

SETTLEMENT AGREEMENT

(Regulation 83(1) Electricity Governance Regulations 2003)

DATED:

BETWEEN:

- (1) Contact Energy of 29 Brandon Street, Wellington (Contact);
 - (2) Transpower New Zealand Limited as System Operator of 96 The Terrace, Wellington (System Operator);
 - (3) Mighty River Power Limited of Level 14, ANZ Centre, 23-29 Albert Street, Auckland (Mighty River Power); and
 - (4) Meridian Energy Limited of 33 Customhouse Quay, Wellington (Meridian);
- (Collectively the **parties**).

BACKGROUND:

- (A) On 2 April 2009, Contact reported that it failed to have the correct protection settings in place at Otahuhu power station (OTB), which are required to support the System Operator in achieving its Principal Performance Obligations (PPO). The System Operator alleged the same breach on 8 April 2009.
- (B) In accordance with regulation 69 of the Regulations, on 16 June 2009 the Board appointed an investigator to investigate the Alleged Breaches.
- (C) The System Operator, Mighty River Power and Meridian joined the investigation as interested participants.
- (D) The parties have agreed to settle the Alleged Breaches on the terms contained in this Agreement.

IT IS AGREED:

1. Interpretation

1.1 In this Agreement, unless the context requires otherwise:

- (a) **Agreement** means this Settlement Agreement;
- (b) **Alleged Breaches** means the alleged breaches of the Rules arising from the Circumstances and described in clause 2;

- (c) **Approval Date** means the date the parties to this Agreement are notified that the Electricity Commission Board has approved this Agreement under regulation 84(2)(a) of the Regulations;
- (d) **Board** means the Board of the Electricity Commission;
- (e) **Circumstances** means the circumstances set out in clause 3;
- (f) **Regulations** means the Electricity Governance Regulations 2003;
- (g) **Rules** means the Electricity Governance Rules 2003;
- (h) all capitalised terms not defined in this Agreement have the same meanings as in the Regulations or Rules, as the case may be; and
- (i) all references to clauses are to clauses of this Agreement.

2. **Alleged Breaches**

2.1 The alleged Rule 4.4.1 of technical code A of schedule C3 of part C provides:

4.4 **Protection of assets and the grid**

Each **asset owner** must ensure that it provides protection systems for its **assets** that are connected to, or form part of, the **grid**. Each **asset owner** must also ensure that as a minimum requirement:

4.4.1 **Achieve the PPOs**

Such protection systems will support the **system operator** in planning to comply, and complying, with the **principal performance obligations** and must be designed, commissioned and maintained, and settings must be applied, to achieve the following performance in a reliable manner:

4.4.1.1 **Disconnect any faulted asset**

Disconnect any faulted **asset** in minimum practical time (taking into account selectivity margins and industry best design practice) and minimum disruption to the operation of the **grid** or other **assets**; and

4.4.1.2 **Be selective when operating**

Be selective when operating, so that the minimum amount of **assets** will be disconnected; and

4.4.1.3 **Preserve power system stability**

As far as reasonably practicable, preserve power system stability;

3. Circumstances of the Breaches

- 3.1 On Friday, 13 February 2009 at 10:40 a conductor of OTA-WKM circuit 1 failed and hit the ground in a populated area in South Auckland close to Otahuhu power station. The cause of the failure was a faulty compression joint on the line, as reported by the Grid Owner.
- 3.2 The phase to earth fault was sensed by OTB's protection system. OTB's generator differential protection subsequently tripped the unit causing the loss of 320 MW from the grid. OTB was not restarted following the fault. The System Operator reported an under-frequency event where the frequency dropped to 49.21 Hz and then bounced back to 50.38 Hz for the North Island; and to 49.46 Hz and then up to 50.43 Hz for the South Island.
- 3.3 The cause of the trip of OTB was investigated by Contact, and was traced to a generator differential protection relay being connected to the metering core of the current transformer (CT) instead of its required class protection core CT. The other phase and neutral connections to the generator differential protection relay CT inputs were found to be correctly connected to the correct protection core CT.
- 3.4 Contact advised that the records show that the metering CT core, that was connected to the CT input on the differential protection relay, partially saturated during the fault, whereas the other two phases and neutrals on the other two phases showed no saturation. As a result, the signal from the metering CT core that was connected to the differential protection relay, and that had different output characteristics (inadequate "knee point" voltage) caused OTB to trip unnecessarily.

4. Impact of the Breaches

- 4.1 The parties agreed that the market impact as assessed by the investigator should be recorded as significant. The market impact of this breach could not be mitigated as it relates to inputs in final prices that have been published already.

5. Steps taken to prevent recurrence

- 5.1 The incorrect connection was made during the major OTB outage, which took place from October 2008 to January 2009. The metering and protection assemblies were taken apart to remove the generator and had been re-assembled after the outage. OTB had only been back in service for a few weeks when the transmission line fault exposed the protection problem.

