

POWER SYSTEM OPERATING INCIDENT REPORT - TORRENS ISLAND B POWER STATION ON 12 DECEMBER 2012

PREPARED BY: System Performance & Commercial

DATE: 14 February 2013

FINAL

Disclaimer

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Abbreviations and Symbols

| Abbreviation | Term |
|--------------|--------------------------------------|
| CB | Circuit Breaker |
| EMMS | Electricity Market Management System |
| EMS | Energy Management System |
| MW | Megawatt |
| NER | National Electricity Rules |

Contents

| | |
|--|---|
| Disclaimer | 2 |
| Abbreviations and Symbols | 3 |
| Incident summary | 5 |
| 1 Introduction | 6 |
| 2 Pre-Contingent System Conditions | 6 |
| 3 Summary of Events..... | 7 |
| 4 Immediate Actions Taken..... | 7 |
| 5 Follow-up Actions..... | 8 |
| 6 Power System Security Assessment..... | 8 |
| 7 Conclusions..... | 8 |
| 8 Recommendations | 8 |

Incident summary

| | |
|----------------------------------|---|
| Date and time of incident | 12 December 2012 at 06:27 hrs |
| Region of incident | South Australia |
| Affected regions | South Australia |
| Event type | TG – Loss of transmission element (s) and generating units |
| Primary cause | TE – Transmission equipment failure |
| Impact | Significant – Loss of load or generation exceeding 50 MW but less than 250 MW |
| Associated reports | Nil |

1 Introduction

At 06:27 hours on 12 December 2012, Torrens Island unit B3 and West 275 kV busbar at Torrens Island B Power Station tripped out of service.

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 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 Pre-Contingent System Conditions

The status of the power system prior to the incident is shown in Figure 1. The West 275 kV busbar at Torrens Island A Power Station was out of service for planned work. For clarity only equipment relevant to this incident has been included in the diagram.

