

TECHNICAL BULLETIN

TB-0184

Actions to take in the event of a blown fuse

Background

An incident occurred where a fuse blew due to an electrical fault on the LV network. Instead of investigating the cause of the fuse operation, a larger fuse was inserted. The larger fuse also blew.

Fuse sizes have been carefully selected to meet the requirements of industry standards, and to achieve the right balance between allowing reliable utilisation of network assets, and achieving sensitivity to detect faults and protect the conductors and other network components. The use of a fuse rating larger than that specified unnecessarily increases the risk of uncleared faults and network damage.

Fuse selection

For new substations, maximum fuse sizes are specified in:

- MCI 0005 – (Overhead distribution construction standards manual) section 8.2, and
- MCI 0006 – (Underground distribution construction standards manual) section 7.2.

The appropriate fuse size for existing substations is **the lower of** either:

- the existing installed fuse size, or
- the maximum fuse size applicable to a new substation of the same size (only where the existing installed fuse size is insufficient).

Recommended actions in the event of a blown fuse

1. Investigate if a fault exists

In the event that a standard size fuse blows, investigate the network for faults and rectify. The general purpose fuses (type gG) used on the Endeavour Energy low voltage network will not operate quickly even under substantial overloading. Any fuse operation within 1 minute indicates that a fault is likely to exist.

2. Confirm the overload and balance the load

If no fault exists, measure and balance the load currents between phases and between distribution substations during peak load. Peak load should be measured after at least 30 minutes of network operation so that cyclic loads such as refrigerators are not operating together.

If an overload exists which exceeds or is likely to exceed 125% of the fuse rating after the network has been rebalanced, the fuse may be replaced with the fuse size applicable to a single customer (see MCI 0005 and MCI 0006) in spite of there being multiple feeders.

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