

The Authority's draft determination of causer

Draft determination of the causer of the 8
September 2016 under-frequency event
Consultation paper

Submissions close: 5pm 14 March 2017

14 February 2017



Executive summary

An under-frequency event occurred on 8 September 2016

The Electricity Industry Participation Code 2010 (Code) requires the Electricity Authority (Authority) to determine the causer of an under-frequency event, and prescribes the process for making its determination (clause 8.61).

The purpose of this paper is to:

- (a) set out the Authority's draft determination of the causer of the 8 September 2016 under-frequency event
- (b) consult with interested parties on the Authority's draft determination.

The Authority's draft determination

The Authority's draft determination under clause 8.61 of the Code is that Transpower New Zealand Limited (Transpower), as grid owner, is the causer of the under-frequency event on 8 September 2016.

The Authority's reasons for this draft determination are:

- (a) The system operator has investigated this under-frequency event (in accordance with clause 8.60 of the Code), and has reported to the Authority that:
 - (i) The interruption/reduction of energy on 8 September 2016 occurred at the Maraetai bus, which is a set of assets belonging to Transpower as the grid owner.
 - (ii) No other asset was identified as having caused or potentially caused this under-frequency event.
 - (iii) In the system operator's view, Transpower, as grid owner, is the causer of this under-frequency event.
- (b) In a reply to a system operator letter, Transpower has accepted that, as grid owner, it is the causer of this event.
- (c) Having considered the system operator's report and the relevant elements of the Code, the Authority (based on the information available to it at this time) concurs with the system operator's findings.

Submissions are invited from interested parties

The Authority must consult with interested parties before making its final determination. Interested parties are invited to make a submission on the Authority's draft determination by 5pm on 14 March 2017.

The Authority will consider submissions received and make a final determination.

The Authority also invites comment on the system operator's calculation of the MW lost during the event, which is used for the purposes of calculating the under-frequency event charge. The system operator has applied its published methodology and determined that the loss of injection into the grid as a result of the event was 250.7 MW at the Maraetai grid injection point.

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1 What you need to know to make a submission

What this consultation paper is about

- 1.1 The purpose of this paper is to consult with interested parties on the Authority's draft determination that Transpower, as grid owner, is the causer of the 8 September 2016 under-frequency event when North Island frequency dropped below 49.25 Hz.

How to make a submission

- 1.2 Your submission is likely to be made available to the general public on the Authority's website. If necessary, please indicate any documents attached in support of your submission and any information that is provided to the Authority on a confidential basis. However, you should be aware that all information provided to the Authority is subject to the Official Information Act 1982.
- 1.3 The Authority's preference is to receive submissions in electronic format (Microsoft Word) in the format shown in Appendix A. Submissions in electronic form should be emailed to submissions@ea.govt.nz with "Consultation Paper—Draft determination of the causer of the 8 September 2016 under-frequency event" in the subject line.
- 1.4 If you cannot send your submission electronically, post one hard copy to either of the addresses below, or fax it to 04 460 8879.

Postal address

Submissions
Electricity Authority
PO Box 10041
Wellington 6143

Physical address

Submissions
Electricity Authority
Level 7, ASB Bank Tower
2 Hunter Street
Wellington

- 1.5 Please note the Authority wants to publish all submissions it receives. If you consider that we should not publish any part of your submission, please
- Indicate which part should not be published
 - Explain why you consider we should not publish that part
 - Provide a version of your submission that we can publish (if we agree not to publish your full submission).
- 1.6 If you indicate there is part of your submission that should not be published, we will discuss with you before deciding whether to not publish that part of your submission.
- 1.7 However, please note that all submissions we receive, including any parts that we do not publish, can be requested under the Official Information Act 1982. This means we would be required to release material that we did not publish unless good reason existed under the Official Information Act to withhold it. We would normally consult with you before releasing any material that you said should not be published.

