

Authority's final decision on whether an undesirable trading situation occurred following 16 February 2024

Final decision

2 October 2024

Executive summary

The Electricity Authority Te Mana Hiko (Authority) is responsible for investigating any situation that it suspects or anticipates may be an undesirable trading situation (UTS). A UTS is a situation that threatens, or may threaten, confidence in, or the integrity of, the wholesale market, and which cannot be resolved via other mechanisms under the Electricity Industry Participation Code 2010 (Code). The Code gives the Authority power to take corrective action if it considers a UTS is developing or has developed.

The Authority in this UTS investigation considered whether final prices being determined by offers, which were depressed by demand management on 9 August 2021, could threaten confidence in, or the integrity of, the wholesale market following the High Court decision on 16 February 2024.

Having considered the submissions received from participants the Authority has arrived at a final decision that this is not a situation in which confidence or integrity is or may be threatened.

The events of 9 August 2021

On 9 August 2021, New Zealand faced the largest demand peak on record because of one of the coldest nights of the year. The situation on 9 August rapidly escalated with a decline in generation, high demand, and a real time risk of cascade failure of the national power system.

In response to the risk of cascade failure, the system operator issued notices to reduce demand, resulting in some lines companies disconnecting demand. While the risk of cascade failure reduced as a result of the demand reductions, approximately 34,000 customers were disconnected.

The High Court decision on appeals against a pricing error claim and the effect on prices

Following 9 August 2021, participants raised a pricing error claim in respect of trading periods 1 – 48 alleging initially that participant behaviour led to higher spot prices for all trading periods on 9 August 2021, and subsequently that scarcity pricing was incorrectly applied by reason of errors in a notice issued by the system operator. Participants also alleged that a UTS had occurred during trading periods 37 – 42 on 9 August 2021.

The Authority decided not to uphold the pricing error claim and found that a UTS had not occurred on 9 August as there was no situation which threatened, or may have threatened, confidence in, or integrity of, the wholesale market.

Participants appealed the Authority's decisions on the pricing error claim and the UTS to the High Court on the basis that the Authority erred by declining to intervene in the setting of prices on the electricity wholesale market.

On 16 February 2024, the High Court upheld the participants' pricing error appeals, finding that scarcity pricing was incorrectly applied to trading periods 39 – 42 due to errors in the notice issued by the system operator. The outcome of the appeal on the pricing error claim meant that it was unnecessary to determine the UTS-related aspect of the appeal.

Our investigation and preliminary decision

The Authority commenced an investigation following the High Court's decision that scarcity prices were incorrectly applied to four trading periods on 9 August 2021 due to a pricing error. The Authority's previous UTS investigation found that the application of scarcity pricing on 9 August was not a UTS because – despite errors in the process – the circumstances were precisely those which the scarcity pricing regime was designed to manage. The effect of the High Court's decision is that scarcity pricing no longer applies. The Authority therefore opened an investigation to determine whether prices being determined by offers and demand management by the system operator, combined with the absence of scarcity pricing, amounts to a UTS.

The concern was that, given the High Court's decision, the underlying fundamentals and appropriate price signals may no longer be reflected in prices on 9 August 2021. Without the high prices from scarcity pricing, it was necessary to consider the impact of the system operator's demand management on prices for all relevant trading periods.

In its preliminary decision the Authority considered that, on balance, confidence in the wholesale market was threatened, or may have been threatened, by prices being determined by offers in conjunction with demand management in circumstances where participants would expect higher prices to apply. This was because, as outlined in the preliminary decision paper (PDP):

- (a) The market expects high prices during times of scarcity. If prices are too low, parties who might be prepared to reduce demand in response to spot price signals will have reduced opportunities to enter into such arrangements. It will also mute the incentives for investment in last resort generation, which will undermine security of supply.
- (b) Weak incentives for investing in last resort plant will mean that the power system will increasingly rely on demand reductions as occurred on 9 August 2021. More frequent disconnection has an obvious negative impact on consumers, particularly as it can be reasonably anticipated that such disconnections will occur at periods of high demand, like during cold weather.
- (c) Accurate price signals are necessary for an efficient spot market, which in turn leads to more efficient investment decisions. Ultimately, spot prices that reflect underlying fundamentals are in the long-term interests of consumers to incentivise the sort of generation New Zealand will need in a reliable, renewable power system.

