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NOJA POWER®

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Fire Risk Mitigation in Overhead Distribution Networks

Overhead electricity distribution networks are commonly deployed for simplicity, ease of maintenance and cost effectiveness, but their design also brings more fire risk than their underground counterparts. The overhead class of network design has been deployed throughout the world, and recent literature and technology developments have enabled utilities to mitigate their fire risk whilst enjoying the benefits of an overhead network topology.

According to the research findings following the 2009 Victorian Bushfires in Australia, there is now published research indicating that reclosers capable of detecting a 500mA Sensitive Earth Fault would reduce fire start risk by 80%[1].

Achieving reliable and practical fire mitigation strategy for overhead distribution networks is the measurable outcome of a comprehensive bushfire mitigation policy. Utilities prepare for these challenges by developing a strategic policy outlining the key risks and countermeasures to be deployed by the operator. A typical -policy covers key issues and concepts such as:

- Managing Circuit Breaker recloser Policy
- Controlling Field Device Configurations with Communications
- Deploying Protection Schemes to detect High Impedance Faults
- Managing Network Automation during Configuration Variations

In Australia, the annual fire risk profile for populated areas soars during the dry summer period in the southern half of the continent. The vast geographic area and sparse population has made overhead networks the only practical solution This network topology has also demanded the development of bushfire mitigation technology in network switchgear to address the fire risk. The most common form of distribution protection equipment is the Automatic Circuit Recloser, making the technology development a natural step.

NOJA Power has partnered closely with Australian utilities to develop bushfire mitigation technology to address this requirement. This technology has been deployed in a large scale since the 2009 event, providing pragmatic risk mitigation with measurable benefits

Through this technology development, the NOJA Power OSM Recloser has class leading sensor resolution and accuracy, granting a minimum Earth fault detection level of 200mA. This unprecedented sensitivity allows utilities to mitigate fire risk in a multitude of fire start scenarios.

“One of the greatest challenges to electricity utilities globally is the risk of the network causing fires,” says NOJA Power Group Managing Director Neil O’Sullivan. “Protection systems are becoming more advanced, allowing the risk of fires to be significantly reduced using

these advanced protection solutions."

For more details on bushfire mitigation strategy, you can read the full article *here* or get in contact with your local NOJA Power distributor. NOJA Power is committed to developing world leading protection functionality to keep energy safe and reliable for the world.

1. Marxsen, Dr Tony (3/07/2018). "Vegetation Conduction Ignition Tests" (PDF). *https://www.energy.vic.gov.au*. Retrieved 3/07/2018