

POWER SYSTEM OPERATING INCIDENT REPORT – TRIP OF RINGWOOD NO.1 220 KV BUSBAR ON 18 APRIL 2012

PREPARED BY: Systems Capability

DATE: 2 October 2012

FINAL

Disclaimer

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Abbreviations and Symbols

Abbreviation	Term
kV	kilovolt

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1 Introduction

At 1401 hrs on 18 April 2012, the No.1 220 kV busbar at Ringwood Terminal Station in Victoria tripped, off-loading the Ringwood B4 220/66 kV and L3 220/22 kV transformers. The incident occurred during routine maintenance work on the B4 transformer protections at Ringwood. The busbar was returned to service at approximately 1403 hrs.

This report has been prepared under clause 4.8.15 of the National Electricity Rules to assess the adequacy of the provision and response of facilities and services and the appropriateness of actions taken to restore or maintain power system security.

This report is largely based upon information provided by SP AusNet¹. Data from AEMO's Energy Management System has also been used in analysing the incident.

All references to time in this report refer National Electricity Market time (Eastern Standard Time).

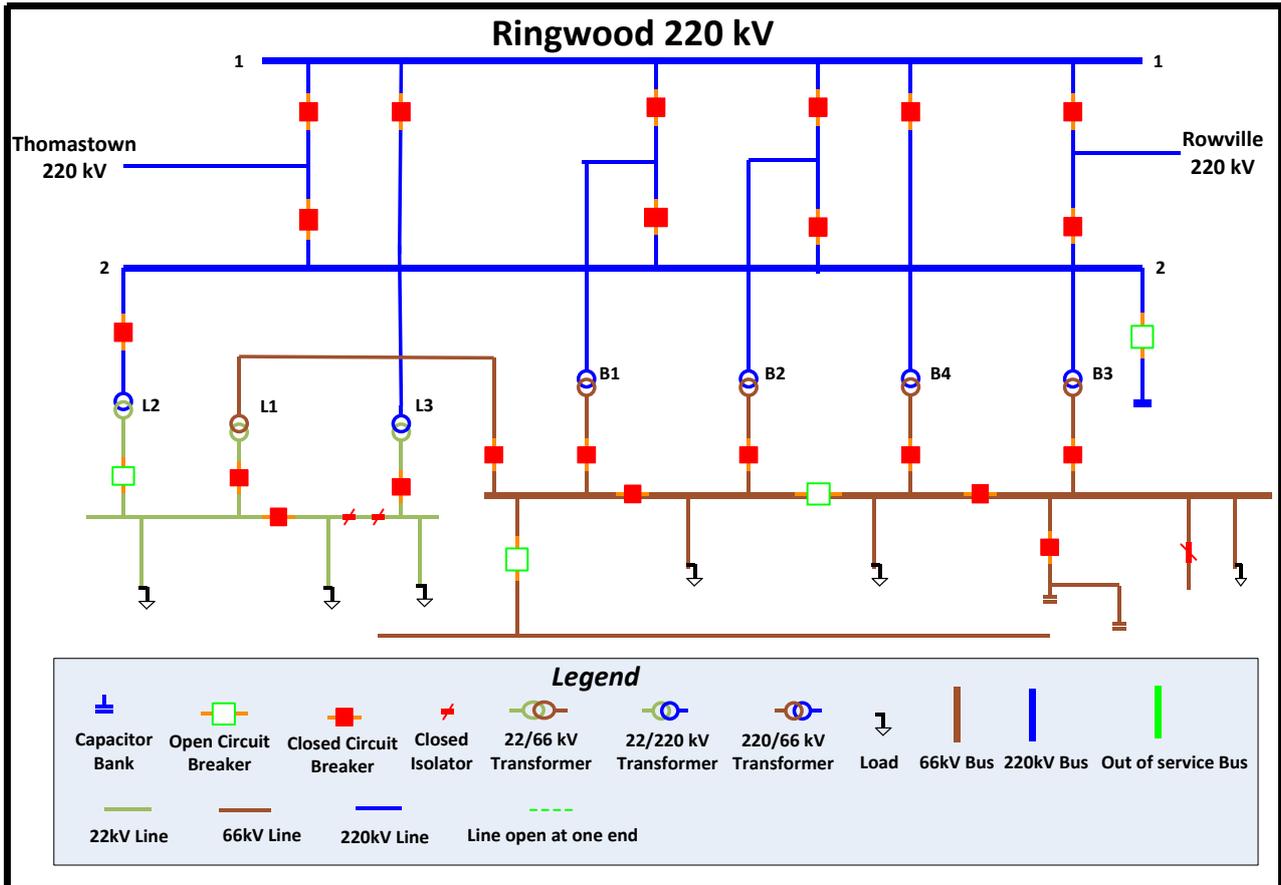
