



ROBINSON BOWMAKER PAUL



ELECTRICITY AUTHORITY

INDEPENDENT ASSURANCE REVIEW: 2019 UNDESIRABLE TRADING SITUATION CORRECTION IMPLEMENTATION

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1 BACKGROUND AND SCOPE

This independent assurance report sets out the results of the review by Robinson Bowmaker Paul (RBP) of the implementation of the Electricity Authority's directions to correct the Undesirable Trading Situation that occurred in December 2019.

1.1 BACKGROUND

In August 2021, the Electricity Authority (the Authority) completed its decision on actions to correct the Undesirable Trading Situation (UTS) relating to offer and spill behaviour of South Island hydro generators in late 2019. The Authority has determined that the UTS will be resolved by re-running the market with offers for nine generators capped at \$13.70 per MWh for the 25-day period between 3 and 27 December 2019.

The Authority's decision is set out in a decision paper¹ published on 17 August 2021. Chapter 4 of the decision paper sets out the actions to be taken to correct the UTS, including activity by several Market Operation Service Providers (MOSPs) (the Pricing Manager, the System Operator, the Clearing Manager, and the FTR Manager) as well as market participants and Transpower as the grid owner (the "UTS directions").

The Clearing Manager (NZX) will implement the Authority's direction as a special wash-up with invoices to be issued on November 24, 2021. The wash-up will result in a material wealth transfer between participants (estimated to be \$80M-\$100M by the Authority). As such, the Authority would like to give market participants assurance that the wash-up process is robust and has been carried out in a manner that ensures accurate settlement outcomes. The Authority has appointed RBP to conduct a review of MOSP implementation of the directions.

¹ <https://www.ea.govt.nz/assets/dms-assets/28/Final-Decision-Actions-to-Correct-2019-Undesirable-Trading-Situation.pdf>

1.2 REGULATORY CONTEXT

The Authority's powers in relation to Undesirable Trading Situations are set out in Part 5 of the Electricity Industry Participation Code (the Code). In particular, clause 5.2 sets out the Authority's power to direct actions to correct the situation, and the responsibilities of participants to carry out those directions.

5.2 Actions Authority may take to correct undesirable trading situation

- (1) If the **Authority** finds that an **undesirable trading situation** is developing or has developed, it may take any action that—
 - (a) the **Authority** considers is necessary to correct the **undesirable trading situation**; and
 - (b) relates to an aspect of the **electricity** industry that the **Authority** could regulate in this Code under section 32 of the **Act**.
- (2) The actions that the **Authority** may take under subclause (1) include any 1 or more of the following:
 - (a) directing that an activity be suspended, limited, or stopped, either generally or for a specified period;
 - (b) directing that completion of trades be deferred for a specified period;
 - (c) directing that any trades be closed out or settled at a specified price;
 - (d) directing a **participant** to take any actions that will, in the **Authority's** opinion, correct or assist in overcoming the **undesirable trading situation**.
- (2A) A direction given to a **participant** under subclause (2)(d)—
 - (a) may be inconsistent with this Code; but
 - (b) must not be inconsistent with the **Act**, or any other law.
- (3) The **participant** must comply promptly with a direction given to it in writing.
- (4) A **participant** is not liable to any other **participant** in relation to the taking of an action, or an omission, that is reasonably necessary for compliance with an **Authority** direction under this clause.
- (5) A **participant** does not breach this Code if it acts in accordance with a direction given under subclause (2)(d).

The Authority's directions are given under clause 5.2(1), and participants are obliged to comply under clause 5.2(3).

1.3 REVIEW SCOPE

This engagement is not a compliance audit, but an assurance review intended to review whether there is scope for error in the wash-up process and the extent to which controls have mitigated the risk of errors.

Our review has considered whether the relevant MOSPs have appropriately implemented the UTS directions. This covers:

- Pricing Manager processes to recalculate Final Prices;
- System Operator processes to support the Pricing Manager to recalculate Final Prices;
- Clearing Manager processes to recalculate constrained payments;
- System Operator processes to recalculate ancillary service settlement amounts;
- FTR Manager processes to recalculate the loss and constraint excess to be applied to the FTR Market, and the residual amount to be distributed to grid-connected customers by the Grid Owner;
- Grid Owner processes to distribute the residual loss and constraint excess to grid-connected customers; and
- Clearing Manager processes relating to the remainder of the special wash-up.

