POWER SYSTEM OPERATING INCIDENT REPORT – TRIP OF 275 KV WEST BUSBAR AT TORRENS ISLAND B POWER STATION ON 23 MAY 2012

PREPARED BY: Systems Capability

DATE: 14 September 2012

FINAL

Disclaimer

Purpose

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Abbreviations and Symbols

Abbreviation	Term
CB	Circuit Breaker
EMMS	Electricity Market Management System
EMS	Energy Management System
kV	Kilovolt
NER	National Electricity Rules
TIPS	Torrens Island Power Station

1 Introduction

At 1059 hrs on 23 May 2012 the 275kV West busbar at Torrens Island B power station (TIPS B) in South Australia tripped. The busbar was returned to service at 1632 hrs. There was no loss of generation or customer load as a result of this incident. There was no high voltage fault present on the network at the time of the incident.

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 AGL and ElectraNet. 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 Summary of Events

At 1059 hrs on 23 May 2012, the 275kV West busbar at TIPS B tripped. Staff were working at the site as part of the TIPS B protection upgrade project.

Figure 1 - Status of Torrens B 275 kV power station immediately prior to the incident

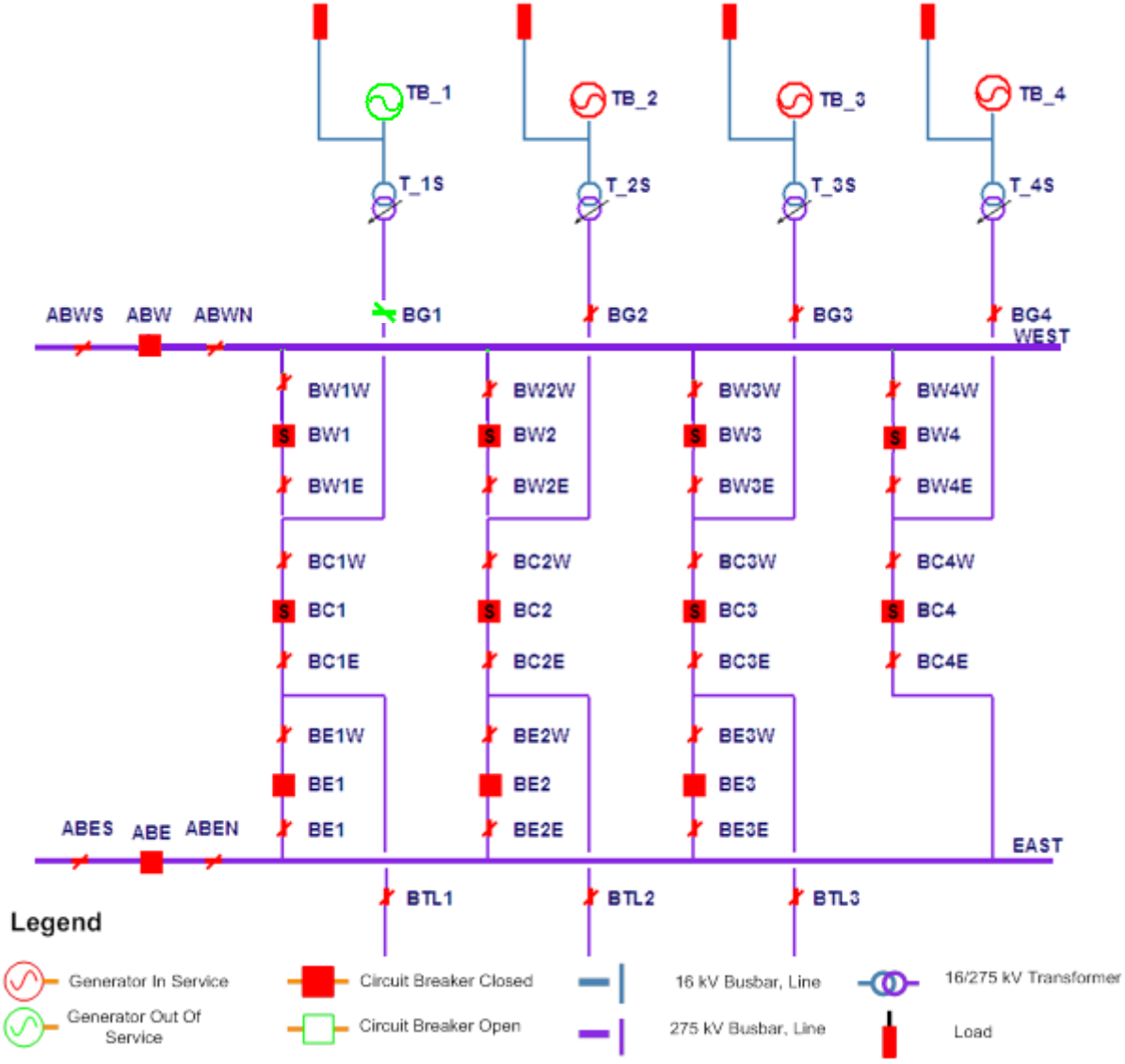
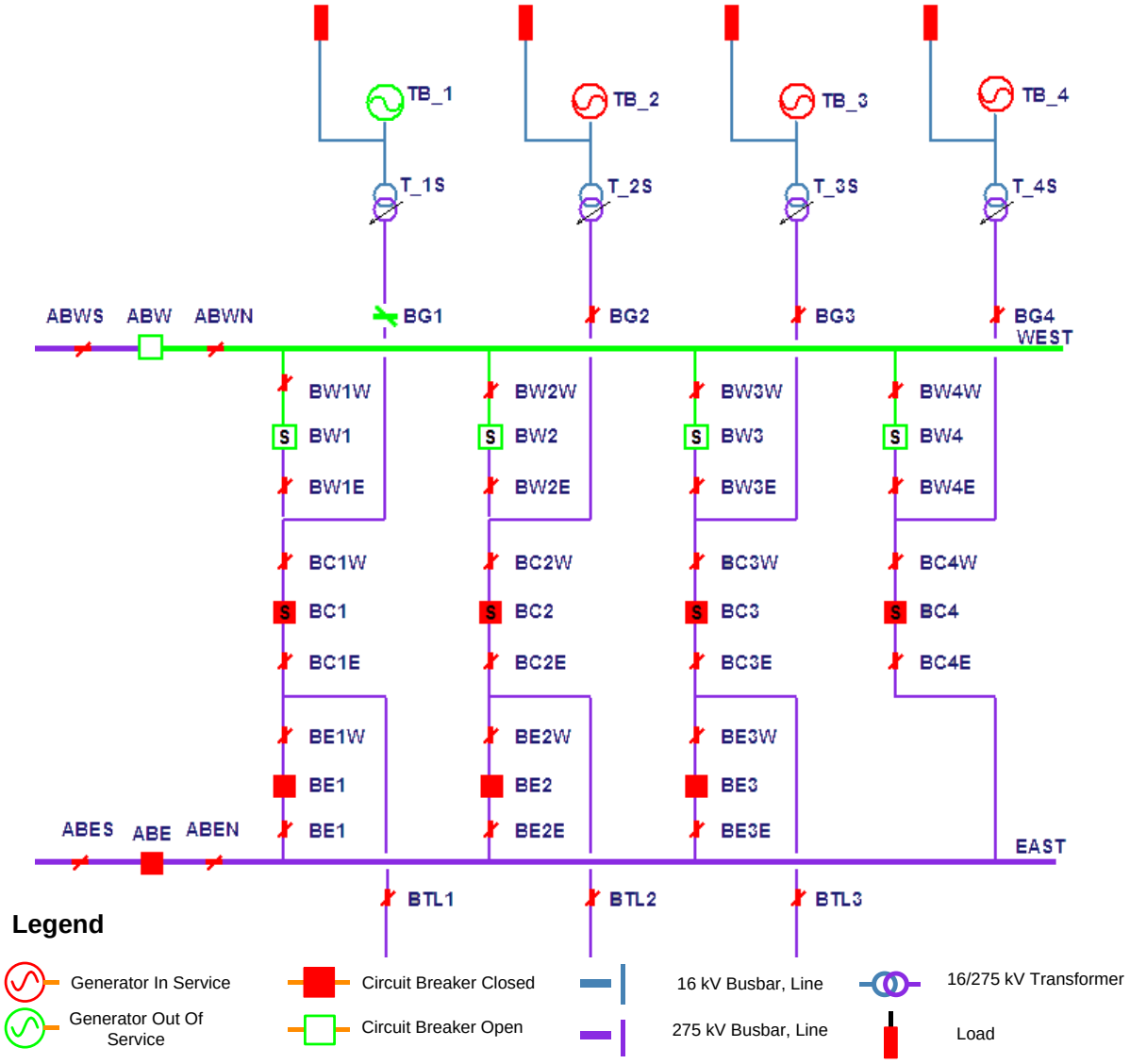


