

POWER SYSTEM OPERATING INCIDENT REPORT – TRIP OF TARONG NO.2 66 KV BUSBAR ON 22 MARCH 2012

PREPARED BY: Electricity System Operations Planning and Performance

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FINAL

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Abbreviations and Symbols

Abbreviation	Term
CB	Circuit Breaker
EMMS	Electricity Market Management System
EMS	Energy Management System
kV	Kilovolt
MW	Megawatt
NEM	National Electricity Market

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1 Introduction

At 1034 hrs on 22 March 2012, the No. 2 66 kV busbar at Tarong substation tripped, resulting in the loss of approximately 24 MW of load. The busbar and all the affected network elements were returned to service that day at 1043 hrs and 1051 hrs respectively.

This report has been prepared under clause 4.8.15 (c) of the National Electricity Rules (NER) 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 Powerlink Queensland. Data from AEMO's Energy Management System (EMS) and Electricity Market Management System (EMMS) has also been used in analysing the incident.

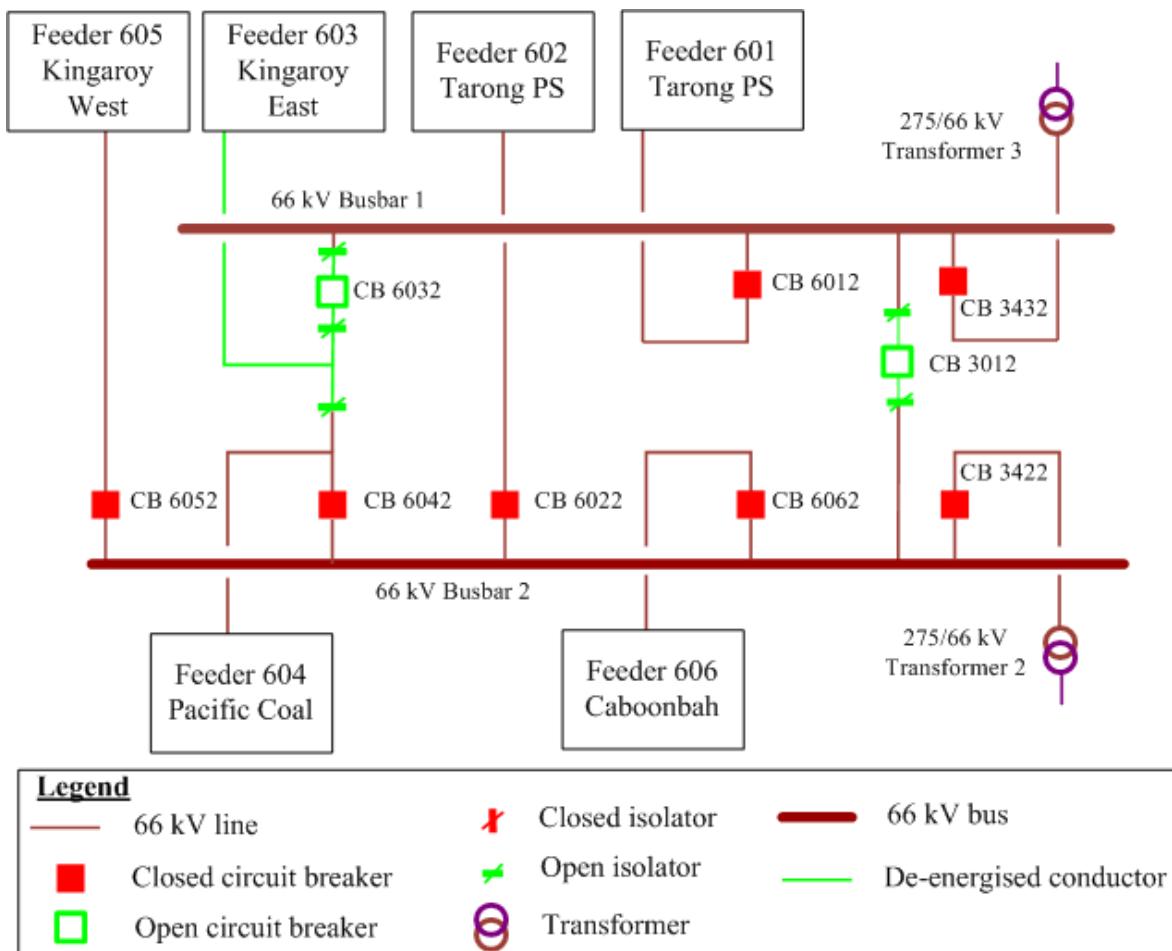
All references to time in this report are to National Electricity Market time (Australian Eastern Standard Time).

2 Pre-Contingent System Conditions

Prior to the incident the 603 Tarong – Kingaroy East 66 kV feeder was out of service for the planned replacement of the Tarong 66 kV circuit breaker (CB) 6032. CB 6032 was isolated from the power system. The Tarong 66 kV CB 3012 was also out of service and isolated for planned protection system testing associated with the replacement of CB 6032.

Figure 1 shows the status of the power system prior to the incident. For clarity only equipment relevant to this incident has been included in the diagram.