The timing of the review is such that a detailed check of all wash up outputs is not practicable. Where possible we have focused on checking data for manual activities, especially those not usually conducted as part of normal operations.

Scope exclusions

Some of the UTS directions relate to market participant actions such as dispute lodgement. We have not reviewed market participant actions.

We have generally not reviewed the implementation of normal operational activities that have been conducted as part of the UTS correction, other than a review of existing procedure documentation to understand to what extent the special washup would be conducted using business as usual processes. As a result, our opinion is limited to the effectiveness of the controls employed in the special wash-up process pertaining to the UTS re-run. Our activity would not necessarily detect manifestations of flaws in other parts of the MOSP control environment.

We have not reviewed the functionality of underlying market systems that affect the various settlement amounts. The normal operation of these systems is independently certified at each release, so we have relied on that activity to confirm the accuracy of the standard calculations.

The timing of our review is such that we reviewed production data for Pricing Manager and FTR Manager activities, but test data for System Operator and Clearing Manager activities. We did confirm that original test input data matched original production input data, but since the final production activity is yet to occur, we have not confirmed that final production outputs match expected results as held in the test systems. We have confirmed with Transpower and NZX that their production implementation processes include such checks.

1.4 REVIEW APPROACH

We conducted our review by:

- Meeting with key MOSP staff to discuss their approach to implementing the UTS directions;
- Conducting process walkthroughs with MOSP staff of the key activities carried out to implement the UTS directions, with a focus on manual activities and tasks not ordinarily conducted;
- Requesting:
 - Procedure documentation for normal operation of the pricing and settlement functions;
 - Test plans and results for testing conducted by the MOSPs;
 - Data from affected MOSP production and test systems; and
- Performing our own independent checks on a sample of MOSP system data provided to determine whether changes had been implemented in accordance with the UTS directions, and that the correct input data had been used.

Assurance

Our review has been conducted to provide limited assurance in accordance with the New Zealand Auditing and Assurance Standards Board's '*Framework for Assurance Engagements*', ISAE 3000 '*Assurance Engagements Other than Audits and Reviews of Financial Information*'.

Review criteria

The UTS directions are the criteria against which our review is conducted. In considering whether the MOSPs have appropriately implemented the UTS directions, we have looked for:

- The existence of documented processes and procedure documentation;
- The use of automated or semi-automated models;
- The presence of validation and review processes; and
- Accurate transfer of data from one system to another.

Risk ratings and materiality

Risk and compliance ratings

Our findings are categorised as follows:

Table 1: Risk and compliance ratings

Compliance rating	Risk rating
1: Instances of non-compliance with the review criteria	High: Potential for major impact on market outcomes if not addressed.
2: Findings that are not an instance of non-compliance, but pose compliance risk	Medium: Potential for moderate impact on market outcomes if not addressed.
3: Findings related to minor housekeeping issues that do not affect compliance risk	Low: Potential for minor impact on market outcomes if not addressed.
	Inconsequential: No or negligible impact on market outcomes.

Materiality (qualification of opinion)

In determining whether to qualify our opinion on whether the MOSPs have complied “in all material respects” with the directions, we have taken into account:

- The purpose and objectives of the UTS directions;
- The potential financial impacts on electricity market participants and/or end-consumers; and
- The number of electricity market participants and/or end-consumers potentially affected by the issue.

1.5 ACKNOWLEDGEMENTS

RBP would like to thank NZX, Transpower and EMS personnel who willingly provided information and shared in discussions with us while we carried out this review.

2 REVIEW ACTIVITIES

2.1 INTRODUCTION

In conducting the review, we have carried out activities in relation to most of the UTS directions in chapter 4 of the Authority's decision paper.

All entities involved in the review carried out their processes first in a test environment, and then in a production environment. As noted in section 1.3, at the time of our review only the Pricing Manager and the FTR Manager had completed their activities. We were therefore able to review the final output of their activities in the production environment, whereas for the other entities we reviewed the outputs from the test environment only.

We confirmed with each entity that their final test plans include comparing the production results to the results from the test environments. The system operator advised they had completed this check for ancillary service payment amounts before the completion of our review.

We did not review data directly in the systems, but rather through data extracts provided by the MOSPs.

The remainder of this chapter presents our review activity and findings for each UTS Direction.

2.2 ACTIVITIES AND FINDINGS FOR EACH UTS DIRECTION

4.12 Under clause 5.2 of the Code, the Authority directs NZX, Energy Market Services (EMS), and Transpower, in their roles as participants, to collaborate to implement the correction of the UTS.