The Authority noted in the PDP that if a UTS was found to have developed, prices as high as those determined by scarcity pricing may not be required to restore confidence in the wholesale market. Equally, the Authority recognised that its earlier finding that scarcity pricing was not a UTS does not automatically mean that the absence of scarcity pricing results in a UTS.

The PDP also drew submitters' attention to factors which could support a finding that no UTS has developed, in particular:

- (a) The effect of real time pricing. The particular circumstances of this situation cannot occur again because the Code amendments establishing real time pricing mean that the dispatch model responds in real time to scarcity.
- (b) The passage of time since 9 August 2021.

- (c) The finalisation of prices, with the uncertainty arising from possible changes to those prices potentially threatening confidence in the wholesale market.

Submissions and cross-submissions

The Authority has recognised the difficulties associated with assessing the potential impact on confidence.

The Authority was therefore particularly interested in hearing the views of market participants.

Six submissions were received from eight participants: a mixture of generators, retailers, (including some 'gentailers') and consumers:

- (a) Two submitters expressed support for the Authority's preliminary decision.
- (b) Two submitters expressed disagreement with the preliminary decision. As well as identifying potential legal challenges, these submitters emphasised the effect of the real time pricing Code amendments in preventing a reoccurrence of these specific circumstances, submitting this means intervention is not required to promote ongoing confidence in the wholesale market.
- (c) A fifth submitter suggested it would have supported, in principle, a conclusion that a UTS occurred because of the undesirability of spot prices being determined by offers in conjunction with demand management in the circumstances of 9 August 2021. Ultimately, however, in that submitter's view, the Authority exercising its UTS powers at this time in relation to prices on 9 August 2021 could be counterproductive in its effects on confidence in the wholesale market.
- (d) The sixth submitter expressed no overall view on whether a UTS has occurred, but similarly emphasised the passage of time.

Three submitters also provided cross-submissions:

- (a) The cross-submitter who supported the preliminary decision offered a detailed analysis of the legal issues and engaged at length with the contrary views expressed by other submitters in the first round.
- (b) Two cross-submitters who disagreed with the preliminary decision submitted that the number of submissions received, their content, and the balance of opinion, suggested that market confidence has not been affected. They also emphasised the passage of time and implementation of real time pricing. These cross-submitters expressed particular concern at a UTS potentially having an asymmetric effect on contracts for the relevant period that have already settled, leading to a risk of a divergence between spot and hedge markets that will undermine confidence.

Our final decision

The Authority's final decision is that no UTS has occurred following 16 February 2024.

The PDP acknowledged that whether there was a UTS in this situation was a balanced call. Having considered the submissions received, the Authority has adjusted its view of the balance between the relevant considerations. This final decision recognises that:

- (a) The precise circumstances that led to this pricing outcome cannot reoccur. This is an unusual situation in that the issue that arose had already been addressed by Code amendments prior to the commencement of the investigation.
- (b) Accordingly, our preliminary decision was directed towards the overarching concern that in future either error or other action or event could still result in prices that are in some way inappropriate given market conditions, and the importance of industry confidence that the Authority will take necessary action to send the appropriate price signals to the market.
- (c) Submissions largely split along generator/retailer lines, but one gentailer submission took a middle course, recognising the importance of appropriate price signals, but submitting that the passage of time and implementation of the Code amendments have likely already restored confidence.

The Authority considers that this middle course has merit in the particular circumstances of these events. In this unusual set of circumstances the Authority considers that its overarching concern has been sufficiently addressed by the UTS investigation itself. The market can be confident that the Authority will consider exceptional situations and take appropriate action where necessary.