2 Pre-Contingent System Conditions

On 18 April 2012, SP AusNet was undertaking routine maintenance work on the B4 220/66 kV transformer protections at Ringwood Terminal Station.

The Ringwood No.1 220 kV busbar and the status of its connections prior to the incident are shown in Figure 1. Only the equipment relevant to this incident has been included in the diagram for clarity.

Figure 1 – Status of Ringwood Terminal Station and its connections prior to the incident

¹ Information provided by SP AusNet has been provided on a without prejudice basis and nothing in this report is intended to constitute, or may be taken by any person as constituting, an admission of fault, liability, wrongdoing, negligence, bad faith or the like on behalf of SP AusNet (or its respective associated companies, businesses, partners, directors, officers or employees).



3 Summary of Events

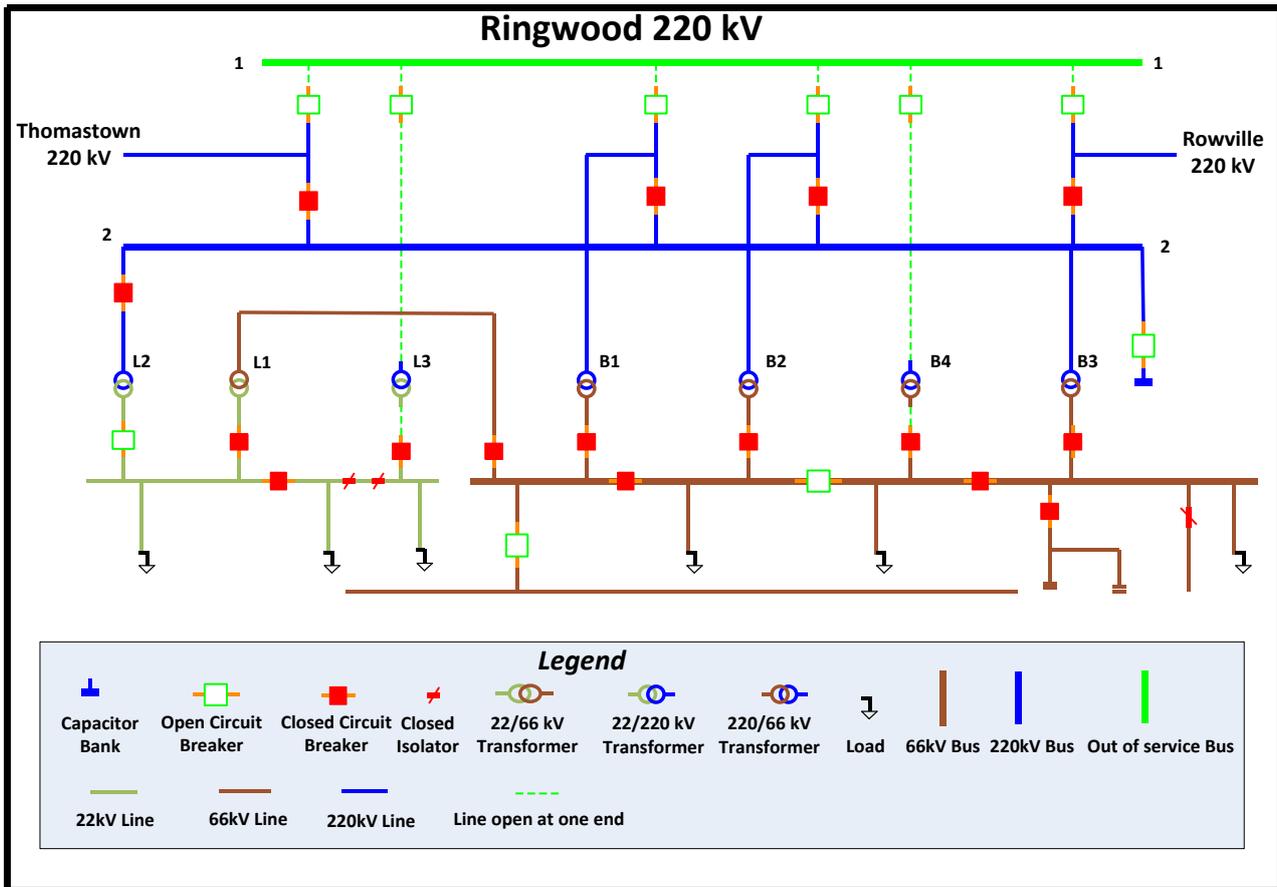
At 1401 hrs on 18 April 2012, during routine maintenance work on the Ringwood B4 220/66 kV transformer, the Ringwood No.1 220 kV busbar tripped inadvertently on operation of busbar protection. This caused the off-loading of the Ringwood B4 220/66 kV and L3 220/22 kV transformers.

