



Report by the Tasmanian Economic Regulator

Risdon Substation

4 December 2013

Introduction

On 4 December 2013 a fault occurred in Nyrstar's 11 kV electrical system resulting in the loss of load. The incorrect operation of one of Transend's protection systems contributed to the duration and severity of the load loss.

Description of the Incident

On 4 December 2013 at 10:31 hrs (AEDT) a fault occurred in Nyrstar's 11 kV electrical system connected to the Risdon substation FZ3 feeder which is supplied by circuit breaker E352A. The fault initiated the protection system on plant supplying Nyrstar's 11 kV busbar resulting in a voltage decrease and consequently tripping Nyrstar's voltage sensitive load resulting in the loss of 70 MW for a period of 90 minutes (3.36 system minutes).

Following the initial fault at Nyrstar, the protection system connected to transformer T1 (T1) at the Risdon substation operated incorrectly triggering circuit breakers G752 and H572 to open effectively removing T1 from service. The loss of T1 exacerbated the voltage decrease at Nyrstar's 11 kV busbar. However Transend has not confirmed how much of the load lost can be attributed to T1 disconnecting. Nyrstar is supplied electricity via three transformers ensuring continuity of supply during the loss of any one transformer.

A second protection system also operated incorrectly. The protection relay for the E352A circuit breaker responded incorrectly to a blocking signal sent from Nyrstar's protection system, resulting in the circuit breaker opening incorrectly. This event had no effect on the loss of load as electricity previously supplied via the E352A circuit breaker was now supplied by the D352A/B circuit breakers and feeder cable FZ2.

The errors in the protection system that resulted in G752 and H752 opening and therefore disconnecting T1 have been rectified whilst the underlying procedures and processes that led to errors occurring in the protection system are still under investigation. Transend has also contacted the relay manufacturer regarding the protection blocking signal issue and the operation of E352A. The Regulator understands that the manufacturer has provided a solution to prevent a re-occurrence of this fault which Transend and Nyrstar will shortly implement.