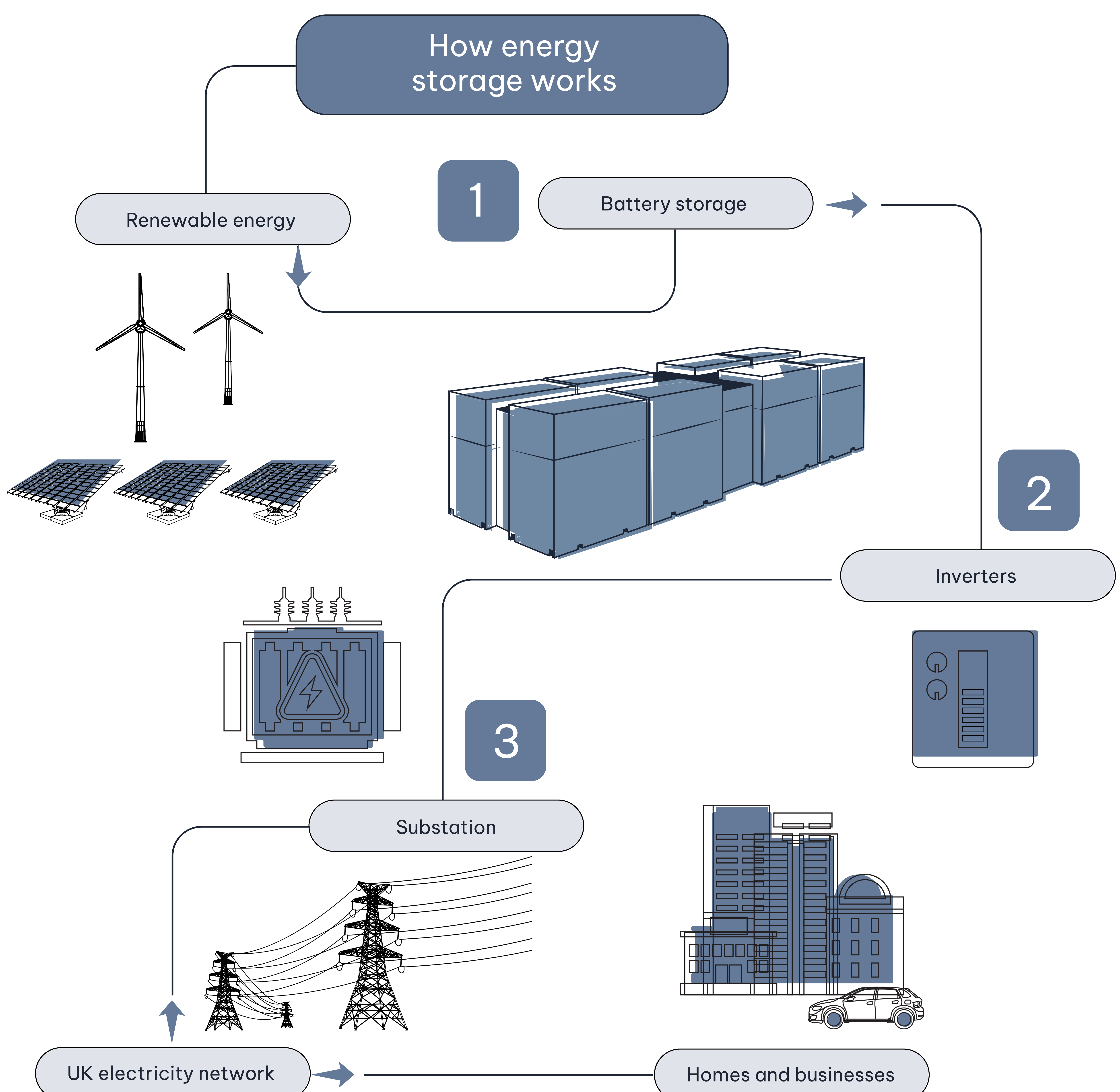
Enable us to capture and store energy when supply exceeds demand. They then release that power back to the grid later, when it is needed, so that we have a steady and reliable supply of energy at all times.

2

**Inverters:** Battery systems store and deliver electricity as Direct Current (DC) while most electrical systems operate on Alternating Current (AC). The BESS includes inverters to change the electricity from AC to DC and back.

3

**A substation:** A substation connects the project into the National Grid. A substation typically appears as a collection of electrical equipment and towers, sometimes connecting to overhead powerlines by cabling.