The staff conducting the maintenance work immediately realised the measuring equipment had caused the busbar to trip. The maintenance staff informed the cause of the busbar trip to SP AusNet controller accordingly.

At 1403 hrs, the Ringwood No.1 220 kV busbar and associated 220 kV circuit breakers were returned to service.

The status of Ringwood Terminal Station and its connections immediately after the incident are shown in Figure 2.

Figure 2 - Status of Ringwood Terminal Station and its connections immediately after the incident



4 Follow up actions

At 1442 hrs, AEMO issued the Electricity Market Notice No. 38677 advising the occurrence of this non-credible contingency event.

AEMO did not subsequently reclassify the trip of the Ringwood No.1 220 kV busbar as a credible contingency event because SP AusNet informed AEMO that this event was unlikely to reoccur.

Investigation by SP AusNet confirmed the cause of the busbar trip to be the multimeter being in the "continuity" mode instead of "DC voltage" mode.

SP AusNet are satisfied that this was an isolated event of this nature and not a systemic issue with the personnel involved in testing these types of protection schemes.

5 Power System Security Assessment

There was no loss of load or generation as a result of the event.

The power system voltages and frequencies remained within the normal operating bands and the power system remained in a secure operating state throughout the incident.

AEMO followed its procedures and determined that it was not appropriate to reclassify the trip of Ringwood No.1 220 kV busbar as a credible contingency event based on the information provided by SP AusNet.

6 Conclusions

AEMO concludes that:

- The trip of Ringwood No.1 220 kV busbar was caused by the multimeter being in the "continuity" mode instead of "DC voltage" mode during maintenance work on transformer protection at Ringwood.
- AEMO correctly applied the criteria published in section 12 of its Power System Security Guidelines² in assessing that the circumstances of this incident did not warrant reclassifying similar incidents as a credible contingency event.

AEMO is satisfied that SP AusNet has carried out the appropriate work to mitigate the risk of a similar incident occurring in the future.

7 Recommendations

There are no recommendations arising from this incident.

² Clause 4.2.3B of the NER requires that AEMO establish criteria to use when considering whether a non-credible contingency event is reasonably possible. This is published in AEMO operating procedure SO_OP 3715 Power System Security Guidelines, which is available at:
<http://www.aemo.com.au/electricityops/3715.html>