



Cert No. 16095



Part of Camfaud Group

Battery Energy Storage Systems (BESS): Customer Guidelines & Safety Standards

While lithium-ion battery technology is safe and highly efficient under normal operating conditions, failure to manage the units correctly presents severe risks. Please review and adhere to these guidelines to protect your personnel, assets, and operations.

Primary Hazards

Toxic Off-Gassing

Damaged batteries can release corrosive and highly toxic gases that may cause serious long-term health issues or fatalities in high concentrations.

Vapour Cloud Explosion

Flammable gases may accumulate inside the container and ignite, causing rapid subsonic explosions (deflagration).

Thermal Runaway

Internal short circuits, physical impacts, or charging faults may trigger uncontrollable self-heating, resulting in prolonged fires that can last for days and may reignite.

Safety Systems & Environmental Management

Our BESS units are equipped with advanced automated safety systems. These systems must never be modified, bypassed, or disconnected by the customer.

Built-In Safety Protections

Battery Management System (BMS)

Automatically monitors:

- Cell voltage
- Charging balance
- Temperature thresholds

The system isolates the battery if unsafe conditions are detected.

Active Explosion Ventilation

Independently powered ventilation systems continuously exhaust early-stage flammable gases safely into open air.

Passive Deflagration Venting

Integrated roof panels are designed to release during pressure events to reduce explosive force.

Automatic Gas Detection

Floor and ceiling-mounted sensors detect lithium-ion off-gases such as:

- Carbon Monoxide
- Hydrogen

The system automatically disconnects the main power supply to help prevent thermal runaway escalation.

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Mandatory Location & Separation Distances

Proper placement of the BESS is critical for managing fire and explosion risks.

Outdoor Placement Only

BESS units must be positioned externally. Indoor installation is strictly prohibited under standard rental terms.

10-Metre Safety Perimeter

Maintain a minimum 10-metre clearance between the BESS and:

- Buildings
- HV transformers
- Generators
- Vehicle parking areas
- Combustible waste storage

4.5-Metre Unit Spacing

Where multiple large container units are installed, maintain at least 4.5 metres separation between units.

1.5-Metre Component Clearance

Maintain at least 1.5 metres clearance between the BESS container and associated inverters or medium-voltage transformers.

Note: We believe this requirement may not apply to the BESS units currently supplied by Templant. CE conformity documentation is currently being reviewed with selected suppliers.

Overhead Clearance

Do not install units beneath critical overhead electrical lines or telecommunication poles, as emergency deflagration vents release upward pressure during an incident.

Fire Suppression Restrictions

No Gaseous Systems for Battery Fires

Internal gas suppression systems are effective for standard electrical switchgear fires only and are not suitable for lithium-ion thermal runaway incidents.

Water Hazard Warning

Water may react violently with exposed lithium, producing hydrogen gas and increasing explosion risks. Standard fire extinguishers must not be used inside the container due to severe flashover and injury risks.

Environmental & Spill Protection

Hazardous Runoff

Water used by emergency services during a BESS fire becomes contaminated and classified as hazardous waste.

Watercourse Protection

Avoid positioning BESS units near:

- Open watercourses
- Drains
- Environmentally protected areas

Containment Bunding

Where vulnerable environments are present, suitable containment or bunding systems must be implemented to capture contaminated firefighting runoff.

Customer Operational Duties & Emergency Protocols

As the operator of the hired equipment, you are responsible for routine monitoring and enforcing site safety procedures.

Mandatory Monthly Self-Inspections

The site manager must conduct and record monthly inspections covering the following areas:

Housekeeping

Ensure the 10-metre exclusion zone remains clear of:

- Waste
- Vegetation
- Parked vehicles
- Combustible materials
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Physical Enclosure Checks

Inspect:

- External vents
- Door seals
- Foundations
- Security locks

Check for damage, corrosion, or blockages.

Thermal Evaluation

Use a thermographic camera to inspect:

- Battery racks
- Cable joints
- Wiring connections

Identify any abnormal hot spots.

Systems Check

Confirm:

- No active fault warnings are displayed
- Cooling systems show no leaks or pressure loss

Site Security Requirements

Fencing

Install high-security fencing to prevent unauthorised access.

Lockdown

Keep all:

- Inverter cabinets
- Control panels
- Container doors

securely locked at all times.

Surveillance

Extend site CCTV or Video Surveillance Systems (VSS) to provide continuous monitoring coverage of the BESS installation.

Emergency Response Protocol

In the event of an alarm, visible smoke, or off-gassing:

1. Evacuate Immediately

Clear all personnel from within the 10-metre exclusion zone.

2. Contact Emergency Services

Inform the Fire & Rescue Service immediately that the incident involves a Lithium-Ion Battery Energy Storage System.

3. Do Not Open Doors

Opening container doors may introduce oxygen and significantly increase the risk of explosion.
Only trained emergency responders should access the container.

4. Deploy Water Curtains

Advise emergency responders to use water curtains between the BESS and nearby assets to reduce radiant heat transfer, rather than spraying directly into the container prematurely.