Figure 2 - Status of Torrens B 275 kV power station immediately after the incident



3 Immediate Actions Taken

Following the incident, AEMO determined that the power system remained in a secure operating state and hence did not invoke any network constraint sets during the busbar outage.

At 1439 hrs, AEMO issued Electricity Market Notice No. 38889 advising the occurrence of the busbar trip as a non-credible contingency event.

At 1620 hrs ElectraNet obtained permission to proceed to restore the busbar, which was returned to service at 1632 hrs.

At 1658 hrs AEMO issued Electricity Market Notice No. 38892 advising the busbar was returned to service. AEMO did not reclassify this event as a credible contingency event because the likelihood of re-occurrence was considered to be relatively low.

4 Follow-up Actions

ElectraNet advised that the busbar trip occurred on operation of the busbar protection multi-trip relay, but found no evidence of a high voltage busbar fault.

ElectraNet suspected that the inadvertent busbar trip could have occurred due to a short circuit of the busbar protection multi-trip relay wiring during nearby cabling work (the wiring was old and only single layer insulation). However, ElectraNet's investigation of the auxiliary relays and secondary wiring insulation did not identify any faults, and there were no visible signs of damage to cables.

ElectraNet performed corrective actions to prevent the recurrence of the problem by installing temporary, armoured wiring to replace the old wiring. Permanent wiring was installed on 30 June 2012.

The protection circuits on the East Bus will also be replaced. ElectraNet will install temporary, armoured cables again until the permanent cables have been installed. All of these replacements were part of the ongoing protection replacement work at the site.

5 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.

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 a credible contingency event.

6 Conclusions

At 1029 hrs on 23 May 2012 the 275kV West busbar at TIPS B tripped. The exact reasons for the busbar trip could not be found. Poor insulation of the old wiring on the protection multi-trip relays, possibly disturbed by workmen pulling new cables at the time, is the most likely cause of the incident. The old wiring has since been replaced.

AEMO is satisfied that ElectraNet 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.