EECON 2017
22-23 NOV MELBOURNE
COLLABORATION AND INNOVATION:
ADAPTING TODAY'S GRID FOR
TOMORROW'S FUTURE
eecon.com.au

Victoria's journey towards a fire-safe rural electricity distribution network

Tony Marxsen

On Black Saturday in February 2009 in Code Red weather conditions, electricity distribution assets in rural Victoria started catastrophic fires that killed more than a hundred people and seriously injured thousands more.

After five years of ground-breaking research, the Victorian Government promulgated new regulations in April 2016 to require distribution networks in extreme fire risk areas to have the capability to respond to earth faults ways that ensure the risk of a fire start is low. The risk in 33 specific locations was assessed as so extreme that these network sections will be progressively replaced with underground or other low-risk construction such as covered conductor.

The implementation of new technology to provide the specified capability will take seven years and cost hundreds of millions of dollars. The most radical break with Victoria's traditional network design is a move from low resistance earthing to resonant earthing in 45 zone substations that supply tens of thousands of kilometres of rural 22kV powerlines and underground cables.

This presentation outlines at a high level, the journey so far - the research, the regulations, implementation challenges and the experience to date.