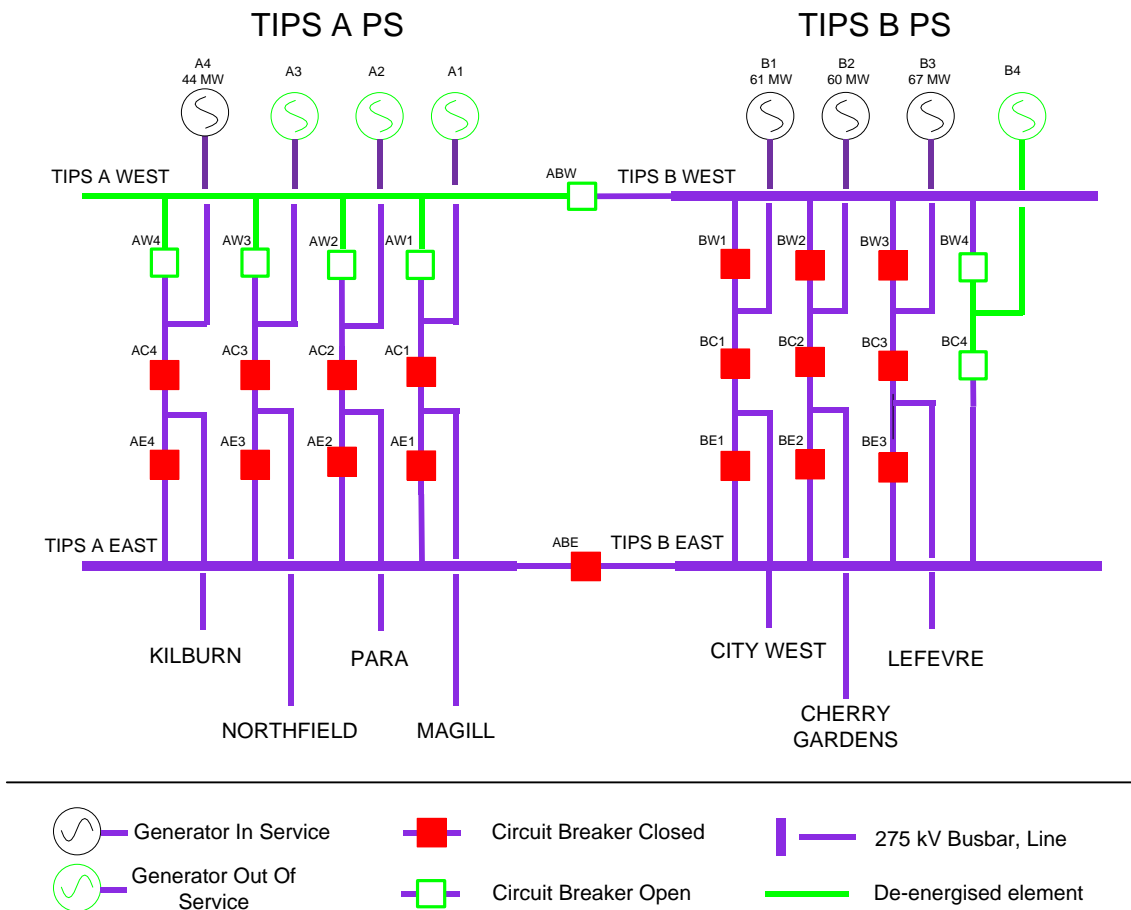


Figure 1 - Status of the power system prior to the incident, 06:25 hrs 12 December 2012.

3 Summary of Events

At 06:27 hrs 12 December 2012, Torrens Island unit B3 and West 275 kV busbar at Torrens Island B Power Station tripped out of service, on the operation of open pole flashover protection for 275 kV CB BW3 at Torrens Island B Power Station. A generation reduction of 67 MW occurred on the trip of Torrens Island unit B3.

Table 1: Summary of events: incident at Torrens Island B Power Station 12 December 2012.

| Time | Event/Comments |
|-----------|--|
| 06:27 hrs | 275 kV CBs BC3, BW1, BW2, BW3 at Torrens Island B Power Station tripped. Torrens Island unit B3 and West 275 kV Busbar at Torrens Island B Power Station disconnected from the power system. |

The status of the power system immediately after the incident is shown in Figure 2.