When to make a submission

- 1.8 Please deliver your submissions by **5pm** on 14 March 2017.
- 1.9 The Authority will acknowledge receipt of all submissions electronically. Please contact the Submissions' Administrator if you do not receive electronic acknowledgement of your submission within two business days.

2 The Authority's draft determination

- 2.1 The Authority's draft determination under clause 8.61 of the Code is that Transpower, as grid owner, is the causer of the under-frequency event on 8 September 2016.
- 2.2 The Authority's reasons for this draft determination are:
- (a) The system operator has investigated this under-frequency event (in accordance with clause 8.60 of the Code), and has reported to the Authority that:
 - (i) The interruption/reduction of energy on 8 September 2016 occurred at the Maraetai bus, which is a set of assets belonging to Transpower as the grid owner.
 - (ii) No other asset was identified as having caused or potentially caused this under-frequency event.
 - (iii) In the system operator's view, Transpower, as grid owner, is the causer of this under-frequency event.
 - (b) The system operator wrote to Transpower (on 15 September 2016) setting out its view that the event was initiated at the Maraetai bus resulting in a loss of injection from Maraetai and Waipapa power stations, and seeking any information Transpower could provide.
 - (c) In a reply to the system operator (dated 22 September 2016), Transpower has accepted that, as grid owner, it is the causer of this event.
 - (d) Having considered the system operator's report and the relevant elements of the Code, the Authority (based on the information available to it at this time) concurs with the system operator's findings.

3 How the Authority reached this draft determination

The system operator investigated the causer

- 3.1 The system operator is required by clause 8.60 of the Code to investigate the causer of an under-frequency event and provide a report to the Authority.
- 3.2 The system operator has fulfilled its obligations under clause 8.60. The system operator's report to the Authority (dated October 2016) is attached as Appendix B of this draft determination. The report describes the circumstances of the event, which can be summarised as follows:
- (a) On 8 September 2016 at 22:23 hours there was an interruption of energy into the grid.
 - (b) The HVDC and instantaneous reserves operated in response, and the frequency was arrested at 49.24 Hz in the North Island and 49.34 Hz in the South Island.
 - (c) The frequency fall (below 49.25 Hz in the North Island) and the quantum of MW lost (greater than the 60 MW de minimis) meant that an under-frequency event, as defined in Part 1 of the Code, had occurred in the North Island.
 - (d) The frequency was restored to the normal band quickly and with no significant frequency overshoot.
 - (e) Analysis identified that the interruption occurred at Transpower's Maraetai substation.

- (f) No other event was identified as contributing to or causing the event.
 - (g) Context provided by Transpower, as grid owner, indicated that a bird strike and subsequent protection activation had tripped and disconnected the Maraetai bus.
- 3.3 The system operator report includes copies of the following correspondence with Transpower, as grid owner:
- (a) The system operator wrote to Transpower (15 September 2016) setting this out its view that the event was initiated at the Maraetai bus resulting in a loss of injection from Maraetai and Waipapa power stations, and seeking any information Transpower could provide.
 - (b) In a reply to the system operator (22 September 2016), Transpower accepted that, as grid owner, it was the causer of this event.

The Authority has considered the system operator’s report

- 3.4 Clause 8.61(2) requires the Authority to publish a draft determination that states whether the under-frequency event was caused by a generator or grid owner, and, if so, the identity of the causer. Clause 8.61(3) requires the Authority to give reasons for its findings in the draft determination.
- 3.5 The Authority has considered the system operator’s report and liaised directly with system operator staff in relation to the investigation and the report.
- 3.6 Based on the information available to it, the Authority concurs with the system operator’s findings that Transpower, as grid owner, is the causer of the under-frequency event of 8 September 2016. The Authority’s draft determination and reasons are set out above.

Q1. Do you agree with the Authority’s draft determination that Transpower as grid owner is the causer of the 8 September 2016 under-frequency event? If not, please state your alternative view on the causer and give your reasons.

