

**IN THE MATTER of the Electricity Act 1992
and the Electricity Amendment Act 2001**

AND

**IN THE MATTER of the Electricity
Governance Regulations 2003**

**DECISION OF THE ELECTRICITY GOVERNANCE BOARD PURSUANT TO
PART 3 OF THE ELECTRICITY GOVERNANCE REGULATIONS 2003
REGARDING AN ALLEGED UNDESIRABLE TRADING SITUATION
IN THE BAY OF PLENTY DURING TRADING PERIOD 36
ON SATURDAY, 24 APRIL 2004**

DECISION DATED 12 MAY, 2004

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and the Electricity Amendment Act 2001**

AND

**IN THE MATTER of the Electricity
Governance Regulations 2003**

**Decision of the Electricity Governance Board pursuant to
Part 3 of the Electricity Governance Regulations 2003
regarding an alleged undesirable trading situation in the Bay of Plenty
during Trading Period 36 on Saturday, 24 April 2004**

General Context of this Decision

1. Under Part 3 of the Electricity Governance Regulations 2003 (“the Regulations”) the Electricity Governance Board is given powers to investigate and take action in respect of undesirable trading situations (“UTSs”). This decision concerns a UTS that is alleged to have occurred in the Bay of Plenty on Saturday, 24 April 2004.
2. In this decision, consistent with practice to date, the Electricity Governance Board is referred to as “the Commission”, an abbreviation of the name “the Electricity Commission” under which the Electricity Governance Board is currently conducting its activities.
3. This decision has been made by a committee of the Commission, comprising all of the members of the Commission (“the Committee”), to which decision making regarding UTSs has been delegated, in the interests of operational efficiency, pursuant to Schedule 2A of the Electricity Act 1992, as amended by the Electricity Amendment Act 2001 (the Electricity Act 1992 as so amended “the Electricity Act”). Except where expressly provided otherwise, references in this decision to the Commission include references to the Committee acting as delegate on behalf of the Commission.

Background

4. On Saturday, 24 April 2004, events occurred in the Tauranga area which resulted in price spikes (infeasible prices within five-minute pricing) during trading periods 36, 37 and 38 at the Tauranga (TGA0331) and nearby nodes.

5. As manifested in the various prices produced by the Scheduling, Pricing and Dispatch model (“SPD”), the effect of this combination of factors was, in summary, that for the Tauranga (TGA0331) node and trading period 36, a relatively “normal” despatch price of \$68.88/MWh was followed by a five-minute price (averaged over the half hour) of \$54,901.85/MWh and a provisional price of \$8,242.67/MWh.
6. TrustPower Limited (“TrustPower”), a generator/retailer and a net purchaser of electricity in the Tauranga region, notified the Market Administrator, M-Co, at 2025 hours on 24 April that, by reference to the (at that time) five-minute prices for trading periods 36, 37 and 38 at the Tauranga node, it was claiming that a UTS existed.
7. TrustPower wrote to the Commission on 25 April confirming its belief that a UTS “occurred in the Bay of Plenty between 5.40pm and 7.00pm on Saturday, April 24, 2004”. TrustPower asserted that the situation comprised, in terms of clause 55(2)(e) of the Regulations, “an exceptional or unforeseen circumstance that is at variance with, or that threatens or may threaten, generally accepted principles of trading or the public interest”.
8. On Monday 26 April 2004, and on the basis of the provisional prices determined for the affected nodes and the relevant trading periods, TrustPower narrowed the scope of the alleged UTS to trading period 36 (1730 – 1800 hours) at the Tauranga node.
9. The Commission first considered TrustPower’s concerns on 27 April. The Commission at that point determined it had insufficient information on which to reach a decision as to whether a UTS existed. Under Rule 3.28 of Section V Part G of the Rules, it ordered the delay, until further notice, of publication of final prices for trading period 36 on 24 April 2004. That notice remains in force.
10. The Commission obtained further information and comment, including from TrustPower, Transpower and a number of other market participants and carried out further investigation and analysis itself.
11. This decision sets out the results of the Commission’s consideration of this matter.

What happened in trading period 36 on 24 April?

12. Based on its investigation of these matters, the Commission considers that the relevant events and circumstances are as set out in the following paragraphs.