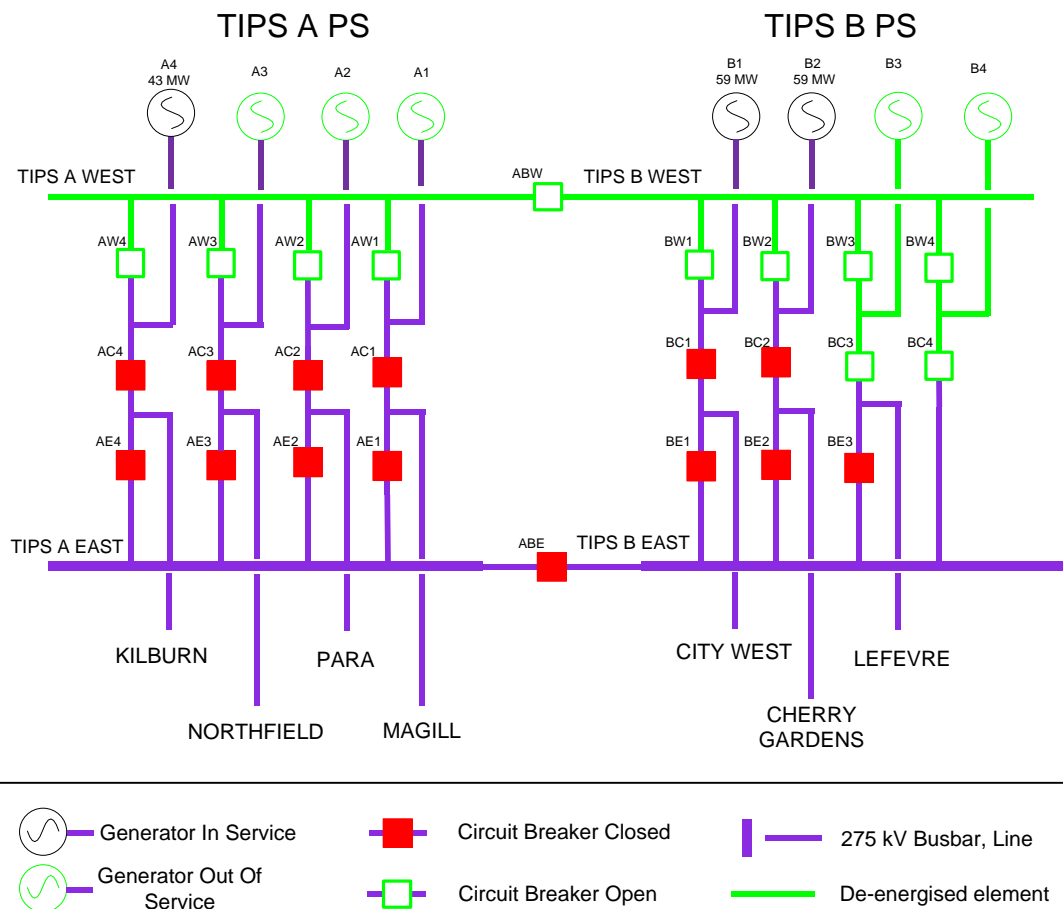


Figure 2 - Status of the power system immediately after the incident – at 06:35 hrs 12 December 2012.

4 Immediate Actions Taken

At 06:50 hrs AEMO issued Market Notice 40646, advising the market that a non-credible contingency event had occurred. At 07:18 hrs, 275 kV CB BW3 at Torrens Island B Power Station was isolated for investigation. The investigation determined that an auxiliary switch contact was incorrectly indicating an open circuit on the white phase with the circuit breaker in the closed position. Torrens Island unit B3 had been ramping from 0 MW to 67 MW since 05:04 hrs; at 06:27 hrs there was sufficient current for the open pole flashover protection to identify a spurious fault condition and operate.

The West 275 kV busbar at Torrens Island B Power Station was returned to service at 07:39 hrs via CB BW1 and CB BW2. At 08:29 hrs, AEMO issued Market Notice 40649, advising the market

that the cause of the incident had been identified, and that a trip of the West 275 kV busbar at Torrens Island B Power Station would not be re-classified as a credible contingency event. Torrens Island unit B3 returned to service at 11:52 hrs via 275 kV CB BC3 at Torrens Island B Power Station.

Table 2: Immediate events following incident at Torrens Island B Power Station on 12 December 2012.

| Time | Event/Comments |
|-----------|--|
| 06:50 hrs | Market Notice 40646 issued. |
| 07:18 hrs | 275 kV CB BW3 at Torrens Island B Power Station isolated for investigation. |
| 07:39 hrs | 275 kV CB BW1 and CB BW2 at Torrens Island B Power Station closed. West 275 kV busbar at Torrens Island B Power Station returned to service. |
| 08:29 hrs | Market Notice 40649 issued. |
| 11:52 hrs | 275 kV CB BC3 closed. Torrens Island unit B3 returned to service. |

5 Follow-up Actions

Subsequently on 12 December 2012, the faulty auxiliary switch on 275 kV CB BW3 at Torrens Island B Power Station was replaced. The 275 kV CB BW3 at Torrens Island B Power Station returned to service 13 December 2012.

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. The provision and response of facilities and services were adequate to maintain power system security.

7 Conclusions

The incident at 06:27 hrs 12 December 2012 was due to an incorrect indication from an auxiliary switch on 275 kV CB BW3 at Torrens Island B Power Station, which caused operation of open pole flashover protection.

AEMO is satisfied that ElectraNet 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 a credible contingency event.

8 Recommendations

There are no recommendations arising from this incident.