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1. Introduction

- 1.1. The Authority may investigate any situation that it suspects or anticipates may be a UTS. A UTS is a situation that threatens, or may threaten, confidence in, or the integrity of, the wholesale market. The situation cannot be one which can be satisfactorily resolved via other mechanisms under the Code (aside from the trading conduct provisions). The Code gives the Authority power to take corrective action if it considers a UTS is developing or has developed.
- 1.2. On 5 July 2022 Haast Energy Trading Limited (Haast) and Electric Kiwi Limited (Electric Kiwi) appealed to the High Court against:
 - (a) the Authority's decision on 1 September 2021 not to uphold Haast and Electric Kiwi's pricing error claim for trading periods 1 – 48 on 9 August 2021 (PEC 075)
 - (b) the Authority's decision on 1 February 2022 not to reconsider PEC 075
 - (c) the Authority's decision not to uphold a UTS alleged by Haast and Electric Kiwi to have arisen out of the events of 9 August 2021.
- 1.3. In a judgment dated 16 February 2024, *Haast Energy Trading Limited and Electric Kiwi Limited v Electricity Authority* [2024] NZHC 408 (the High Court decision) the High Court upheld the appeals against the PEC 075 decisions in respect of trading periods 39–42 and dismissed the appeal on the UTS decision as moot, given the finding on the PEC decisions.
- 1.4. In upholding the appeals on PEC 075, the High Court found that scarcity pricing had been applied to trading periods 39–42 on 9 August 2021 through a pricing error. As a result of the High Court decision, prices for trading periods 39–42 have been finalised without scarcity pricing applying.
- 1.5. On 29 February 2024, the Authority decided to open an investigation into a possible UTS following the High Court decision that scarcity prices were applied to the four trading periods due to a pricing error on the grounds that:
 - (a) spot prices have been determined by offers, in conjunction with demand management, in circumstances where scarcity pricing would have been appropriate
 - (b) this may give rise to a situation which threatens, or may threaten, confidence in, or the integrity of, the wholesale market and there is no other mechanism under the Code for satisfactorily resolving this situation.
- 1.6. In this investigation the Authority has considered all trading periods where prices may have been artificially depressed as a result of demand reduction notices by the system operator to assess whether a UTS has developed, not just trading periods 39 – 42. This is because without scarcity pricing applying, the underlying fundamentals and appropriate prices may no longer be reflected in prices on 9 August 2021.
- 1.7. When scarcity prices applied, prices on 9 August were sufficiently high to ensure the correct incentives were provided to the market. Given the High Court decision, scarcity pricing no longer applies, which raises the question whether prices were affected by demand management to an extent that, in the absence of scarcity pricing, confidence in the wholesale market has been or may be threatened.

The Authority's preliminary decision that a UTS had occurred

- 1.8. The Authority carried out an investigation and undertook analysis to reach its preliminary decision. In particular, the Authority considered:
 - (a) the actions of the system operator on 9 August 2021
 - (b) the extent to which final prices were depressed as a result of disconnected demand
 - (c) the purpose and intent of scarcity pricing and whether the circumstances of 9 August were such that the market would reasonably expect scarcity pricing to apply.
- 1.9. On balance, the Authority's preliminary view, set out in the PDP, was that confidence in the wholesale market is threatened, or may be threatened, by prices being determined by offers in conjunction with disconnected demand in circumstances where participants would expect higher prices to apply. The Authority recognised the importance of prices reflecting underlying supply and demand as this leads to efficient decisions in the short term for fuel, and in the long term for investment. The Authority was concerned that, when prices move away from efficient prices, the spot market becomes less efficient, and this means that we cannot rely on efficient investment in generation.
- 1.10. The Authority's preliminary view was that prices for trading periods 38 and 39 being artificially depressed by demand management, in circumstances where participants would expect higher prices to apply, threatens or may threaten confidence in the wholesale market.