13. On 20 April Transpower, as System Operator, issued a CAN advising participants that a new constraint (TGA_TRK_1_S_P, “the Tauranga Constraint”) was to be added to SPD on 21 April. In accordance with this CAN, on 21 April Transpower, added the Tauranga Constraint in to SPD.
14. The purpose of the Tauranga Constraint was to manage power flows through the Tarukenga – Tauranga line during periods of low Kaimai generation, by constraining on additional offered generation at Kaimai to meet security objectives at Tauranga.
15. Transpower subsequently concluded that TrustPower’s offering of Kaimai generation as a single tranche rendered the Tauranga Constraint ineffective. In a CAN on 21 April Transpower notified the removal of the Tauranga Constraint during 21 and 22 April. In a further CAN issued on 22 April, Transpower notified the removal of the Tauranga Constraint for the remaining summer days, 22 April through 9 May.
16. As matters transpired, and by way of error, the Tauranga Constraint was in fact not removed for 24 April until 1857 hours on 24 April, with the result that the Tauranga Constraint remained in SPD from 0700 to 1859 on 24 April, inconsistent with the CAN issued on 22 April.
17. In the circumstances that pertained in the lead up to trading period 36 there were no pricing signals to indicate (to the System Operator or participants) the presence of a constraint or the need for action to ameliorate the effects of a constraint. Participants would have had no expectation that this constraint would become part of the ex-post pricing solution.
18. In particular:
 - (a) The forecast prices for trading period 36 on the 24th May 2004 published in the predispatch schedules (PDS) at 1500 and 1700, and in the schedule of dispatch prices and quantity (SDPQ) issued at half hourly intervals, contained no indication of binding constraints and consequent constraint pricing for the Tauranga grid exit point.
 - (b) There was no real time indication of the presence of a binding constraint prior to trading period 36. Neither Real Time Dispatch (RTD), or the published Real Time

Pricing (RTP), gave any indication of the presence of a binding constraint in the Tauranga area in trading periods prior to trading period 36.

- (c) RTD and RTP did not indicate the presence of a binding constraint or an infeasible solution until the third five minute period within trading period 36, approximately 1745.
19. During trading period 36 infeasibilities occurred in the RTP and RTD solutions produced by SPD. Discretionary action was taken by the System Operator to manage dispatch under these circumstances for trading period 36. The consequence of the infeasibilities in RTP was that there were no valid pricing signals available to participants from 5 minute prices during trading period 36.
 20. Subsequently when provisional pricing was run on April 26 these infeasibilities were not evident in the provisional pricing solutions given that the demand input used is average metered half hourly demand rather than a 5 minute “snapshot” used in RTP. The symptoms of the generation/supply balance resulted in the occurrence of what is commonly referred to as the “spring washer effect” in the provisional pricing calculations.
 21. In the case of Tauranga for trading period 36 SPD found it necessary in the provisional ex-post pricing solution to redispatch energy across the grid at an additional cost of some \$8,000 to meet demand at Tauranga – this became the nodal price in provisional pricing.
 22. For the sake of completeness, the Commission notes that it had originally been thought that the Kaimai Station tripping out at approximately 6.00pm on that day was a contributing factor to these events. That would not now appear to be the case.
 23. The position, overall, can be summarised as follows:
 - (a) The application of SPD, given the various inputs actually made into the model by the system operator, produced five-minute prices for the Tauranga node for trading period 36 which were, in fact, infeasible, though that was not apparent. The reason that the five-minute prices appeared to be feasible even though they were not would appear to be that the infeasibility modelled by SPD was based on a concept of “deficit branch group constraints”. COMIT does not signal that “deficit branch

group constraint” is an infeasible solution, in the same way as it does with the more common infeasibility solution of “deficit generation”. From TrustPower’s perspective this meant that the provisional price of \$82,000.00 appeared feasible, albeit “verging” on infeasible. The fact that a price is infeasible signals to the market that final prices are unlikely to reflect real time/five minute prices, a matter which the market is aware of.

