

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.

siemens.com/fusesaver





Findings of a study¹ 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.

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 fatalities². The estimated total costs of the fires are in excess of A\$80 billion³.

Key benefits



Minimising the risk of bushfires



Increased network reliability



Improved operator safety



Future proof asset



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 (© 2023 Siemens. All rights reserved.