We did not carry out any specific activities relating to collaboration between the MOSPs. Nevertheless, we observed good collaboration, particularly between the System Operator and the Pricing Manager to resolve the high spring washer situation identified in the pricing run, and in cross-checking the results of the SPD cases.

4.14 The Authority directs participants to make any payments required of them as specified in invoices sent by the clearing manager or to dispute the invoices following the processes set out in Part 14 of the Code (noting the direction in paragraphs 4.27-4.28 below regarding the scope of allowable disputes).

We have not reviewed participant activities.

4.15 The Authority directs the pricing manager to retrieve the daily case files for the UTS period from its archives or similar, and update the offers with the offer price cap outlined in this decision paper for the 9 South Island hydro generating stations with points of connection [at] AVI2201 AVI0, BEN2202 BEN0, CYD2201 CYD0, MAN2201 MAN0, OHA2201 OHA0, OHB2201 OHB0, OHC2201 OHC0, ROX1101 ROX0, ROX2201 ROX0, WTK0111 WTK0.

We reviewed the differences between the original SPD case files and the revised case files. We confirmed that:

- The Pricing Manager retrieved and updated the correct SPD case files for the UTS period;
- Where offers for the affected generating stations were above the offer price cap, the Pricing Manager replaced the offer prices with the offer price cap;
- Where offers for the affected generating stations were below the offer price cap, they were not changed; and
- The Pricing Manager did not change any other input data in the SPD case files (constraint limits were changed to resolve the high spring washer pricing situation as referenced below).

4.16 The Authority directs the system operator and pricing manager to correct any errors, infeasibilities, or high spring washer pricing situations and use the revised offers as an input in the SPD model to compute revised final prices and final reserve prices for the period starting 0000 hours on 3 December 2019 and ending 2400 hours on 27 December 2019.

The Pricing Manager identified:

- A ramp rate infeasibility for one unit in trading period 22 on 3 December; and
- A high spring washer pricing situation in trading period 14 on 7 December.

There were no high spring washer pricing situations in the original SPD runs, so the Pricing Manager did not initially check for high spring washer pricing situations in the revised runs. Post-run checks by the System Operator identified one high spring washer pricing situation, and both the Pricing Manager and the System Operator then analysed all the data to check for others. We reviewed this analysis.

We confirmed that:

- The ramp rate infeasibility was also present in the original SPD outputs, and the System Operator advised that no action was required;
- There was only one occurrence meeting the definition of a high spring washer pricing situation;
- While the Pricing Manager did not issue a formal notice of the high spring washer pricing situation as contemplated by clause 13.144, this was not necessary due to the special nature of the activity, and the intent of the clause was met;
- The System Operator resolved the high spring washer pricing situation according to clause 13.134 of the Code, resulting in updated constraint limits for two line constraints;
- The Pricing Manager used the updated constraint limits to compute revised final prices and final reserve prices.

4.17 The Authority directs the pricing manager to follow usual processes, to the extent possible, and provide the revised final prices and final reserve prices to the WITS, FTR and clearing managers, the system operator, and the Authority.

We confirmed that the Pricing Manager provided the results of the revised final pricing runs to the WITS, FTR and Clearing Managers, the System Operator, and the Authority.

4.18 The Authority directs the WITS manager to publish the final prices and final reserve prices to all participants that would usually receive such pricing information.

We confirmed that the prices published in WITS for December 2019 match the prices from the SPD run in almost all cases.

In 13 intervals across four days (9, 15, 20 and 22 December), the six second reserve price published in WITS was different to our expected result. In these 13 intervals, prices in the automatically generated SPD output files (presented to five decimal places) ended in ***.495*, ***498* and ***499*, but the price in WITS (stored to two decimal places) was rounded *up* to the nearest cent.

The discrepancy arose because the Pricing Manager used the reserve prices in files exported from the manual Pricing Manager interface, which are presented to four decimal places, meaning that the values have been rounded twice. The total impact on settlement across the whole month of December will have been less than \$10, and we do not consider this to be material.

4.19 The Authority directs the clearing manager to make constrained on payments to the generating stations and reserves providers that were dispatched when their offer prices were above the revised final prices, except for the hydro generating stations identified in paragraph 4.15.

We reviewed the Clearing Manager's process for calculating constrained payments.

