

Power System Operating Incident Report – Trip of Ringwood No.2 220 kV Busbar on 29 January 2014

PREPARED BY: AEMO Systems Capability

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STATUS: FINAL

Version Release History

VERSION	DATE	BY	CHANGES	CHECKED BY	AUTHORISED BY
1	4 April 2014	S Darnell	FINAL	S Darnell	P Biddle

Incident Classifications

Time and date and of incident	1345 hrs Wednesday 29 January 2014
Region of incident	Victoria
Affected regions	Victoria
Event type	OTH – Other
Primary cause	OE & CON – Operating Error and Non-Conformance
Impact	Nil
Associated reports	Nil

Abbreviations

Abbreviation	Term
AEMO	Australian Energy Market Operator
EMMS	Electricity Market Management System
EMS	Energy Management System
kV	Kilovolt
NER	National Electricity Rules

Disclaimer

Purpose

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1 Introduction

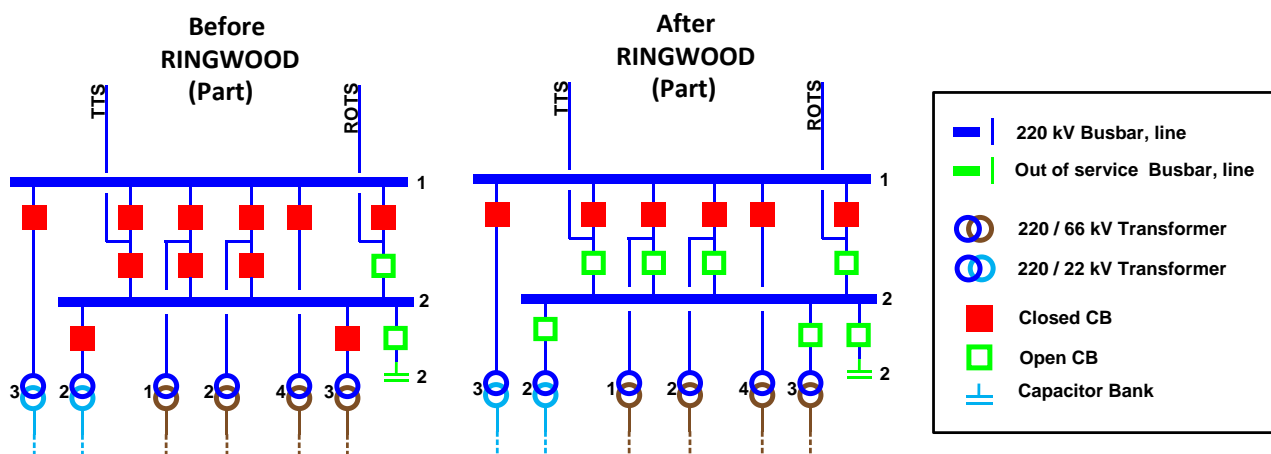
This report reviews a power system operating incident¹ that occurred on Wednesday 29 January 2014 at Ringwood Terminal Station in Victoria. The purpose of this incident review is to assess power system security over the course of the incident². This report is based upon information provided by SP AusNet³. National Electricity Market time (Australian Eastern Standard Time) is used in this report.

2 The Incident

On Wednesday 29 January 2014 at 1345 hrs the Ringwood No.2 220 kV busbar tripped. There was no loss of load or generation and the power system remained secure.

The reason for investigating this incident that a 220 kV busbar tripped. The probability of a busbar fault is very low and is thereby an unexpected event known in power system security terms as a non-credible contingency⁴.

The status of the power system before and after the incident is shown below. The After diagram shows all circuit breakers connected to the No.2 busbar open.



3 Investigation

SP AusNet investigated this incident and found that the trip was caused by staff working in the Ringwood Terminal Station. A damaged in-service control cable was inadvertently disturbed, which then operated the busbar Y protection relay.

SP AusNet isolated the Y protection relay and returned the busbar to service 48 minutes after the incident. SP AusNet then repaired the damaged cable and returned the Y protection relay to service at 1720 hrs on the same day.

¹ AEMO is required to review this incident as it is classified as a non-credible contingency that satisfies the requirements of a reviewable operating incident under the National Electricity Rules (NER) - NER Clause 4.8.15(a)(1)(i) and AEMC Reliability Panel Guidelines for Identifying Reviewable Operating Incidents.

² The NER requires AEMO 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 - NER Clause 4.8.15 (b)

³ SP AusNet is the Transmission Network Service Provider in Victoria. 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).

⁴ NER v60 4.2.3 - Credible and non-credible contingency events; *AEMO Power System Security Guidelines*, Section 10 - Definition of a non-credible contingency events

4 Power System Security

This section assesses how AEMO managed power system security over the course of the incident⁵.

AEMO did not invoke any constraint sets for this incident because the power system was in a secure state⁶. SP AusNet promptly identified the cause of the incident and notified AEMO. SP AusNet then returned the busbar to service with Y protection disabled.

AEMO issued Market notice 44821 at 1419hrs⁷ to notify the market:

- Of the non-credible contingency.
- That AEMO had not reclassified the incident as a credible contingency.

AEMO did not reclassify the incident because the cause of the incident had been identified, and AEMO considered the incident unlikely to reoccur.⁸

Power system security was maintained over the course of the incident.

5 Conclusions

1. The Ringwood No. 2 220 kV busbar tripped due to a damaged in-service control cable that caused an inadvertent protection relay operation.
2. Power system security was maintained over the course of the incident.

6 Recommendations

There are no recommendation arising from this incident.

⁵ AEMO is responsible for power system security in the NEM and is required to operate the power system in a secure operating state (NER Clause 4.2.4 (a)). AEMO must thereby ensure that the power system is maintained in, or returned to, a secure operating state following a contingency event.

⁶ AEMO is required to return the power system to a secure state within thirty minutes following a contingency event - NER Clause 4.2.6 (b)

⁷ This is was within two hours of the event in which AEMO is required to notify the market of a non-credible contingency event AEMO - *Power System Security Guidelines*, Section 10.3

⁸ For a non credible contingency AEMO is required to assess whether or not to reclassify a non credible contingency event as a credible contingency (NER Clause 4.2.3A (c)) and to report how re-classification criteria were applied NER Clause 4.8.15 (ca). AEMO has to determine if the condition that caused the non-credible contingency event has been resolved.