

Investigation of alleged breaches of the Electricity Industry Participation Code 2010 by Transpower New Zealand Limited as the grid owner

On 21 May 2018, the Authority alleged that Transpower New Zealand Limited as the grid owner breached clause 4(5)(b) of Technical Code A of Schedule 8.3 and clause 12.113 of the Electricity Industry Participation Code 2010 (Code) on 2 March 2017.

Under regulation 12 of the Electricity Industry (Enforcement) Regulations 2010, on 28 June 2018, the Authority appointed Alex Ehlert as investigator to investigate the alleged breaches.

Under regulation 16, the investigator must promptly notify the industry participant alleged to have breached the Code, of the allegations that are being investigated. On 29 June 2018, the investigator gave the grid owner such notice.

Under regulation 17, at the same time as the investigator sends any notice under regulation 16, the investigator must publicise the matter under investigation, including the content of the notice given under that regulation. The investigator is hereby publicising the matter under investigation, and a copy of the notice given under regulation 16 is attached.

Any participant who considers that it is affected by the matter being investigated, and who wishes to become a party to this investigation, should notify the investigator within 10 working days after publication of this notice.

The investigator's contact details are:

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NOTICE UNDER REGULATION 16 OF THE ELECTRICITY INDUSTRY (ENFORCEMENT) REGULATIONS 2010

Date:	29 June 2018
Addressee:	Transpower New Zealand Limited as the grid owner
Subject:	The grid owner's actions when reconnecting two un-synchronised grid islands on 2 March 2017
Investigator:	Alex Ehlert, Senior Investigator, alex.ehlert@ea.govt.nz (appointed investigator under regulation 12 of the Electricity Industry (Enforcement) Regulations 2010 (Regulations)).
Clauses allegedly breached:	<p>Clause 4(5)(b) of Technical Code A of Schedule 8.3 requires a grid owner to provide a means of checking synchronisation before switching assets in locations, that it has agreed with the system operator, so that it is not possible for the switching to result in electrically connecting parts of the New Zealand electricity system that are not synchronised.</p> <p>Clause 12.113 requires Transpower to design, construct, maintain, and operate all interconnection assets in accordance with good electricity industry practice.</p>
Circumstances of alleged breaches:	<p>On 2 March 2017, the grid owner removed the Livingstone–Naseby circuit from service for planned maintenance, leaving the Clyde–Cromwell–Twizel circuits 1 and 2 as the only connections in this part of the grid.</p> <p>On the same morning, the grid owner was carrying out routine testing of 220 kV bus protection systems at the Clyde substation. The protection work required the 220 kV bus zone and circuit breaker fail protection systems at Clyde to be removed from service.</p> <p>At 11:20, the testing tripped the line circuit breakers at the Twizel substation on the two Clyde circuits, electrically islanding the lower part of the South Island.</p> <p>The system operator declared a grid emergency to the grid owner. This allowed the grid owner to undertake the necessary switching operations to prepare for the reconnection using the auto-synchronising (auto-sync) scheme as a step to join the two electrical islands.</p> <p>However, the grid asset controller did not enable the auto-sync function but instead initiated a circuit breaker 'close immediate' command to the circuit breaker at Clyde.</p>

This reconnection attempt failed, because the grid frequency in the electrical island south of the split was 0.6 Hz higher than the grid frequency of the electrical system north of the split, with a phase angle difference of 120 degrees.

A minute later, the grid asset controller initiated a second re-connection attempt without using the auto-sync tool as a check facility. This resulted in reconnection despite a frequency mismatch of 0.6 Hz and a phase angle difference of 60 degrees. This created a risk of asset damage to connected assets in the South Island.

The grid owner is alleged to have breached clause 4(5)(b) of Technical Code A of Schedule 8.3 and clause 12.113 when it reconnected two unsynchronised grid islands.

Date and time of alleged breaches:

- Approximately between 11:33am and 11:45am on 2 March 2017

Please note, under regulation 16 of the Regulations, you must respond to this allegation, in writing, to the investigator within 10 working days of receipt of this notice (unless the investigator allows, in writing, a longer period).

Please provide your response by return e-mail to the Investigator.

Your response should include:

Whether you believe you have breached the Code;

Whether there is another provision you consider more accurately describes the nature of the event;

A full explanation of the circumstances surrounding the alleged breaches;

Identification of any information provided in your response that you consider confidential and should not be included in the investigator's report under regulation 19 (regulation 15(2)).