The Authority invited submissions on its preliminary decision

- 1.11. That was however only a preliminary decision. As noted in the PDP, the purpose of the PDP was to seek feedback from interested parties on the preliminary decision and the Authority's preliminary reasoning before making a final decision.
- 1.12. The Authority noted in inviting submissions that it did not intend to refer to submissions on its previous investigation into the events of 9 August 2021 (in relation to which it published its final decision in June 2022). That was on the basis the previous investigation had been predicated on scarcity pricing applying to trading periods 39 – 42, while the present investigation proceeded on the basis that scarcity pricing has not been applied, following the High Court's finding upholding the pricing error claim on appeal.
- 1.13. The Authority welcomed feedback on all aspects of the PDP, and noted it was particularly interested in the sector's views on:
 - (a) whether prices in trading periods 38 and 39 were artificially depressed as a result of demand management by the system operator
 - (b) whether prices being artificially depressed as a result of the system operator's notices to reduce demand, combined with the absence of scarcity pricing, threatens, or may threaten confidence in, or the integrity of the wholesale market
 - (c) were any other factors not considered in the PDP that the Authority should take into account in assessing whether the situation threatens, or may threaten confidence in, or the integrity of the wholesale market; and

(d) if submitters considered that confidence in the wholesale market has been, or may be, threatened in this situation, the potential consequences in terms of future participant behaviour and security of supply and the implications for consumers.

- 1.14. Submissions were open until 5 June 2024. The Authority also invited cross-submissions.
- 1.15. Six primary submissions were received from eight market participants, and three cross-submissions. The submissions received are summarised in section 9 of this decision.

2. Background

- 2.1. This section sets out the background to the events of 9 August, the subsequent pricing error and UTS claims by participants, appeals against the Authority's decisions on those claims, and the High Court decision on the appeals.

Events of 9 August 2021

- 2.2. On the evening of Monday 9 August 2021, New Zealand faced the largest electricity demand peak on record because of one of the coldest nights of the year. At the same time as demand peaked, available generation unexpectedly declined, a result of a drop in wind generation and weed clogging the intakes of the Tokaanu power station. Slower-start generating assets were offline in the afternoon and could not be brought online in time to service the evening peak.
- 2.3. The 9 August event led to approximately 34,000 customers experiencing an electricity cut without warning, with the biggest impact in the Waikato region where over 17,000 customers were disconnected.
- 2.4. One of the system operator's principal obligations under the Code is to maintain system security. The real time data available to the system operator on 9 August 2021 showed insufficient generation available to meet demand and still have sufficient reserves for any contingent event. The real time information that the system operator was using to manage the power system suggested there was a risk of cascade failure of the national power system. This was an unprecedented event for New Zealand, and "*...the first time an event of this nature has occurred since the electricity market began in 1996*".¹
- 2.5. In order to maintain system frequency and avoid the risk of cascade failure, the system operator issued grid emergency notices (GENs) requesting participants increase energy offers and instantaneous reserve offers and decrease load. Some distributors were able to respond by reducing controllable load by ripple control, while other distributors disconnected consumers in order to reduce demand by the amount requested by the system operator.
- 2.6. After the grid emergency had ended, the system operator issued an island shortage situation notice (ISS notice) which caused the pricing manager to apply the scarcity

¹ As noted at the end of the second paragraph of the Executive Summary of the MBIE Report – <https://www.mbie.govt.nz/dmsdocument/17988-investigation-into-electricity-supply-interruptions-of-9-august-2021>

pricing provisions in the Code.² The Code (as it was in 2021) required the system operator to issue an ISS notice whenever there had been an island wide instruction to electrically disconnect demand.

