SIEMENS

Minimising the risk of bushfires with Fusesaver™

High-risk bushfire days are primarily determined by the temperature, humidity, prevailing wind conditions and the amount of dry fuel on the ground. With just a spark from an electrical arc a bushfire can be ignited, affecting landscapes and lives for years. On extreme risk bushfire days, it is critical to eliminate any probability of faults on the electrical network igniting a fire.

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Fact

The 2019-20 bushfires burned over 17 million hectares of land, destroyed more than 3,000 houses and resulted in 33 human deaths and a billion animal fatalities[2]. The estimated total costs of the fires are in excess of A$80 billion[3].

Key benefits

- **Minimising the risk of bushfires**
- **Increased network reliability**
- **Improved operator safety**
- **Future proof asset**
- **Fast ROI**

Findings of a study[1] show that overhead distribution network operators can significantly reduce the risk of bushfires by implementing these actions:

1. **Eliminate protective devices that expel molten material during operation**

   Traditional fuses should be removed from high risk bushfire zones as arc by-products can start fires. Fusesaver™ provides a cost effective alternative with fully encapsulated vacuum interrupter switching fully eliminating this risk.

2. **Utilise ultra-fast fault clearing circuit breakers to reduce electrical arc hazards**

   Arc duration is a significant variable in the probability of an electrical fault causing ignition of a fire. With clearing times in the range of 30–50 ms traditional reclosers are too slow to prevent an arc causing fire ignition. The Fusesaver™ is unique in having a clearing time in as little as 10 ms (or one half-cycle) and with this speed the probability approaches zero.

3. **Provide remote access to disable reclosing on high fire risk days**

   To enable remote monitoring and operating capabilities, the Fusesaver™ can be conveniently accessed from the control room.

   A Remote Control Unit (RCU) allows for easy SCADA integration and gives the ability to change protection settings and to disable reclosing without the need to be on-site.

4. **Synchronise operation to ensure compatibility with resonant earthing schemes**

   Single phase protective devices, such as fuses, can cause instabilities on networks using resonant earthing schemes. Fusesaver™ provides a synchronised three-phase switching operation for both protection and manual switching activities.

Save money and reduce risk

With a lower capital cost than traditional reclosers, compact design, fast installation time and an unrivalled fault clearing time, the Fusesaver™ represents a quantum leap in reclosing technology. Whilst minimising the risk of bushfires it supports utilities to:

- Keep down insurance premiums
- Avoid litigations
- Protect the distribution network
- Increase network reliability.

To find out more, contact us via fusesaver.au@siemens.com

[1] Conducted for Energy Safe Victoria by HRL Technology Pty Ltd, "Probability of Bushfire Ignition from Electric Arc Faults" D. Coldham. A. Czerwinski and T Marxsen.

[2] Source: Parliament of Australia "2019–20 Australian bushfires–frequently asked questions: a quick guide", authors: Lisa Richards and Nigel Brew (Foreign Affairs, Defence & Security), Lizzie Smith (Science, Technology, Environment & Resources), 12 March 2020

[3] 2020 Australian dollars, including provisions for fighting the fires, reconstruction, loss of tourism and other variables, source: FXCM "Financial Impact Of 2019-20 Australian Bushfires", 12 May 2020