- (b) Notwithstanding the modelled infeasibility produced in SPD by the presence of the Tauranga Constraint, demand and load were matched instantaneously at the Tauranga node and, accordingly, the SPD model subsequently determined a price at that node.
 - (c) On this basis, SPD produced, in accordance with standard SPD procedures, a very high provisional price of \$8,242.67/MWh for trading period 36 at the Tauranga node, and the “spring washer” effect resulted in a range of prices affected by the same inputs at a number of other nodes.
24. If, as had been announced and intended by Transpower, the Tauranga Constraint had been removed from SPD, price results would have been considerably different (assuming the same levels of generation and demand as actually prevailed in pricing period 36). To demonstrate the magnitude of the effect of the Tauranga Constraint on prices, Transpower ran a hypothetical simulation by increasing the combined capacity of the Tauranga Constraint to 61MW. As a result of relaxing this constraint by 1MW, energy prices at Tauranga (TGA0331) decreased from \$8,272.22MWh to \$77.84MWh. Energy prices however at Rotorua (ROT0331) increased from zero to \$76.00MWh. Other nodes were affected in ways consistent with the “spring washer” effect.
25. The overall impact of these differences on affected market participants has been calculated by M-Co as involving purchasers overall paying \$388,930 more for electricity than would otherwise be the case.
26. For its part, TrustPower has indicated to the Commission that, as a result of these matters, it would incur a net cost in the order of \$150,000.

The UTS asserted by TrustPower

27. As noted above in paragraphs 6 to 8 of this decision, TrustPower moved in a very timely fashion to assert that a UTS existed by reference to the facts and circumstances outlined above. The UTS asserted by TrustPower relates not only to the specific effect on prices of these particular facts and circumstances, but also to matters of more general significance.

28. The Commission considers that this can be reflected by quoting from the introduction to TrustPower's second letter to the Commission:

"Further to TrustPower's submission of 24 April 2004, relating to an alleged undesirable trading situation occurring in the Bay of Plenty, TrustPower submits that this specific event was a single manifestation of an undesirable trading situation which continues to prevail in the Wholesale Electricity Market.

TrustPower contends that during periods in which areas of the National Grid are constrained, the pricing signals provided by 5-minute and dispatch prices under the existing Scheduling, Pricing and Dispatch (SPD) modelling process are both inadequate and unreliable, providing no meaningful signal as to the true nature and magnitude of price risk in the market.

We further consider the current mechanism for determining provisional and final prices, to be flawed. As the SPD model approaches infeasibility, the price outcomes appear unstable. Some of the recently published prices have been symptomatic of the inability of the price determination process to provide robust outcomes under stress situations.

Recent infeasible or extremely high 5-minute and dispatch prices have led to extremely high final prices due to constraints. This demonstrates the risk, and promotes the likelihood of load based participants initiating drastic responses to all infeasible or high 5-minute or dispatch prices, in order to mitigate exposure to the possibility of incurring extreme final prices".

29. TrustPower pointed to three recent events (13 and 24 April, upper South Island dispatch prices; 21 April, dispatch price at TP33 Tauranga; 24 April, five-minute price at TP33 in excess of \$80,000, provisional price in excess of \$8,000) as evidencing its concerns. It noted:

"These events demonstrate that the current process for determining prices represents exceptional circumstances which threaten the generally accepted principles of trading, and more importantly the public interest."

30. In support of those concerns, TrustPower identified potentially adverse outcomes relating to:

- (a) the damage to business (TrustPower's and those of its customers) able to be caused were the extremely high, apparently feasible (but actually infeasible) five-minute prices produced by SPD on 24 April to become final prices; and
 - (b) local supply issues (nature of Kaimai storage and local transmission network bearing capacity), which could be better dealt with by some alternative approach.
31. TrustPower submitted that an interim solution was required (to the asserted UTS) which enabled Kaimai to operate out of the merit order to ensure a secure grid in the Tauranga area.
32. Before providing its analysis of whether the events and circumstances pointed to by TrustPower constitute a UTS, the Commission will provide a brief overview of the regulatory context for its decision.

