

POWER SYSTEM OPERATING INCIDENT REPORT – TRIP OF MULTIPLE TRANSMISSION LINES IN TASMANIA ON 13 MAY 2012

PREPARED BY: Systems Capability

DATE: 26 October 2012

FINAL

Disclaimer

Purpose

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Abbreviations and Symbols

Abbreviation	Term
CB	Circuit breaker
MW	Megawatt
kV	Kilovolt
NER	National Electricity Rules

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1 Introduction

At 0144 hrs on 13 May 2012, the No.2 Chapel Street - Gordon 220kV transmission line and the No.1 Chapel Street - Risdon 110kV transmission line tripped out of service. There was no generation or customer load interruption as a result of the incident. Both lines were returned to service by 0153 hrs.

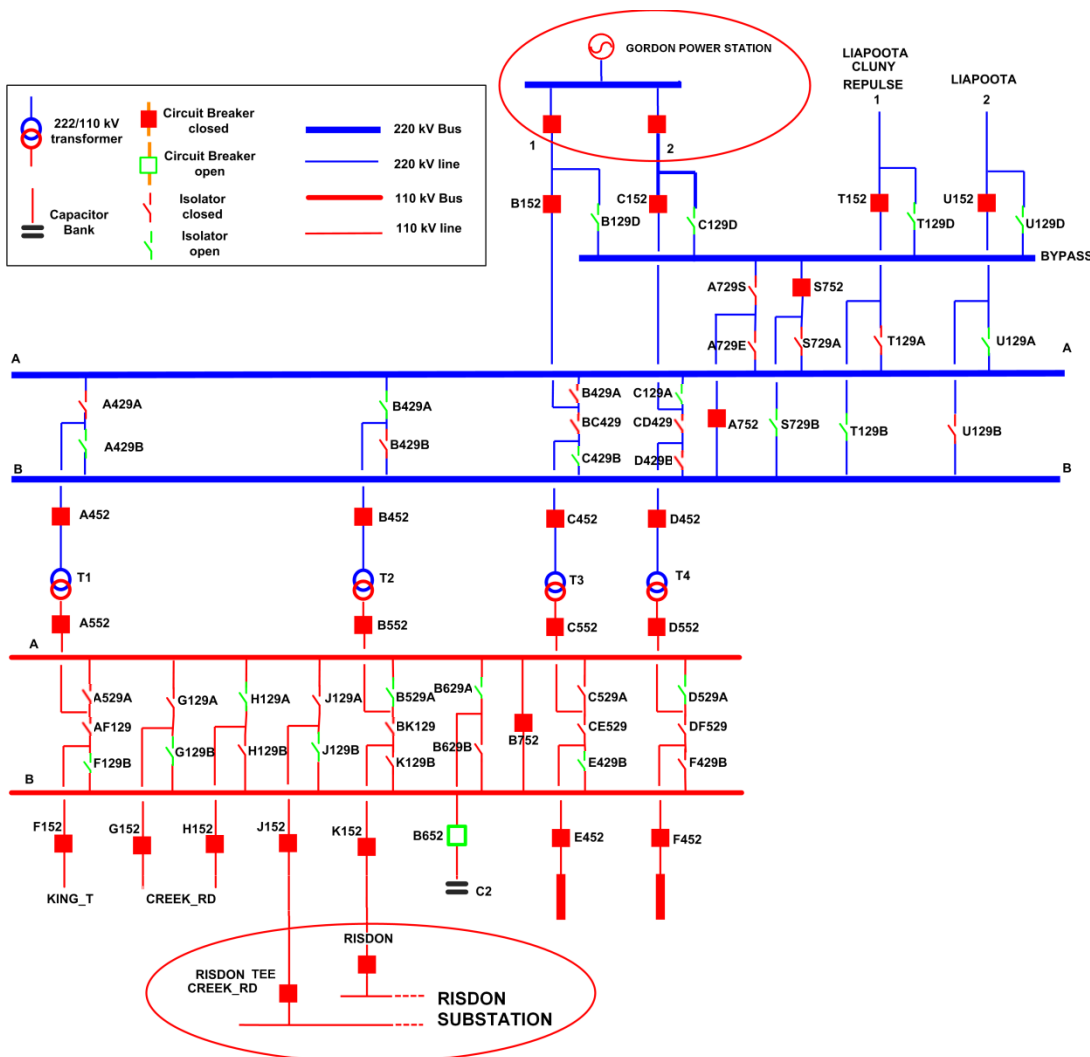
This report has been prepared under clause 4.8.15 (c) of the National Electricity Rules (NER) to assess the adequacy of the provision and response of facilities and services and the appropriateness of actions taken to restore or maintain power system security.

This report is largely based upon information provided by Transend. Data from AEMO's Energy Management System and Electricity Market Management System 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