We confirmed (using data from a test environment) that:

- The Clearing Manager used revised energy market clearing prices to recalculate the difference between offer prices and market clearing prices for each offer tranche;
- The Clearing Manager used the original dispatched quantity data along with the revised offer price differential data to recalculate constrained on payments;
- Calculated payments for periods outside the UTS intervals did not change;
- Payments for the identified generating stations in the UTS intervals were set to zero.

We did not replicate the full constrained payment calculations as these are automated and were conducted according to the normal process, with the output adjusted to remove payments to the identified generating stations in the UTS intervals.

4.20 The Authority directs the FTR manager to compute the amount of loss and constraint excess that must be applied to the settlement of FTRs for the December 2019 month, given the revised final prices, and provide that information to the clearing manager as per usual processes.

4.21 The Authority directs the FTR manager to recalculate residual loss and constraint excess for the December 2019 month and to inform the clearing manager as per usual processes.

We reviewed the FTR Manager's process for recalculating the amount of loss and constraint excess to apply to the settlement of FTRs, and the residual loss and constraint excess.

We confirmed that:

- The FTR Manager manually 'unpublished' the rentals results for the affected days, but otherwise used its standard rentals calculation process with the new input data;
- The FTR Manager used its automated systems to recalculate the loss and constraint excess using the revised pricing run (including the resolution of the high spring washer pricing situation), in accordance with clause 14.16(2)(a);

- The loss and constraint excess for days in December 2019 outside the UTS period did not change; and
- The total loss and constraint excess for December 2019 increased, as would be expected with increased incidence of price separation caused by the replaced offers.

We did not replicate the loss and constraint excess calculations, as they are automated and were conducted according to the normal processes.

4.22 The Authority directs the system operator to recalculate the ancillary services settlement amounts for the month of December 2019, and provide that information to the clearing manager as per usual processes.

4.23 The Authority directs the system operator to incorporate revised constrained on/off amounts into monthly settlement information sent to the clearing manager.

We confirmed (using data from a test environment) that the System Operator:

- Replicated the original production data in the test environment;
- Replaced the original reserve prices with the revised values from SPD case files provided by the Pricing Manager²;
- Replaced the original constrained payment amounts with the revised values provided by the Clearing Manager;
- Retained all other data as it was for the original calculations; and
- Recalculated the ancillary service payment amounts according to its regular processes.

We spot checked the updated payment amounts to ensure that the correct revised prices were used in the calculations.

4.24 The Authority directs the clearing manager to resettle all relevant amounts owing (see paragraph 4.39), including amounts for hedge settlement agreements, ancillary services, FTR settlements and residual loss and constraint excess paid to Transpower for the UTS period and for each revision of the UTS period.

² As discussed under 4.18, in 13 intervals, these prices differ from those published in WITS by \$0.01.

We did not review all aspects of resettlement calculations, but we did confirm (using data from a test environment) that:

- The Clearing Manager used the revised inputs from prior processes for energy prices, ancillary service prices, ancillary service payment amounts, and residual loss and constraint excess;
- The Clearing Manager used its automated systems to determine amounts owing for:
 - electricity in accordance with clause 14.10
 - constrained compensation in accordance with clause 14.11
 - ancillary services in accordance with clause 14.14
 - hedge settlement agreements in accordance with clause 14.15
 - FTRs in accordance with clause 14.17
- Washup invoice amounts for hedges and FTRs correctly matched the difference between the amounts calculated in washup four (the previous washup) and this special washup.

4.25 As per clause 14.25 of the Code, participants have up to two years from the invoice date to dispute the amounts (dollars) notified to them by the clearing manager.

4.26 The Authority directs the clearing manager to following usual resolution processes if an amount is disputed, though noting additional directions in paragraphs 4.27-4.28.

4.27 The Authority directs the clearing manager to disregard disputes relating to the resettlement of the wholesale market for the UTS period unless processing or data errors are the source of the dispute. Disputes about the level of the offer price cap applied to hydro generators or the generators subject to the offer price cap are not to be considered.

We did not review participant activity, or its effect on the Clearing Manager.

4.28 The Authority also directs the clearing manager that no further volume-related revisions are to be undertaken for the UTS re-settlement invoices, noting the 14-month timeframe for revisions to volumes during the UTS period has ended.

We confirmed (using data from a test environment) that the Clearing Manager used reconciled generator and purchaser volumes that were unchanged from the quantities used in washup four.

4.29 The Authority directs the clearing manager to resettle each revision, using the revised final prices and final reserve prices. Resettlement amounts will accrue interest dating back to the payment dates for the revision invoices in accordance with clause 14.38(2) of the Code.