The UTS Regime

33. Part 3 of the Regulations contains a "Regime for dealing with undesirable trading situations". In Part 3:
- (a) UTSs are defined (regulation 55);
 - (b) the Commission is given authority to investigate possible UTSs (regulation 54);
 - (c) a finite menu of actions able to be taken by the Commission in response to UTSs is stipulated (regulation 56);
 - (d) an obligation to attempt to correct UTSs is imposed (regulation 60);
 - (e) consultation obligations are imposed on the Commission (regulations 58 (system operator) and 59 (participants)); and
 - (f) an offence of failing to comply with Commission directions under regulation 56 is created (regulation 57).
34. The important first question is whether, in any given circumstances, a UTS exists.
35. Regulation 55(1) defines a UTS to mean a contingency or event:
- (a) which threatens or may threaten trading on the wholesale market; and

- (b) which would, or would be likely to, preclude the maintenance of orderly trading or the proper settlement of trades; and
 - (c) which, in the reasonable opinion of the Commission, cannot be satisfactorily resolved by any other mechanism available in the Rules.
36. Regulation 55(2) then provides that, without limiting the generality of the overall definition of UTS provided by regulation 55(1), a UTS includes a number of specific activities (manipulative trading, misleading or deceptive conduct, unwarranted speculation, material breach of law) as well as “any exceptional or unforeseen circumstance that is at variance with, or that threatens or may threaten, generally accepted principles of trading or the public interest”.
37. Where the Commission decides a UTS exists, it must then determine what is the appropriate response, and consult to the extent required as regards that response.
38. The Part 3 UTS regime is to be applied by the Commission in the context of the Electricity Governance Rules (“Rules”) made by the Minister of Energy under section 172H of the Act. Two Rules are of particular significance. These are:

“3.27 Final prices will not be republished

The pricing manager will not be obliged to republish the final price or final reserve price for any trading period. This will be the case notwithstanding any error subsequently discovered in the information provided under rule 3.3 or in the process carried out by the pricing manager in this rule 3. For the avoidance of doubt, the Board may not order the republication of any final price or final reserve price notwithstanding the fact that an undesirable trading situation may exist.

3.28 Board may order that publication of final prices be delayed

Notwithstanding anything else in this rule 3 the Board may order that the publication of final prices or final reserve prices be delayed.”

39. As noted above, on 27 April the Commission has exercised its power under Rule 3.28 to delay the publication of final prices for trading period 36 on 24 April. Rule 3.27 reflects the importance in the Rules (and in their contractual predecessors) of the certainty of final prices, and is a matter on which the Commission comments further in this decision.
40. In considering the application of these provisions to the events and circumstances in question, the Commission has considered the nature of the potential UTS that may be

involved. The Commission considers that this can be categorised in two possible ways, both reflected in TrustPower’s submissions:

- (a) First, and in the Commission’s view TrustPower’s principal focus, aspects of SPD relating to the handling of constraints generally; and
- (b) Secondly, and more specifically, the facts that:
 - on 24 April a constraint was maintained in SPD in error, and contrary to Transpower’s CANs;
 - market participants were therefore not aware of this constraint; and
 - a very high price (the highest ever provisional price for a half hour period) resulted for trading period 36 at the Tauranga Node, when removal of that constraint (as modelled by Transpower and summarised in paragraph 24 of this decision) would have resulted in reasonably “normal prices”.

41. The Commission has considered the implication of the Part 3 UTS regime for each of these events and circumstances.

42. In that consideration, the Commission has had particular regard to:

- (a) its principal objective, as set out in section 172N of the Act; and
- (b) its functions under section 172O(1), subsections (a) and (b), of the Act

Is the SPD, in the way it models constraints and produces prices at constrained nodes, a UTS?

43. The Commission has carefully considered TrustPower’s concerns regarding SPD, constraints, and nodal prices – particularly as identified by TrustPower as affecting trading in the Bay of Plenty region.

44. The Commission notes that regulation 55 contemplates particular outcomes on trading. The concepts used are “threats to trading that preclude its orderly maintenance”, and “circumstances that are at variance with or threaten generally accepted principles of trading or the public interest”.