NatPower

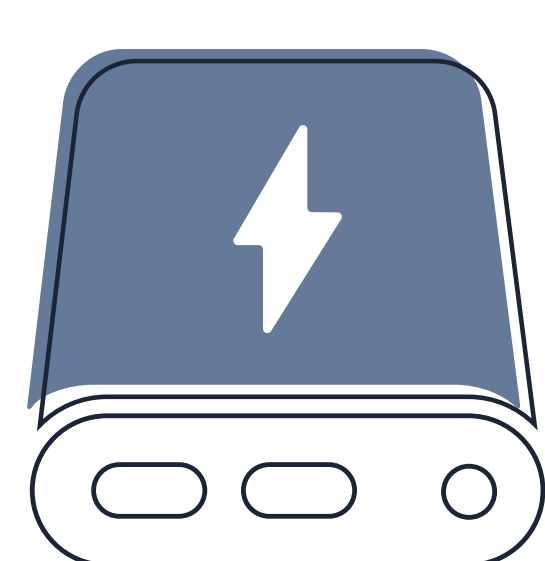
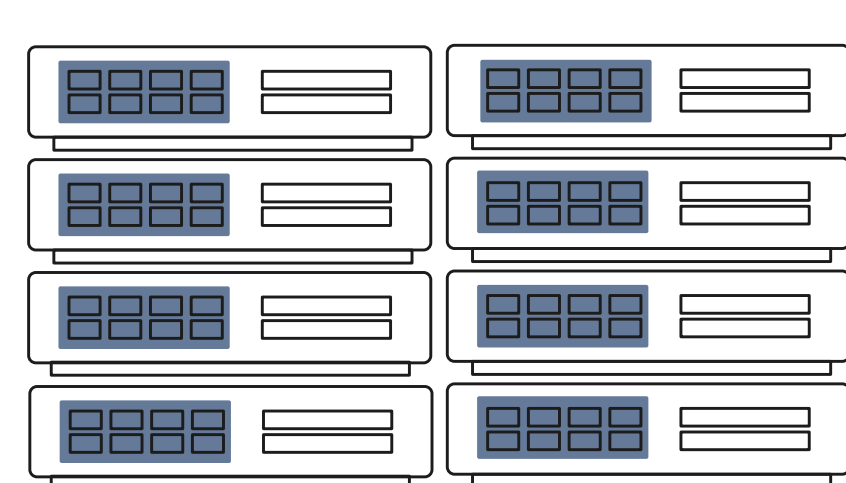


# Battery storage – what’s involved

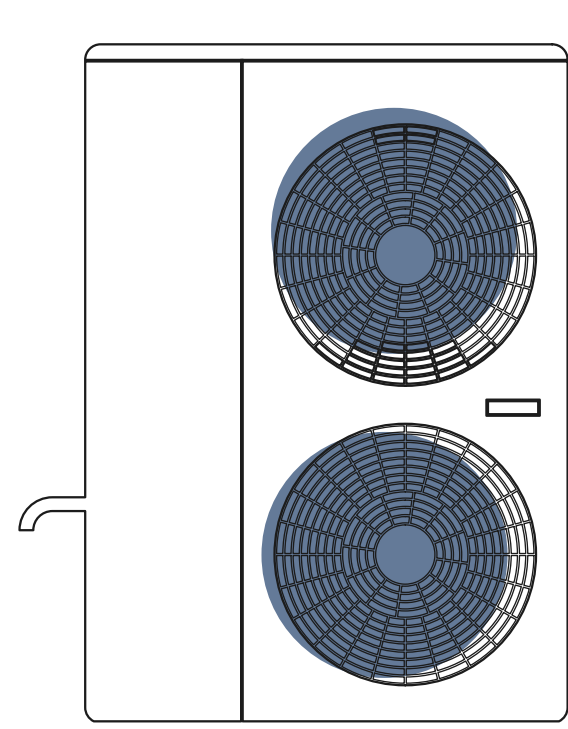
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**The BESS** contains a number of components, all housed in units similar in size and shape to shipping containers, about 12m in length and 2m–3m high.

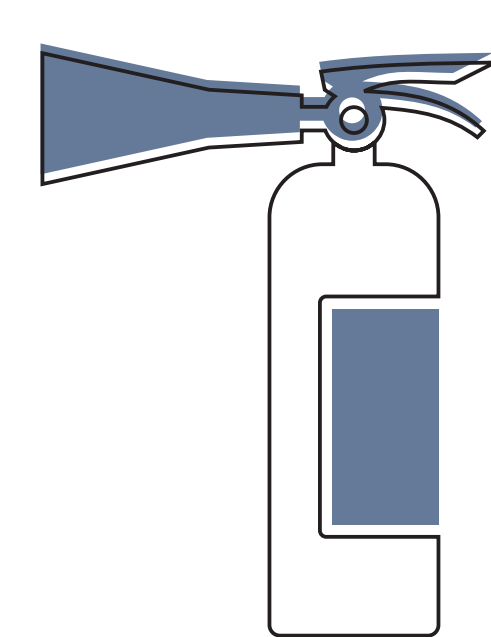
**Lithium Iron Phosphate batteries** store energy ready to be supplied when needed. These are stacked on top of each other to form a battery rack and are connected together to reach the required voltage and current of the BESS. These are a tried and tested technology that is commonly used in our day-to-day lives, such as in smartphones.



**The battery management system** is the brain of the BESS and works to safeguard the batteries from damage in various scenarios. It constantly monitors the state of charge, state of health, voltage, temperature and current. It ensures the safety and longevity of the batteries.



**A heating, ventilation and air conditioning system** controls the operating temperature within the system’s enclosure and ensures good air distribution. This prevents the batteries from overheating, which in turn means that the batteries last longer and perform better.



**A fire suppression system** is built into the design of the BESS and would only operate in the unlikely event of overheating of the batteries.

2

**Security:** The BESS and substation will be secured by metal security fencing and monitored by a CCTV system, which will face the battery storage and substation areas. We will use motion sensor lights to keep lighting to a minimum.

3

**Landscaping:** Our projects include landscaping to screen the BESS from view.