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

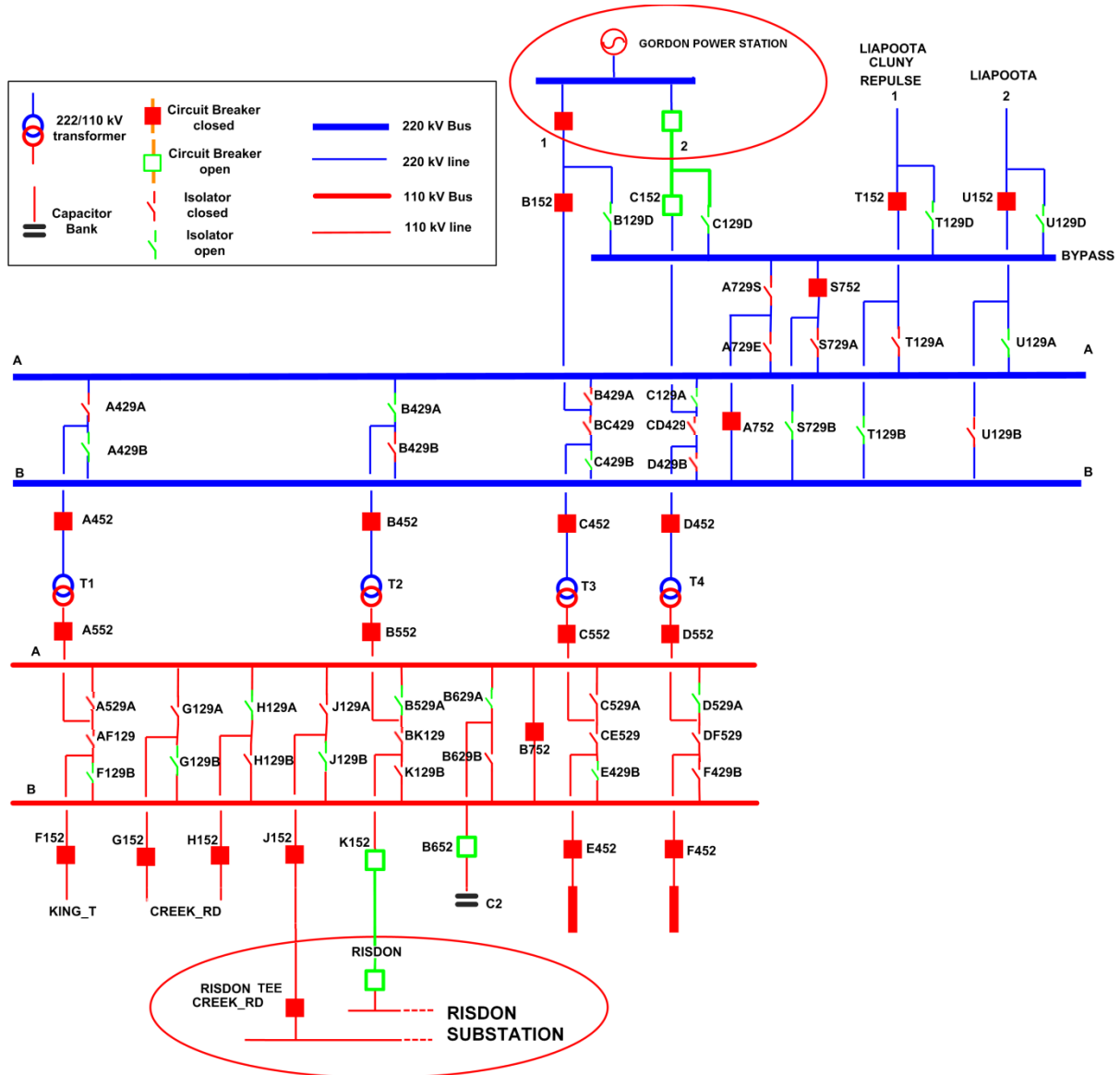
Figure 1 - Status of the Chapel Street substation prior to the incident



3 Summary of Events

At 0144 hrs on 13 May 2012, the No.2 Gordon - Chapel Street 220kV transmission line and the No.1 Chapel Street - Risdon 110kV transmission line simultaneously tripped. The status of the power system immediately after the incident is shown in Figure 2.

Figure 2 - Status of the Chapel Street substation immediately after the incident



4 Immediate Actions Taken

At 0152 hrs the No.2 Gordon - Chapel Street line was returned to service. At 0153 hrs the No.1 Chapel Street - Risdon line was returned to service.

At 0208 hrs AEMO issued the Electricity Market Notice No.38838 advising the occurrence of this non-credible contingency event. AEMO applied its operating procedure SO_OP 3715 Power System Security Guidelines¹ in determining that the simultaneous trip of the No.2 Chapel Street - Gordon and No.1 Chapel Street - Risdon lines as a credible contingency. In accordance with NER clause 4.2.3B, AEMO reclassified the simultaneous trip of these two lines as a credible contingency event from 0153 hrs until further notice.

5 Follow-up Actions

Transend investigations revealed that the fault on No.2 Gordon – Chapel Street line was caused by the conductor clash following ice build-up on the line. Transend records indicated that the fault was cleared in 40ms.

Transend also investigated the trip of No.1 Chapel Street - Risdon line. Transend conducted numerous tests and noted some issues with the communication systems at Chapel Street that had contributed to the line trip. Following its investigation Transend replaced relevant components of the communication system to avoid similar occurrences in 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.

There was no loss of load or generation resulting from the incident.

7 Conclusions

At 0144 hrs on 13 May 2012, the No.2 Chapel Street - Gordon 220kV transmission line tripped due to a fault caused by conductor clash following ice build-up on the line. The protection systems cleared the fault within the requirements of the NER.

The trip of the No. 1 Chapel Street-Risdon 110kV transmission line was attributed to issues with communication systems. Transend has since replaced the relevant components of the communication system.

AEMO correctly applied the criteria published in section 12 of its Power System Security Guidelines in assessing that the circumstances of this incident in reclassifying similar incidents as a credible contingency event.

8 Recommendations

Transend will review its procedures for managing power system security at times of ice build up on the transmission lines. Transend will complete this recommendation by the end of November 2012.

¹ 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_OP3715 Power System Security Guidelines, which is available at:

<http://www.aemo.com.au/electricityops/3715.html>