45. The Commission considers, therefore, that the Part 3 UTS regime is not directed at the process where, in general terms, improvements may be made to Rules over time. The Commission notes, in this context, its role pursuant to section 172O(1)(a) of the Act in formulating and making recommendations to that end.
46. Rather, the Commission considers that the Part 3 UTS regime provides the Commission with a way of responding to unexpected events that have or may have significant adverse effects for trading. The Commission sees this role as being more part of its function under section 172O(1)(b) of the Act. It notes that such effects are to be assessed in light of the importance of the maintenance of orderly trading, and the observance of generally accepted principles of trading, for the operation of the wholesale market, as the wholesale market in turn contributes to the overall objectives of the construct of the electricity industry in New Zealand created by the Act, the Regulations and the Rules. In considering specific responses to a UTS, the Commission is subject to the restrictions imposed by Rule 3.27 as regards the certainty of final prices.
47. The fact that a particular market participant, or potentially even a number of market participants, considers or consider that the Rules are not as they should be in a particular area would not, in and of itself, appear to be grounds for categorising that matter as a UTS. Unless the factors which give rise to those concerns are also likely to adversely affect “orderly trading”, or the public interest therein, they are best addressed through changes to Rules rather than a declaration of a UTS.
48. The Commission has concluded that, in this instance, the matters identified by TrustPower relating to SPD do not meet the regulation 55 thresholds. It notes, in particular, that the specific situation which prompted TrustPower’s approach to the Commission involved an error by Transpower, and that it was that error, and not the general application of SPD, that produced the high price complained of. Whilst the Commission acknowledges TrustPower’s concerns with respect to other recent examples of similar circumstances, it is not satisfied that the features of SPD identified by TrustPower have produced effects which meet the thresholds set out in regulation 55. That is, it does not consider that those features, in and of themselves, and on the basis of the information available to it in these circumstances, threaten trading, preclude orderly trading and the proper settlement of trades and/or are at variance with or threaten generally accepted principles of trading or the public interest. It notes, in particular, that high nodal prices produced by the impact of constraints and the spring-washer effect on

prices, are part of SPD. It considers that TrustPower is concerned about aspects of SPD which, in TrustPower's view, do not best achieve the overall public interest as reflected in section 172N of the Act, and which from time to time may produce "adverse" trading outcomes for purchasers. It is not satisfied, however, that those matters have reached the thresholds set out in regulation 55.

49. The Commission readily acknowledges, nevertheless, that the matters raised by TrustPower do, on their face, raise important issues. It notes that other market participants have acknowledged this, including Transpower. It refers to these aspects of this matter further at paragraph 67 of this decision.
50. The Commission notes further that it is not saying that it is not possible for a UTS to exist under regulation 55 by reference to some aspect of the Rules, either in and of itself or in combination with events and circumstances affecting the operation of the Rules. The Act, the Regulations and the Rules provide a different context for the Commission's decision making function than that which existed for previous market decision makers under earlier structures. Nevertheless, the Commission considers that the approach outlined above is consistent with the MSC decision in July 2001, made following the MSC's review of circumstances relating to high spot prices in May and June of that year. In that decision, the MSC concluded that the words "any situation which threatened or may threaten fair, orderly or proper trading on the NZEM" – words which in general terms are the functional equivalent to those now found in regulation 55(1)(a), were wide words. It found that they were capable in principle of catching a number of outcomes. In MSC's words, these included "structural inadequacies in market design or the Rules of NZEM either initially, or because market participants and/or market circumstances have changed". The Commission concurs with that approach, noting, however, that in any particular instance its inquiry would be as to whether the regulation 55 thresholds had been met.

Are the specific circumstances which applied as regards the Tauranga Constraint on 24 April a UTS?

51. The Commission has also considered whether the specific circumstances which applied as regards the Tauranga Constraint on 24 April, and in particular that the Tauranga Constraint was not removed until 1857 hours on that day contrary to Transpower's announced intention, constituted a UTS.

52. The central feature of these circumstances is that the Tauranga Constraint was operating within the SPD model unbeknownst to Transpower, and other market participants.
53. When put this way, the Commission considers that such an event on its face would appear to be inconsistent with the maintenance of orderly trading, and that, in the words of regulation 55:
- (a) it threatens trading and is an event that would, or would be likely to, preclude the maintenance of orderly trading; and
 - (b) is one that is at variance with generally accepted principles of trading or the public interest.
54. The fundamental aspect of trading that this event is at odds with is that trading on the wholesale electricity market is premised on market participants possessing accurate and timely information on which to base their trading decisions. In the absence of such information being available, within the bounds able, and understood to be able, to be produced by the various market mechanisms, including SPD, it would appear almost to go without saying that orderly trading is threatened.
55. Similarly, such a circumstance would also be at variance with or threaten generally accepted principles of trading, as – in the context of the electricity wholesale market, such generally accepted principles of trading can be seen as including the principles of information, and its availability, already referred to.
56. Were manifest errors, of the type involved in the relevant circumstances on 24 April, and which caused the \$8,000 provisional price, “acceptable”, then the concept of the maintenance of orderly trading would, in the Commission’s view, be significantly at risk.
57. The Commission notes, however, that regulation 55(1)(b) requires the Commission to be satisfied, in its reasonable opinion, that the relevant regulation 55(1)(a) contingency or event “cannot satisfactorily be resolved by any other mechanism available under the Rules”. In the circumstances, and bearing in mind the constraints under:
- (a) Rule 3.27, on the republication of final prices; and