- 5.2 The problem was thoroughly investigated, identified, and corrected immediately. Full and thorough testing of the measuring devices and protection circuits was also undertaken. The tests confirmed the integrity of the equipment, further indicating the cause of the event being due to the incorrect connection.
- 5.3 Contact advised that this event was a genuine oversight by a contractor during a very complex strip down and re-assembly of most of the plant. Contact also advised that it has reviewed the quality systems and processes of the contractor whose oversight caused the event. The issue was specifically raised during the formal post outage review with the contractor. The contractor has been made aware of the consequences of the error and the implications it had on the wholesale market and system security.
- 5.4 Contact also advised that it had developed internal quality assurance processes to shadow those of the contractor. Those processes are to include specific hold points for critical activities. Contact is also due to renegotiate the OTB maintenance agreement with the contractor and has indicated that these more stringent quality assurance requirements will form a necessary part of any new agreement.

6. Settlement

- 6.1 The parties agrees to:
- (a) *Contact to confirm to the System Operator in writing that it has checked the protection relays on all other Contact generating units and that all such protection relays are using protection grade CTs and voltage transformers (VT).*
 - (b) *Contact will check the relays and CTs and VTs installations on all sites at the earliest opportunity which may include incorporating this work in the next planned outage for each station.*
 - (c) *Contact will provide the System Operator with advice (via an email to its Investigations Manager) on a station by station basis once the relevant checks have been done and then advise the System Operator once all stations have been checked.*

7. Confidentiality

- 7.1 If the Board decides under regulation 85(2) of the Regulations not to publicise any part of this Agreement, each party will treat that part of the Agreement as confidential information and will not disclose it other than:

- (a) to the party's employees or contractors who need to know the confidential information to implement or monitor the implementation of this Agreement;
- (b) to the party's professional advisers, auditors and bankers;
- (c) as required by law or for the purposes of judicial proceedings;
- (d) as required by any securities exchange or regulatory or governmental body to which the party is subject or submits; or
- (e) as authorised in writing by the other parties.

7.2 A party must not disclose confidential information under clause 7.1(a) or (b) unless the party obtains a confidentiality undertaking from the person to whom the confidential information is to be disclosed on terms no less onerous than those set out in this clause 7 before disclosing the confidential information. Any confidential information to be disclosed in the circumstances set out in clause 7.1(c) or (d) may only be disclosed after written notice to the other parties (unless the disclosing party is prevented from notifying the other parties by law).

8. Agreement Subject to Approval

8.1 Subject to clause 8.2, this Agreement will come into effect on the Approval Date.

8.2 Clause 7 is binding on the parties as from the date of this Agreement. Pending the Board's approval of this Agreement under regulation 84(2)(a) of the Regulations, clause 7 will apply as if the Board has decided under regulation 85(2) of the Regulations not to publicise any part of this Agreement or the existence of this Agreement.

9. Settled Breaches

9.1 This Agreement is in full and final settlement of all claims, actions and demands against any party (under the Regulations, the Rules or otherwise) in relation to:

- (a) the Alleged Breaches; and
- (b) any other breaches of the Regulations or Rules involved in or arising from the Circumstances that the claiming party ought reasonably to have known about at the date of this Agreement,

(the Alleged Breaches and such other breaches together the **Settled Breaches**).

9.2 Pursuant to regulation 84, but subject to regulation 87 of the Regulations, this Agreement is also binding on the Board and all Participants who are not a party to this Agreement to the effect that:

- (a) the Board may not on its own initiative instigate a further breach investigation, or take any enforcement action in respect of, the Settled Breaches; and
- (b) a Participant who is not a party to this Agreement may, subject to and in accordance with regulation 87 of the Regulations, make a further notification under regulation 62 or 63 of the Regulations in relation to a Settled Breach, and the Board may then take all or any of the steps provided for in Part 4 of the Regulations despite this Agreement.

10. General

10.1 Each party will execute all documents and do, or refrain from doing, all other reasonable things necessary or desirable to give full effect to the provisions of this Agreement, including to secure the Board’s approval of this Agreement under regulation 84(2)(a) of the Regulations.

10.2 This Agreement is the whole and only agreement between the parties relating to the settlement of claims, actions and demands arising from the Circumstances. Each party acknowledges that it has not been induced to enter into this Agreement by any representation made by or on behalf of the other party that is not repeated in this Agreement.

10.3 This Agreement may be signed in any number of counterparts.

SIGNED:

For Contact Energy Limited

Name:

Position:

SIGNED:

For Transpower New Zealand Limited

Name:

Position:

SIGNED:

For Mighty River Power Limited

Name:

Position:

SIGNED:

For Meridian Energy Limited

Name:

Position: