



## Fact sheet

Managing fire risk – Battery Energy Storage System

AusNet



# Managing fire risk Battery Energy Storage System

**We are helping to strengthen Victoria's renewable energy future by developing Battery Energy Storage Systems (BESSs). Safety is our number one priority. Our safety strategy 'missionZero' ensures zero compromise on safety, and zero impacts to our families and communities.**

Our projects have many layers of oversight and management to ensure safety, compliance and risk management. Our Health, Safety, Environment and Quality (HSEQ) Management System is certified to comply with Australian and International standards AS/NZS 4801, AS/NZS ISO 14001, AS/NZS ISO 9001.

While fires can be rare in BESS developments and have a very low risk level, each BESS project we develop is assessed by an independent, suitably qualified assessor through a full Fire Hazard & Risk Assessment.

Before a BESS development can proceed, this assessment must show that the fire protection systems are designed in accordance with the relevant standards and the design and layout of the BESS provides an acceptable level of fire safety to personnel, adjacent properties and the fire brigade.

This fact sheet outline the measures we take to reduce the risk of a fire at our BESS facilities, and highlights the many ways that fire risk management is considered within the project's life-cycle.

# Fire risk management within a BESS project life-cycle

## Precautionary design measures

### Standards and regulations

#### All our BESS projects and sites must meet:

- all current requirements in the CFA's 'Design Guidelines and Model Requirements: Renewable Energy Facilities'. These guidelines cover fire safety, risk and emergency management for designing, constructing and operating new renewable energy facilities
- as per the above guidelines, use non-combustible site surfaces with fire protection systems that are compliant with 'Open yard storage' requirements under Australian Standards AS2419.1: Fire hydrant installations, Part 1: System design, installation and commissioning
- Australian Standards AS5139: Electrical installations – Safety of battery systems for use with power conversion equipment
- the requirements outlined in the Dangerous Goods (storage and handling) Regulations and the approved Code of Practice for the Storage and Handling of Dangerous Goods
- Part 7 of the Electricity Safety Act 1998, which outlines the obligations for an owner and operator of a complex electrical installation, as outlined by Energy Safe Victoria (ESV)
- safety standard regulations 501 and 502 of the Electricity Safety (General) Regulations 2019.

### Physical protections

#### All our BESS projects and sites are designed with:

- non-combustible site surface material to prevent fire spread across the site
- perimeter roads (at least 4m) located within a 10-metre-wide fire break area
- access roads (at least 4m) to all site infrastructure for emergency vehicles
- all roads capable of accommodating vehicles weighing 15 tonnes
- fire separation between the battery units and site infrastructure
- sufficient firefighting infrastructure and water supply
- Water Sensitive Urban Design for fire water run-off with filtering bioretention basin and discharge point approved by local council
- evacuation assembly areas and first aid facilities
- emergency information containers at vehicle entry points to provide emergency responders with relevant information.

### Top-grade battery procurement

We only consider highly reputable battery manufacturers for our BESS projects.

#### Our battery manufacturers must:

- prove compliance with the Standard for Energy Storage Systems and Equipment (UL 9540)
- provide proof of product testing in accordance with the Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems (UL 9540A).

#### Our batteries and enclosures must:

- incorporate a battery management system to enable early warning of faults, which includes a complex system of sensors monitoring all aspects of the device and indicate operational issues or faults
- have inbuilt thermal runaway mitigation measures
- have thermal monitoring systems
- have inbuilt warning detection systems
- have an automatic shut down and isolation system
- have cooling systems built into battery containers
- be designed to control a thermal runaway event to mitigate the risk of explosion and the spread of fire from one unit to another
- have pre-installation manufacturing testing
- come with a comprehensive service schedule
- be dustproof, waterproof and made from steel.

### Engagement: Fire Services and the Department of Transport and Planning

The project will undertake an independent Fire Hazard & Risk Assessment by a suitably qualified assessor on the project. A Risk Management Plan will be developed from this assessment.

Our design will then be updated to include any recommendations made in the Fire Hazard & Risk Assessment. Our project engineers will also consult with either Fire Rescue Victoria or the Country Fire Authority on the project design and plans to incorporate any feedback into an updated design.

If required, a planning permit application will be prepared for the project, which will include the fire risk management plan. We will submit the planning application to the Minister for review and approval. This will include a copy of the full Fire Hazard & Risk Assessment which is all available for public exhibition.

We will continue our engagement with Fire Services throughout the project delivery and through to the facility becoming operational, through coordinating site familiarisation visits when construction is complete and invitations to participate in annual emergency management exercises.

The BESS developments are designed to comply with international standards relating to Electric and Magnetic Fields (EMF) to ensure the safety of people visiting the site and the surrounding properties.

For more information on EMF, visit the ARPANSA website.

## Our management plans

Before starting construction, a series of management plans are developed for the project. These can include:

- fire management plan
- emergency management plan, including evacuation procedures
- emergency information books prepared in accordance with CFA's Design Guidelines and Model Requirements: Renewable Energy Facilities
- schedule of audits and review of fire and emergency management plans
- plans for ensuring safety training for site personnel and visitors
- plans for regular emergency response exercises
- site security plan and procedure manuals
- plans for de-energising and decommissioning the BESS in an emergency incident.

## Safe operations

Once the BESS is operational, we will continue to ensure fire risk is minimised in the facility through:

- 24-hour monitoring of the site in line with our site safety operating procedures
- active alarm systems linked to our Security Control Room with access to real time CCTV
- fire breaks and roads maintained
- regular battery servicing as per manufacturer specifications
- routine waste management services including removal of combustible materials
- maintenance undertaken in line with relevant Australian Standards and manufacturers requirements for all infrastructure, equipment and vehicles at the facility
- regular site inspections to ensure the facility is clear of vegetation and grasses
- annual review of the emergency management plan
- emergency management exercises to test our emergency response plans and practice emergency readiness
- ongoing safety training for personnel and responsibilities outlined during emergencies
- personal protective equipment, first-aid and shower facilities available and maintained on-site
- 'hot work' activities performed under 'hot work permits' systems and risk management processes
- fire protection measures maintained on a continuing basis for the life of the permit, to the satisfaction of the fire authority.

## Need to get in touch?

If you have any questions or wish to speak with us about this proposal, please contact AusNet's stakeholder engagement team at **BESSprojects@ausnetservices.com.au**



[ausnetservices.com.au](https://ausnetservices.com.au)



We speak your language. If you need an interpreter, please call **13 14 50**.



Provide our phone number when choosing your preferred relay service access option.