The Clearing Manager is not resettling each revision separately. It is conducting a single special washup run and generating new revision invoices based on the differences between the final run and the accumulated payments from the initial settlement run and all four subsequent washups, to which interest will apply in accordance with clause 14.38(2) of the Code. This will result in the correct treatment of interest amounts as envisaged by the Authority.

At the time of our review, the Clearing Manager had not yet carried out interest calculations, so we were unable to review this activity.

4.30 The Authority directs Transpower to recompute the allocation of residual loss and constraint excess due to distributors and direct consumers, using the usual LCE payment methodology, and to credit or debit grid charges accordingly, in line with usual processes and as soon as practicable.

Transpower's loss and constraint excess allocation methodology uses branch flow data to determine the proportion of the residual loss and constraint excess to be paid to each grid-connected customer. We confirmed (using data from a test environment) that Transpower:

- Updated its data warehouse to:
 - replace the original market clearing prices with revised prices;
 - replace the original branch flow data with the revised branch flow data³;
- Ran its automated process to calculate the residual LCE associated with each transmission asset.

At the time of our review, Transpower had not yet:

³ Given the volume of data, we relied on Transpower's own internal testing to confirm that this process was carried out correctly.

- Run its LCE allocation process to determine the revised LCE amount that should have been paid to each grid-connected customer; or
- Used the revised LCE payment amounts to create invoices, including combining the revised payment amounts with the amounts already paid to determine the washup payment amount.

We are therefore unable to express an opinion on the accuracy of this activity.

4.32 The Authority directs NZX, Transpower and the FTR manager to make any process, system or software changes required to implement the actions to correct the UTS within the timeframe outlined in the letters in the appendices. If there are impediments to this timeline the Authority directs that it is to be advised as early as possible and may provide an extension to the timeframe if warranted.

We reviewed process changes as discussed elsewhere in this chapter. No system changes were required, other than database update scripts to clear, reset, or overwrite data.

We checked whether correct versions of the software were used:

- SPD log files show the same version (V39.5.0.001) was used in both the initial and revised pricing runs.
- The FTR Manager provided verbal assertion that although its rentals software was updated in Q3 2021, it performed the LCE calculations using the revised data in test environments for both the old and new software versions, and that the results were identical.
- The System Operator advised that the most recent change to the GSS system was in 2017.
- The Clearing Manager provided an email noting that the only changes to CHASM have been to the processing of dispatch logs. If rerun for the UTS period, this new version of the software would have determined different dispatched quantities for the constrained payment calculations. NZX advised that the original dispatched quantities were used, so there was no need to roll back to an older software version.

4.35 The Authority directs MOSPs to provide the auditors with all assistance required to enable them to fulfil their obligations to the Authority.

We confirm that the MOSPs provided the assistance required to conduct our work, and we thank all the MOSP staff who provided data and made themselves available for discussions and demonstrations.

4.36 The Authority directs MOSPs to disregard usual audit obligations under clauses 3.16-3.18 of the Code in relation to any software changes required by the UTS implementation.

As noted above re 4.32, no system changes were required.

4.37 The Authority directs the clearing manager that the resettlement prompted by the actions to correct the UTS should be invoiced separately and conducted separately relative to business-as-usual processes, as submitted by Transpower.

We confirm that the Clearing Manager is conducting the resettlement as a stand-alone washup, though the invoices will be issued to align with a regular settlement period.

4.38 The Authority directs the clearing to manager to separately itemise the resettlement amounts for each revision invoice but collate them into a single invoice payable for the UTS period.

As noted under 4.29, the Clearing Manager is not resettling each revision separately, and is preparing a single invoice for the special washup.

4.39 As submitted by NZX, the UTS correction is to be implemented as an additional washup in line with the processes outlined in Subpart 6 of Part 14 of the Code.

We confirm that the UTS correction is being implemented as a special washup in line with Subpart 6 of Part 14 of the Code.

4.40 The Authority directs the clearing manager to determine the amounts owing and payable in accordance with clauses 14.19 and 14.20 of the Code and advise participants by 12 November 2021, unless otherwise agreed with the Authority. These washup settlement amounts are for: electricity, instantaneous reserves, constrained off compensation, constrained on compensation, ancillary services in relation to frequency keeping, hedge settlement agreements, FTRs, loss and constraint excess, and residual loss and constraint excess.