- 2.7. As a result of the ISS notice on 9 August, the pricing manager determined that scarcity pricing applied to four trading periods (trading periods 39 to 42 starting at 19:00 and ending at 21:00).
- 2.8. Scarcity pricing exists to prevent electricity prices being artificially depressed during times of high demand, and to provide appropriate incentives to generators. This now occurs automatically through real time pricing, but in 2021 it relied on the issue of an ISS notice. In 2021 the scarcity provisions of the Code provided a price floor and price cap to the spot market when an electricity supply emergency causes forced power cuts (called emergency load shedding) throughout one or both islands. Where the system operator has directed load to be shed, then the ordinary pricing mechanisms in the Code would result in a lower pricing solution: prices would fall even though real demand is high.
- 2.9. In this case, the application of scarcity pricing caused prices to reset to approximately \$10,000 MW/h for trading periods 39 – 42 on 9 August. If not for the application of scarcity pricing, the average price during those trading periods would have been much lower. As a result, the gross settlement amount for generation was up to \$130 million more than if scarcity prices had not been invoked, though the net impact was likely significantly less.³
- 2.10. The Code, as it was in 2021, contained provisions to give effect to the policy discussed above. However, these provisions specify that the system operator must require electrical disconnection as a pre-condition for scarcity pricing to apply (i.e. other forms of demand suppression are not sufficient).
- 2.11. The Authority and the system operator agree that the ISS notice was issued in error. The system operator did not require the electrical disconnection of demand on 9 August 2021; instead it requested that distributors reduce demand. Some distributors were able to respond to the system operator notices through ripple control, while other participants had to electrically disconnect customers to achieve the reduction requested by the system operator. As a result, the ISS notice and thus the triggering of scarcity pricing, did not follow the Code.
- 2.12. Real time pricing reforms came into force in November 2022. Under real time pricing, if there is a reserve or energy scarcity (where generation is so scarce that there is not enough to cover demand and forced power cuts are required) scarcity pricing is automatically applied in the market schedules when there is not enough generation or

² One of the Authority's functions under section 16 of the Electricity Industry Act 2010 is to contract for market operation services to operate the electricity market. The pricing manager was the market operation service provider appointed by the Authority responsible for collecting data and producing provisional, interim, reserve and final prices. Final prices were then provided by the pricing manager to the clearing manager to use in the clearing and settlement processes. The pricing manager was also responsible for considering any pricing error claims and resolving any pricing error that had occurred. The implementation of real time pricing mean that the pricing manager role is no longer required.

³ The overall effect was to raise the gross settlement amount for electricity by approximately \$130 million. However, the actual financial gain for generators is likely to have been significantly less. This is because generators that are also retailers were both selling and buying electricity. Additionally, many retailers will have hedge contracts that seek to protect them from price spikes. As a result, the impact on consumers is also significantly less than \$130 million, particularly because many consumers will be on fixed price contracts.

instantaneous reserve offered into the market to meet the forecast demand. As a result, there is no longer any distinction (for pricing purposes) between electrical disconnection and other demand-reduction measures taken in real time. Scarcity pricing is no longer triggered by ISS notices. Instead, scarcity pricing automatically applies whenever this is merited by the underlying (im)balance of supply and demand.

- 2.13. As the Code has been amended and the scarcity pricing provisions contained in the Code as at August 2021 have been revoked following the introduction of real time pricing, references to Code clauses within this paper are those that applied at the relevant time unless stated otherwise. Copies of previous versions of the Code can be found on the Authority's website.⁴

The pricing error claim

- 2.14. Following 9 August, Haast and Electric Kiwi raised a pricing error claim (PEC 075). A pricing error is defined in the Code as a price that is likely to be incorrect as a result of:
- (a) an incorrect input being used in calculating the interim price or interim reserve price; or
 - (b) the pricing manager having followed an incorrect process in calculating that interim or reserve price, in contravention of this Code.
- 2.15. Haast and Electric Kiwi contended in PEC 075 that participant behaviour led to higher spot prices for all trading periods on 9 August 2021.
- 2.16. The pricing manager provided a recommendation to the Authority on PEC 075 in August 2021. As the pricing manager did not identify any incorrect input or incorrect process being used, the recommendation was to decline to uphold the pricing error claim.
- 2.17. In the course of reviewing the pricing manager's recommendation, the Authority identified a potential issue with the ISS notice issued by the system operator. At the time of considering PEC 075 neither the system operator nor the Authority had reached a view as to whether the ISS notice was validly issued.
- 2.18. Ultimately the Authority considered that any issue with the ISS notice could be considered within the context of a UTS investigation that was already underway in respect of the events of 9 August.
- 2.19. Accordingly, the Authority decided on 1 September 2021 not to uphold PEC 075 on the basis that a potentially incorrect ISS notice did not constitute an incorrect input or incorrect process in the context of a pricing error claim.
- 2.20. Haast and Electric Kiwi asked the Authority to reconsider the pricing error claim in December 2021 on the basis of the allegedly incorrect ISS notice. The Authority declined to reconsider the claim on 1 February 2022.