Figure 1 - Status of the Tarong substation prior to the incident

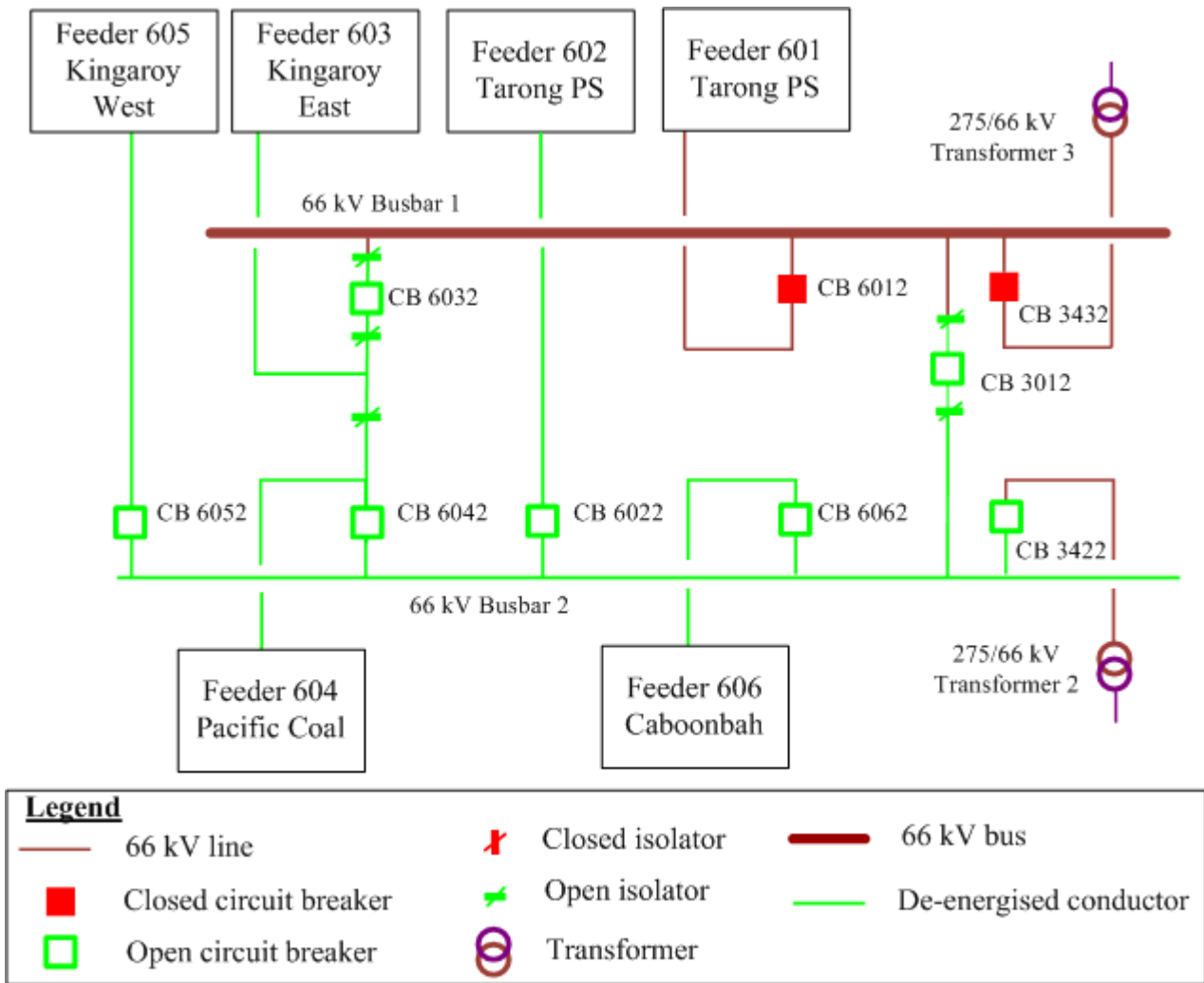


3 Summary of Events

At 1034 hrs on 22 March 2012 the Tarong No. 2 66 kV busbar protection systems operated to trip the No. 2 66 kV busbar. The circuit breakers 6022, 6042, 6052, 6062 and 3422 operated, off-loading the 602, 604, 605 and 606 66 kV feeders and the Tarong No.2 275/66 kV transformer. This resulted in the loss of 24 MW of Ergon load.

Figure 2 shows the status of the power system immediately after the incident.

Figure 2 - Status of the Tarong substation immediately after the incident



4 Immediate Actions Taken

Powerlink immediately investigated and found that the busbar circuit breakers tripped due to the operation of one of the 66 kV busbar protection systems during the planned protection system testing activities undertaken at Tarong substation associated with the replacement of 66 kV CB 6032. At 1043 hrs Powerlink re-energised the Tarong No. 2 66 kV busbar. The 605, 604, 602 and 606 66 kV feeders were returned to service at 1047 hrs, 1049 hrs, 1049 hrs and 1051 hrs respectively.

At 1636 hrs, AEMO issued Electricity Market Notice No.38444 to notify the market of this incident as a non-credible contingency event.

5 Follow-up Actions

After the incident Powerlink has undertaken an investigation on the busbar protection systems associated with the planned protection system testing work. The investigation found that the busbar protection systems operated due to a test signal being sent to the in-service busbar protection system during the planned testing work. Powerlink has taken further precautions to avoid the risk of similar incidents in the future.

6 Power System Security Assessment

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.

7 Conclusions

Powerlink has found that the Tarong No. 2 66 kV busbar tripped because of the operation of one of the 66 kV busbar protection systems due to a test signal being sent to the in-service busbar protection system during planned testing work.

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

AEMO correctly applied the criteria published in section 12 of its Power System Security Guidelines in assessing that the circumstances of this incident did not warrant reclassifying similar incidents as credible contingency events.

8 Recommendations

There are no recommendations arising from this incident.