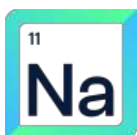




 Eleven

# Sodium Battery

**Sustainable, Efficient Energy Storage  
For Homes & Small Businesses**



# LITHIUM MINING'S ENVIRONMENTAL TOLL

## Water-Intensive Extraction

Lithium mining from underground brines consumes vast amounts of water—over 1.9 million litres per tonne of lithium extracted.

## Threat to Biodiversity

Mining operations disrupt native ecosystems, endangering plant species and migratory wildlife.



## Impact on Local Communities

Lithium mining depletes water supplies critical for agriculture and livestock, while mining waste risks contaminating soil and freshwater sources.

## Soaring Lithium Demand

Global lithium demand, driven by EV batteries and energy storage, is projected to grow over 40 times by 2040. However, limited reserves and concentrated supply chains in a few countries pose significant challenges.



# SODIUM

## A Sustainable Alternative



### Abundant and Accessible Resource

Sodium is over 1400 times more abundant than lithium. Eco-friendly extraction and processing methods, well-established globally for producing sodium chloride and soda ash, are already in place.

### Sustainable Materials for Production and Recycling

- Cathodes: Made from industrial by-products such as iron oxide and manganese oxide, minimising waste.
- Anodes: Produced from abundant materials like cardboard, straw, or coal.

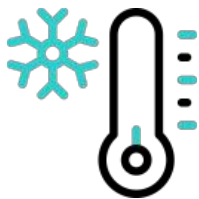
### Environmental and Ethical Benefits

Sodium-based batteries avoid the use of toxic or unethically sourced materials like cobalt, offering a greener and more socially responsible alternative to lithium-ion technologies.



# Robust

Reliable Performance in  
Extreme Temperatures



Sodium ion experiences lower ionic resistance than lithium ion. Their weaker bonds with the electrolyte allow for freer movement, reducing heat generation and enhancing performance in demanding conditions. The use of hard carbon anodes, with their spacious structure, further minimises resistance, boosting overall efficiency.

Our sodium battery can operate from  $-20^{\circ}\text{C}$  to  $55^{\circ}\text{C}$ , compared to lithium batteries, which typically function between  $0^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ . This makes our sodium batteries more reliable in both extreme cold and hot conditions, ensuring year-round performance.



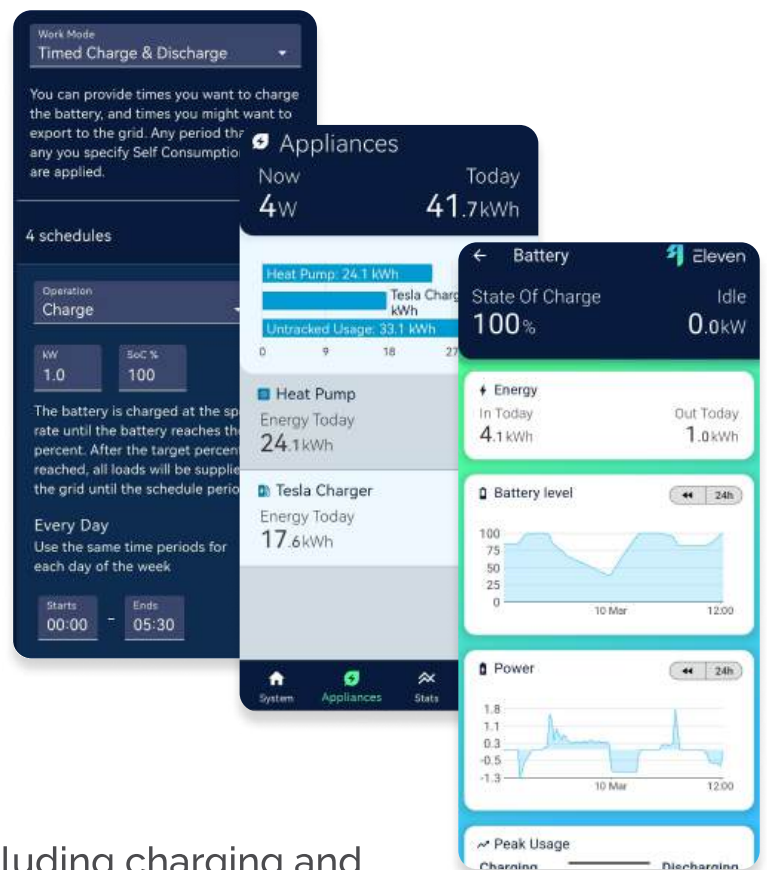


# INTELLIGENT

## Energy Management System



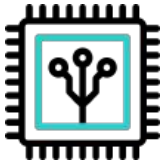
- Integrated monitoring of third party devices, such as EV charger and heat pump
- Automatically manage immersion heater based on available solar energy
- Easy access to real-time and historical data on energy production, consumption and storage.
- Allows retrofit AC-couple to existing PV Systems
- Remote control of settings including charging and discharging schedules and export power limit
  - Prevent home battery from discharging to EV
  - UK-based secure data hosting
  - Compatible with Agile Octopus tariff.





# HYBRID INVERTER

3.6kW, 5kW and 6kW



- 9 kW maximum solar power input
- 6 kW power output (can be derated to 3.6 kW)
- 98% power conversion efficiency
- 2 MPPTs for two arrays of solar panels
- 80-550V MTTP voltage range
- 100A max charging / discharging current
- Max. 5 kW off-grid backup power supply
- IP65 ingress protection
- Operating Temperature Range: -25°C to 60°C
- Dimension (W x H x D): 500 x 470 x 180 mm
- 10-year product warranty



# BATTERY

## 4.5 kWh Expandable Battery Pack



- 90% depth of discharge
- Rated voltage 45V
- Operating voltage: 33V to 59.2V
- Maximum charge/discharge rate: 100 A
- Operating Temperature Range: -20°C to 55°C
- Dimension (W x H x D): 594 x 525 x 155 mm
- Up to 8 battery packs (32.4 kWh usable capacity) can be connected to a single inverter
- 10-year product warranty



Outdoor Enclosure for  
Two Battery Packs



Eleven

Clean Power  
Smart Energy  
Infinite Potential

[www.elevenenergy.co.uk](http://www.elevenenergy.co.uk)

**ELEVEN ENERGY LTD**

28 Chesterton Road  
Cambridge  
United Kingdom  
CB4 3AZ

+44 1638 750 660

[info@elevenenergy.co.uk](mailto:info@elevenenergy.co.uk)