- (b) regulation 116, on awards of compensation which may subsequently be made by the Rulings Panel in response to Rule breaches,

the Commission is satisfied in its reasonable opinion that this is a contingency or event that cannot satisfactorily be resolved by any other mechanism available under the Rules.

58. The Commission notes, in particular, that given:

- (a) the timely manner in which this matter was raised by TrustPower;
- (b) Transpower's prompt analysis of the relevant facts and circumstances, and identification of the error involved on its part; and
- (c) the action taken by the Commission to delay the publication of final prices,

it considers that a satisfactory resolution is a prompt correction of the error. No other rule mechanism provides both elements of such a resolution. It also considers that such a resolution will promote confidence in the robustness of the wholesale market for electricity.

59. The Commission notes it is very aware of the importance placed over time by market participants on the certainty of final prices, as reflected now in Rule 3.27. It considers, however, that where action is able to be taken in response to a UTS prior to the publication of final prices, the taking of such action is not at odds with that principle.

60. It notes that there are precedents, under the previous contractual regime, for errors to be corrected under the UTS regime. It refers, in particular to an MSC decision in June 2000 on "undesirable situations", and actions taken by the MSC prior to the publication of final prices to correct input information.

61. The Commission has also considered factors which argue against concluding that a UTS existed. In particular, it has considered the significance of the fact that the single \$8,000 price for trading period 36 did not, it would appear, have a specific effect on the maintenance of orderly trading or the proper settlement of trades. Further, it could be argued that any one such event, particularly relating to one trading period only, is unlikely to have such an effect.

62. The Commission considers that such an approach would be to narrow unnecessarily the approach called for by Part 3. It considers that the Part 3 regime is aimed at unexpected

contingencies or events, or exceptional or unforeseen circumstances, that meet the regulatory thresholds of regulation 55, without the actual event of a breakdown of orderly trading or proper settlement being required.

63. On that basis, the Commission finds that, by reason of the Transpower error, a UTS existed during the relevant trading periods as regards the Tauranga node.
64. In reaching this conclusion, the Commission emphasises the following factors:
- (a) that the error was (in hindsight) obvious and has been acknowledged;
 - (b) that it has been discovered in a timely fashion, publication of final prices has been delayed and, therefore, appropriate adjustments can be made without affecting the value placed by the market on the certainty of final prices;
 - (c) that requiring market participants to accept the adverse consequences of manifest errors is not, subject to the value placed on the certainty of final prices reflected in Rule 3.27 of Part G Section V, in the interests of the maintenance of trading in an orderly and proper manner;
 - (d) that, in these circumstances, a fine would (if available) not satisfactorily address the issue because, notwithstanding that a fine may be imposed, market participants would be left with an outcome that did not fully address the consequences of the error and that may not be particularly timely; and
 - (e) the relevance of the earlier MSC/NZEM decisions in similar situations.

Proposed action

65. The Commission proposes directing the Pricing Manager to calculate final prices for trading period 36 on the basis that the Tauranga Constraint was removed. The Commission has been advised that such recalculation is feasible and practicable in a timely manner.

Rule breaches

66. The Commission notes the obligations on market participants under regulations 62 and 63 to notify breaches of Rules. It records that it has not received any such notification as regards the matters the subject of this decision.

Other Investigations

67. The Committee has referred to the Commission the underlying concerns raised by TrustPower, outlined in paragraphs 25 to 31 of this decision, with a recommendation that an advisory group urgently be established to consider those matters, as a decision to take such action in response to TrustPower's concerns is outside its delegated UTS authority.

The Electricity Commission

Wellington, 12 May, 2004

Decision 1, 2004