Battery Energy Storage Systems

Assistant Chief Fire Officer

Jamie Hansen

FIRE RESCUE VICTORIA

VICTORIA State Government

FRV serves and protects people and properties across Melbourne and Victoria’s major regional centres.

- 85 fire stations
- 73,096 incidents responded to in the last year.

FIRE RESCUE VICTORIA

We’re a team of over 4700 operational and corporate professionals collectively adapting and working with partner agencies and industry to ensure the safety of firefighters and communities.

Our specialist response capabilities include:

- Emergency medical response
- Road rescues
- Fire investigation and analysis
- Rope rescue
- Remote Piloted Aircraft Systems
- Marine
- Urban search and rescue
- Hazmat

FIRE RESCUE VICTORIA


FIRE
RESCUE
VICTORIA'S
FIRST ELECTRIC
FIRE TRUCK
EVIE
ELECTRIC VEHICLE FOR INCIDENT AND EMERGENCY
FIRE
FIRE RESCUE


TESLA

Guidelines

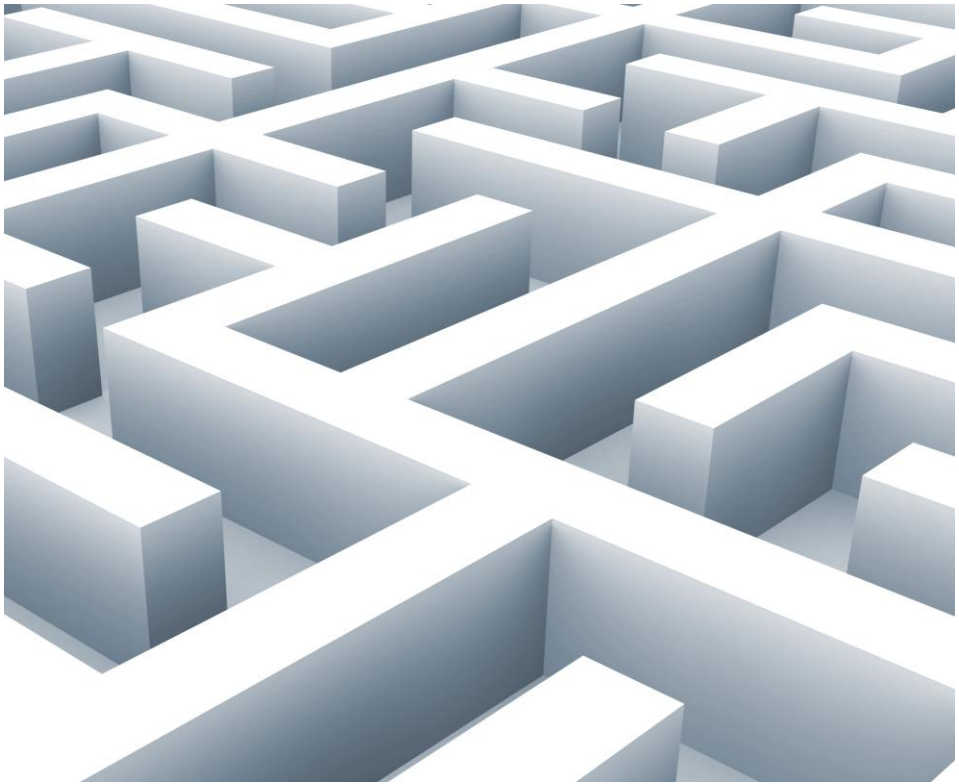
AFAC Guideline *Large-scale battery energy storage system installations*

Country Fire Authority *Design Guidelines and Model Requirements for Renewable Energy Facilities* (2023)

FRV Guideline 55 - *Battery Energy Storage Systems*

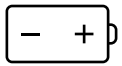
FRV Guideline 54 – *Fire Safety Study*

Risk Assessment Guidelines (AS/NZ ISO 31000)



Technical Documents

NFPA 855: Standard for the Installation of Stationary Energy Storage Systems



UL 9540: Energy Storage System Requirements

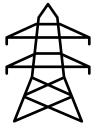
UL 9540A: Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

FM Global Property Loss Prevention **Data Sheet 5-33**: Electrical Energy Storage Systems

AS/NZS 4681: The storage and handling of Class 9 (miscellaneous) dangerous goods and articles (Standards Australia, 2000)

