POWER SYSTEM INCIDENT REPORT T055 TURKINJE 132KV NO 2 BUS TRIP

PREPARED BY: Electricity System Operations Planning and Performance

FINAL

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[1] The sentence in square brackets might not always be appropriate.

1. Introduction

On Friday 16th April 2010 at 11:15hrs, a non credible contingency event occurred in northern Queensland. The event was a trip of the No.2 132kV busbar at T55 Turkinje substation, which resulted in the following:

- Off-loading of 7166 Chalumbin – Turkinje 132kV line at Turkinje
- De-energising of Turkinje No.2 132/66kV Transformer

This report has been prepared under clause 4.8.15 of the 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.

Information for this report has been supplied to AEMO by Powerlink, data from AEMO's Energy Management System (EMS) has also been used in analysing the event.

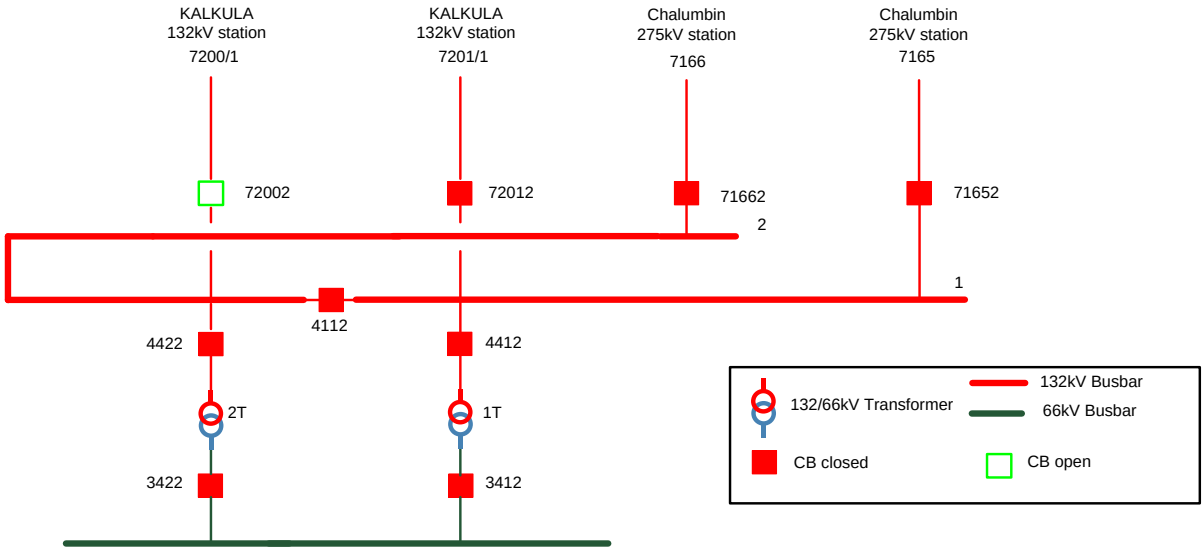
All references to time in this report refer to Market time (Australian Eastern Standard Time)

2. Summary of Events

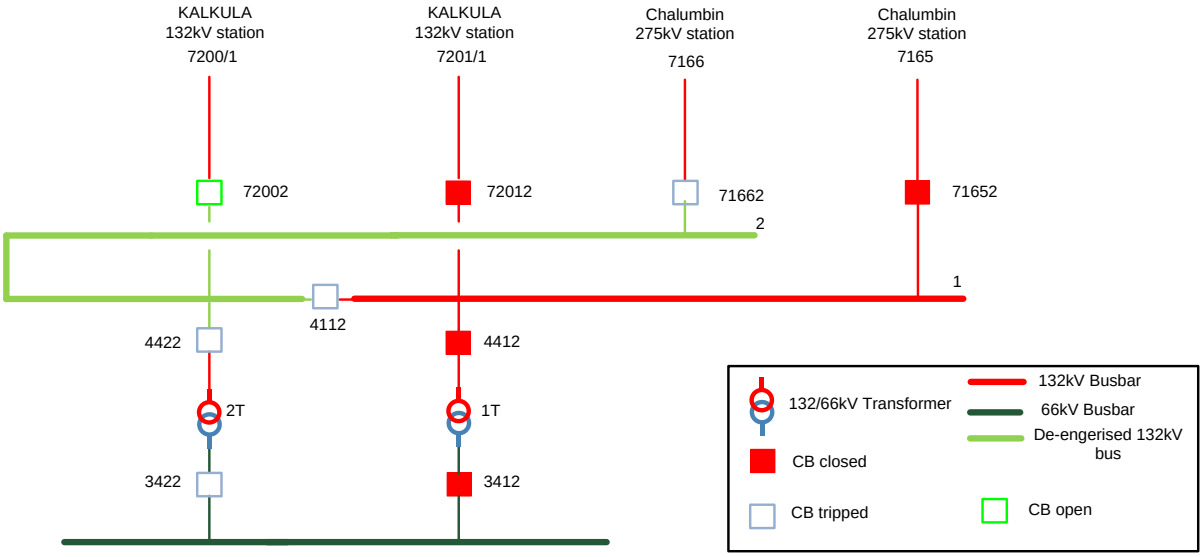
On Friday 16th April 2010, at 11:15 hrs, the No.2 busbar at T55 Turkinje substation tripped. There was a prior planned outage of the Turkinje – Kalkula 7200/1 132kV line at the time.