4 The Authority will consider submissions and make a final determination

- 4.1 Clause 8.61(4) requires the Authority to consult every generator, grid owner and other participant substantially affected by an under-frequency event in relation to the draft determination.
- 4.2 The Authority intends to ordinarily allow a period of four weeks for parties to make submissions on a draft determination. The Authority will never allow a consultation period of less than the minimum of 10 business days specified by clause 8.61. The Authority may allow for periods of longer than four weeks where it:
- (a) considers an under-frequency event is complex and/or contentious in nature
 - (b) is consulting on a number of other matters simultaneously
 - (c) is consulting during a period that spans public holidays.
- 4.3 The Authority has allowed a consultation period of four weeks for this particular draft determination. Accordingly, the deadline for submissions is 5pm on 14 March 2017.

- 4.4 The Authority will consider submissions received, and publish its final determination.
- 4.5 Clauses 8.62 and 8.63 of the Code set out provisions relating to any disputes regarding Authority determinations.

5 The system operator has calculated the MW lost during the event based on its investigations

- 5.1 Clause 8.64 of the Code prescribes how the event charge payable by the causer of an under-frequency event must be calculated. This in turn enables calculation of the rebates paid for under-frequency events (clause 8.65).
- 5.2 Central to the event charge calculation is determining the MW of injection lost at one or more grid injection points as a result of the event.
- 5.3 The system operator determines the MW lost as part of its investigations into an under-frequency event.
- 5.4 The system operator has followed its published procedure “PR-RR-017 “Calculating the Amount of MW lost” to determine the MW value provided to the clearing manager for the purposes of calculating the under-frequency event charge.
- 5.5 Based on its investigations and application of its procedure, the system operator has determined that the loss of injection into the grid as a result of the event was 250.7 MW at the Maraetai grid injection point. This calculation is set out in the system operator’s report to the Authority (Appendix B) and referenced in correspondence attached to that report:
- (a) In its correspondence with Transpower, as grid owner, regarding the cause of this under-frequency event (15 September 2016), the system operator advised Transpower of its calculation that the MW lost due to the event was 250.7 MW.
 - (b) In its reply to the system operator (22 September 2016), Transpower, as grid owner, agreed with the system operator’s calculation and accepted that the MW lost was 250.7 MW.
- 5.6 Although included in its report to the Authority, the system operator’s calculation of the MW lost during the event for the purposes of calculating the under-frequency event charge does not form part of the Authority’s draft determination (refer clause 8.61 of the Code). However, the Authority acknowledges that the calculation is central to determining the event charge payable by the causer, and therefore also to the rebates paid for under-frequency events.
- 5.7 Accordingly, the Authority invites comment on the system operator’s calculation of the MW lost, as set out in the system operator’s report to the Authority.

Q2. Do you agree with the system operator’s calculation that, for the purposes of calculating the under-frequency event charge, 250.7 MW was lost at the Maraetai grid injection point as a result of the 8 September 2016 under-frequency event? If not, please state your alternative view on the MW lost and give your reasons.

Appendix A Format for submissions

Submitter	
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Question	Comment
<p>Q1. Do you agree with the Authority’s draft determination that Transpower as grid owner is the causer of the 8 September 2016 under-frequency event? If not, please state your alternative view on the causer and give your reasons.</p> <p>Q2. Do you agree with the system operator’s calculation that, for the purposes of calculating the under-frequency event charge, 250.7 MW was lost at the Maraetai grid injection point as a result of the 8 September 2016 under-frequency event? If not, please state your alternative view on the MW lost and give your reasons.</p>	
<p>Q2. Do you agree with the system operator’s calculation that, for the purposes of calculating the under-frequency event charge, 250.7 MW was lost at the Maraetai grid injection point as a result of the 8 September 2016 under-frequency event? If not, please state your alternative view on the MW lost and give your reasons.</p>	

Appendix B System operator report to the Authority
'Under Frequency Event Causation Report –
08 September 2016'