AS 3959: Construction of buildings in bushfire prone areas

AS/IEC 62619: Secondary cells and batteries containing alkaline or other non-acid electrolyte - Safety requirements for secondary lithium cells and batteries, for use in industrial applications

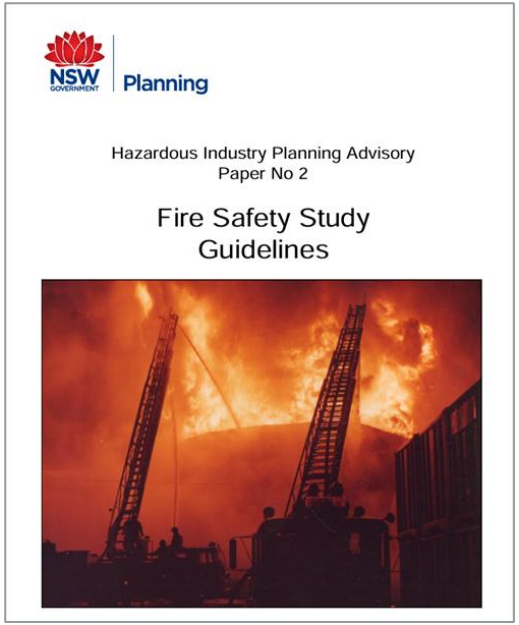


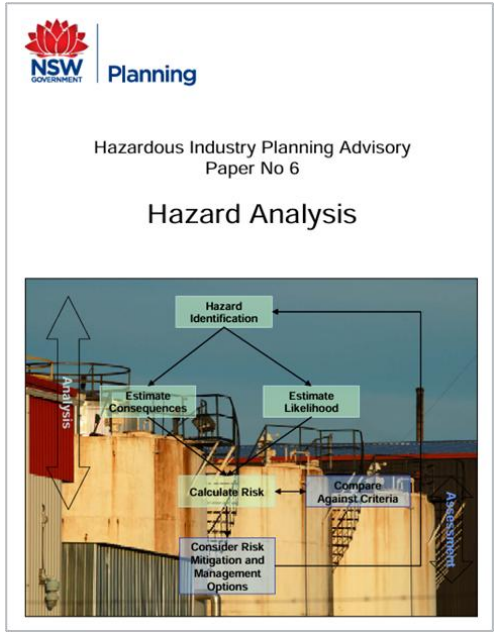
AS/NZS 5139-2019: Electrical installations - Safety of battery systems for use with power conversion equipment.

IEC 62897: ED1 Energy Storage Systems with Lithium Batteries - Safety Requirements.

FIRE RESCUE VICTORIA

Hazardous Industry Planning Advisory Papers





FIRE RESCUE VICTORIA

Bushfire

AS 3959-2018 *Construction of Buildings in Bushfire Prone Areas*

Emergency Information

- emergency contact numbers for BESS specialist support.
- location and layout diagram of the room or area in which the BESS is to be installed
- quantities and types of BESS units present.
- manufacturer’s specifications including battery chemistry and product SDS
- description of energy storage management system (ESMS) and operation details
- details on installed fire suppression, smoke or fire detection, gas detection, thermal management, ventilation, exhaust, and deflagration venting systems.

FIRE RESCUE VICTORIA

Firefighting Water

- Hydrant system complying with requirements of AS 2419.1: 2021
- BESS installations are considered special hazard areas to be considered under Appendix E.

Community

200 kWh – 2MWh

Fire Risk Assessment

Consequence Analysis*

Bushfire Attack Level

(BAL) Assessment*

FIRE RESCUE VICTORIA

Commercial & Industrial

1 MWh – 5 MWh

Fire Safety Study*

Fire Risk Assessment

Consequence Analysis*

Bushfire Attack Level

(BAL) Assessment*

FIRE RESCUE VICTORIA

Utility Scale

> 5 MWh

Fire Safety Study

Preliminary Hazard

Analysis

FIRE RESCUE VICTORIA

Open Yard Storage

- Cluster Segregation: < 50m Length
- Separation Distances: 6m from fire hazard
- Stacking Restrictions: Not stacked
- Firefighting Access: Full perimeter access.
- Operational Firefighting Equipment: AS 2419.1
- State of Charge (SOC): 30%
- Battery Management System: Active
- Emergency Plan

FIRE RESCUE VICTORIA

Contact FRV

DangerousGoods@frv.vic.gov.au