The market notices issued following the event are listed in Appendix 1.

T55 Turkinje 132kV station configuration prior to No.2 busbar tripping:



T55 Turkinje 132kV station configuration after No.2 busbar tripped:



At 11:15 hrs on 16 April 2010, the No.2 132kV busbar at T055 Turkinje substation tripped. The busbar trip occurred due to operation of a circuit breaker fail protection system during planned accuracy testing of 132kV current transformers associated with circuit breaker 72002.

The following circuit breakers tripped:

T55 Turkinje CB4112 – 1 - 2 Bus Section 132kV circuit breaker
T55 Turkinje CB71662 – Feeder 7166 Chalumbin 132kV circuit breaker
T55 Turkinje CB4422 – 132/66kV #2 Transformer 132kV circuit breaker
T55 Turkinje CB3422 – 132/66kV #2 Transformer 66kV circuit breaker

The following transmission network elements were affected by the busbar trip :

- Chalumbin – Turkinje 132kV line 7166 was off-loaded at Turkinje
- Turkinje No.2 132/66kV Transformer was de-energised

As a part of the testing activities, electrical signals generated by the test equipment were being injected to secondary systems at the time the 132kV Feeder 7200 protection systems operated. The 132kV Feeder 7200 protection system operation initiated a trip signal to the already open circuit breaker 72002 and also triggered the Circuit Breaker Fail protection system associated with this circuit breaker. These conditions existed for a period sufficient for the 132kV Circuit Breaker Fail protection systems to operate and trip the No.2 132kV busbar.

3. Immediate Actions Taken

After the cause of the trip was confirmed, the No.2 busbar at T55 Turkinje substation was returned to service at 1146 hrs. All affected network elements were returned to service by 1148 hrs.

4. Follow up action

After the event, Powerlink reviewed the work processes and guidelines to ensure adequate isolation of test signals from all in service protection systems would be implemented during testing of secondary equipment to avoid similar occurrences in future.

5. Conclusion

The No.2 busbar at Turkinje 132kV substation tripped during testing of protection systems. Powerlink has since reviewed the work processes and guidelines on isolation of test signals from all in service protection systems during testing of secondary equipment.

6. Recommendations

Nil

7. Appendix

Appendix 1: Market/Participant Notices

TIME	NOTICE	MARKET / PARTICIPANT	DETAIL (EXTRACTED FROM MARKET NOTICE)
1143	31352	Market	Advice of Non-credible Contingency Event - Queensland Region Friday, 16 April 2010. At 1115 hrs a Non credible contingency event occurred in the Northern QLD area At Turkinje 132 /66 kV substation No2 132 kV busbar has tripped. The event will be subject to AEMO Event Review.
1219	31353	Market	UPDATE - Advice of Non-credible Contingency Event - Queensland Region Friday, 16 April 2010. At 1115 hrs a Non credible contingency event occurred in the Northern QLD area At Turkinje 132 /66 kV substation No2 132 kV busbar has tripped. The event will be subject to AEMO Event Review. AEMO have advice that a recurrence of this event is unlikely so no further reclassification is required.