Due to timing of the regular clearing and settlement processes, the Clearing Manager was unable to meet the 12 November date for the special UTS washup and, as agreed with the Authority and as shown in Table 11 in clause 4.33 of the UTS directions, is now working to provide invoices on 24 November.

4.41 For the avoidance of doubt, the Authority directs the clearing manager not to revise must-run dispatch auction revenue, black start, over frequency reserve, extended reserve, and voltage support settlements.

We confirmed (using data from a test environment) that the Clearing Manager did not revise settlements for these ancillary service amounts. The Clearing Manager advised that the must-run dispatch auction settlement did not change. The amounts were recalculated as part of the washup settlement process but did not change.

4.42 The Authority directs the clearing manager that the generating stations identified in Table 10 are not eligible for constrained on or off payments for energy or reserves or frequency keeping.

As noted re 4.19 above, we confirmed (using data from a test environment) that the identified generating stations have zero constrained payments for the UTS period.

4.43 The Authority directs the clearing manager to settle amounts owing in accordance with clause 14.31 of the Code.

We have not reviewed participant activities.

4.44 As per clause 14.38(2), washup amounts accrue daily interest (less any deduction for resident withholding tax) based on the bank bill bid rate from the date payments were made for the UTS period (ie, the dates payment was made for the original settlement and each revision invoice).

At the time of our review, the Clearing Manager had not yet carried out interest calculations, so we were unable to review this activity.

4.45 The Authority directs that any non-payment of washup amounts will be resolved via the default process outlined in clause 14.41. For the avoidance of doubt, any amounts owing as a result of these actions to correct are amounts owing to the clearing manager under Part 14 of the Code. Failure to pay is an event of default under Subpart 7 of Part 14 of the Code and the clearing manager has all the remedies available to it under Subpart 7.

4.46 Participants may dispute amounts owing or payable as per clause 14.25 (noting the direction in paragraphs 4.27-4.28 above regarding the scope of allowable disputes).

We did not review participant activity.

4.47 The Authority directs the clearing manager to use original reconciliation volumes in conjunction with revised final prices and final reserve prices to effect the resettlement.

As noted under 4.28 above, we confirmed that the Clearing Manager used the reconciliation volumes used in the most recent washup to effect the resettlement.

4.48 Given that an amount owing based on the volume information was previously advised under Part 14, the Authority directs that participants may not commence disputes relating to volume information, given clause 15.29.

4.49 As noted in the executive summary, the Authority directs the clearing manager to disregard prudential security requirements for all amounts owing as a result of this UTS resettlement between the UTS invoice data and the UTS resettlement date.

4.50 The Authority directs the clearing manager to disregard the impact of the UTS correction on final prices in relation to FTR initial margin requirements. The Authority notes that the influence of the December 2019 month on initial margin requirements will be of limited duration.

We did not review participant activity or impact on prudential and margin requirements.

3 CONCLUSION

3.1 SUMMARY OF FINDINGS

ID	Decision	Risk & Compliance Ratings	Finding	Recommendation
1	4.18	<p>Risk Rating – Inconsequential</p> <p>Compliance Rating – 1 (non-compliance)</p>	In 13 trading intervals, the 6 second reserve price shown in WITS is \$0.01 more than the rounded price produced by SPD. This is due to rounding, and the total impact for the UTS period is less than \$10.	No action.
2	4.40	<p>Risk Rating – Inconsequential</p> <p>Compliance Rating – 3 (housekeeping)</p>	The UTS Directions mention two different dates for providing information to participants. The Clearing Manager is working to the later of the two dates (24 November) as agreed with the authority.	No action.
3	4.29, 4.38	<p>Risk Rating – Inconsequential</p> <p>Compliance Rating – 3 (housekeeping)</p>	The UTS Directions require the Clearing Manager to “resettle each revision”, itemise the changed amounts for each revision, and calculate interest based on the original invoice dates for those revisions. Instead, the Clearing Manager is carrying out a single special washup run and calculating interest according to the standard approach for washups. In our view this will give the outcome that the Authority seeks.	No action.

3.2 OPINION

We were unable to review compliance with calculation of interest amounts or final grid owner washup calculations for loss and constraint excess allocation.

Based on the review procedures we have performed and the evidence we have examined, nothing has come to our attention that causes us to believe that EMS, Transpower and NZX have not complied with the Authority's directions in chapter 4 of its paper *Final Decision – Actions to Correct Undesirable Trading Situation December 2019*.

Tim Robinson

Principal