FACT SHEET

Fire-resilient renewable energy: minimising bushfire risk

Eliminating the risk of fire is considered in every stage of developing renewable energy projects. This includes during early site selection as part of the initial planning phase, developing emergency response plans, providing emergency vehicle access, managing vegetation, creating fire breaks, water storage, building access roads, training staff, active monitoring and coordinating with local fire brigades.

What's the most effective way to reduce risk from fire?
Incorporating safety risk management in the early design of clean energy facilities is the most effective way to reduce the potential for fires occurring or being damaged by a bushfire. This risk is assessed in the planning for facilities across every state and territory in Australia.

How are clean energy projects assessed for fire risks?
Clean energy projects are thoroughly assessed for fire hazards with investment toward mitigation strategies to reduce fire risk a priority. Most commonly projects are assessed against the Design Guidelines and Model Requirements for Renewable Energy Facilities1 which has been developed by Victoria's Country Fire Authority (CFA) and implemented by other states and territories.

Why does fire risk need to be managed at clean energy facilities?
The purpose of identifying and managing fire risk at renewable energy facilities is to protect the community, personnel, fire crews and the renewable energy asset itself.

Are state fire authorities consulted on projects and plans?
Planning legislation in every jurisdiction outlines that the relevant fire authority must be consulted and given the opportunity to make recommendations on management plans and mitigation measures. This is mutually beneficial as it ensures expert insights are incorporated into the design and operation of the facility.

How do renewable energy projects coordinate with local brigades?
It's important that renewable energy facilities engage with local brigades to ensure risk management or fire management plans can be effectively operationalised. The plans allow local emergency responders to familiarise themselves with the facility layout, including location of water resources available onsite and after-hours site contacts for energy isolations if necessary. To support this, renewable energy projects host local fire brigades and offer familiarisation visits through their facilities.

All renewable energy projects are designed to reduce the risk of fire. They are subject to thorough planning assessments and must adhere to rigorous standards.

What is included in fire mitigation plans?
Projects develop multiple plans to minimise risk. Plans are developed in accordance with Country Fire Authority (CFA) guidelines and are reviewed regularly and updated as required. Plans usually provide a detailed description of the facility, including location, size and types of clean energy technologies used. Plans will also detail emergency vehicle access, firefighting water supply, fire break widths, separation distance and ignition sources. The plans provide evacuation routes, assembly points and procedures for personnel, as well as how to communicate during an emergency, including internal communication and coordination with external emergency services.

Three of the most common plans include:

- An overarching Emergency Management Plan that outlines a company's obligations to prevent, prepare and respond to any emergencies that may impact the site, such as fires.
- A Fire Management Plan, which needs to be approved by the local fire authority in each state, which includes procedures for dealing with fire on site and the water required to be kept on site for that specific purpose.
- A Risk Management Plan that has identified hazards and the strategies to be applied to lower the risks (e.g. grass cutting and removal of vegetation within the 10-metre fire break).

Precautionary design measures

Standards and regulations

All our BESS projects and sites must meet:

- Fire Safety and Emergency Management Guidelines: All current national and sate requirements for designing, constructing, and operating new renewable energy facilities, with specific focus on BESS fire risks.
- Non-Combustible Systems and Surfaces: Utilising fire protection systems and non-combustible surfaces that comply with relevant standards for "open-air" or "containerised" storage configurations as per AS24191.1 Fire hydrant Installations, part 1: System Design, Installation and Commissioning.
- Electrical Safety Standards: Comply with all Australian Standard requirements for the safe installation and commissioning of battery systems, including the integration of safety systems with power conversion equipment
- Dangerous Goods Requirements: Regulations and approved codes of practice for the storage and handling of dangerous goods (including batteries) and hazardous materials.
- Legal Obligations: State and national legislation that outlines the obligations for an owner and operator of a complex electrical installation, ensuring compliance with relevant state Electrical and workplace Health and Safety Acts and Regulations.

Physical protections

All our BESS projects and sites are designed with:

- Fire Spread Mitigation: Non-combustible surfaces to prevent thermal runaway and ground fire spread.
- Fire Breaks & Access: Perimeter roads or clear fire breaks set back the required distance from BESS units.
- Emergency Access: Roads designed to accommodate fire trucks and other emergency vehicles.
- Fire Separation: Adequate spacing between battery units, containers, and infrastructure to prevent cascading fires.
- Firefighting Infrastructure: Reliable water supply or suppression systems available on site.
- Run-off Management: Retention or filtration systems to prevent contamination from fire water, meeting council and environmental requirements.
- Emergency Facilities & Procedures: Evacuation areas, first aid facilities, and tested emergency procedures.
- Information for Responders: Emergency info containers at entry points with site layout, hazards, and shutdown procedures.

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.

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.

Sources

- Fact sheet - Fire-resilient renewable energy: minimising bushfire risk | Clean Energy Council | August 2025: https://cleanenergycouncil.org.au/for-consumers/fact-sheets
- Renewable Energy Fire Safety | CFA (Country Fire Authority)

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