⁴ Previous versions of the Code | Electricity Authority (ea.govt.nz)

The 2021 UTS claim

- 2.21. In addition to PEC 075, Haast and Electric Kiwi also submitted a UTS claim on 12 August 2021 in respect of trading periods 37 – 42 on 9 August 2021. Two more parties subsequently joined the claim: Flick Energy Limited and Switch Utilities Limited (Vocus New Zealand). The claim alleged that the UTS was individually and jointly caused by Contact Energy Limited (Contact) and Genesis Energy Limited (Genesis) on the grounds that:
- (a) Genesis did not offer Huntly Rankine Unit 4 (HLY4) to the market
 - (b) Contact had Taranaki Combined Cycle (TCC) available but did not run it.
- 2.22. In the course of its investigation into the claimed UTS, the Authority also considered whether a UTS had arisen through the triggering of the Code’s scarcity pricing regime by the system operator.
- 2.23. In response to the UTS claim, the Authority directed the pricing manager to hold prices interim for trading periods 37 – 42 under clause 13.184 of the Code.
- 2.24. In June 2022 the Authority published its final decision paper on the claim of a UTS. The Authority found that a UTS did not occur during trading periods 37 – 42 on 9 August 2021. In relation to HLY4 and TCC not being offered to the market, the Authority considered that no UTS occurred because the decision not to offer HLY4 and TCC was within the range of what the market might normally expect in the circumstances and therefore the failure to bring it online or offer it to the market did not threaten confidence in, or the integrity of, the wholesale market.
- 2.25. In respect of the triggering of scarcity pricing, the Authority concluded that while the system operator made errors during the event, including the issuing of the ISS notice, there was no UTS because the Authority determined the circumstances of 9 August 2021 were those in which scarcity pricing was designed to apply. The application of scarcity pricing to the four trading periods given the underlying conditions was found not to threaten confidence in, or the integrity of, the wholesale market.

The High Court decision upholding the pricing error claim

- 2.26. Haast and Electric Kiwi appealed against the decisions on the pricing error claim and 2021 UTS claim on the basis that the Authority erred by declining to intervene in the setting of prices on the electricity wholesale market for 9 August 2021. Haast and Electric Kiwi submitted that the use of scarcity pricing was an “incorrect process” or an “incorrect input” in terms of the definition of “pricing error” in clause 1.1 of the Code.
- 2.27. The High Court upheld the appellants’ pricing error appeals in respect of trading periods 39 – 42, finding that while there was no error in the pricing inputs, the pricing manager followed an incorrect process:⁵

“....

- (e) *The ISS Notice was issued in breach of the Code.*

⁵ *Haast Energy Trading Limited and Electric Kiwi Limited v Electricity Authority* [2024] NZHC 408 at [106]-[107].

(f) This triggered the Pricing Manager to calculate interim prices using the scarcity measure under sch 13.3A (rather than the ordinary methodology in sch 13.3).

(g) This resulted in a significant increase in the price of electricity.

[107] Because (a) above should never have occurred, the Pricing Manager's actions at (b)–(c) were wrongfully triggered, which amounted to an incorrect process in calculating that interim price or interim reserve price" which is a pricing error under cl 1.1 of the Code...."

2.28. The High Court dismissed the appeal on the UTS decision as moot, given the finding on the PEC 075 decisions.

Resetting of prices following the High Court decision

2.29. The High Court decision upholding the PEC 075 appeals in respect of trading periods 39 - 42, resulted in the clearing manager⁶ being required to recalculate prices without the application of scarcity pricing for the four trading periods.

2.30. In accordance with its legal obligations under the Code, on 23 February 2024 the Authority notified the clearing manager of the decision on the pricing error claim and directed it to recalculate interim prices without scarcity pricing applying for those four trading periods.

2.31. On 29 February 2024 the Authority lifted the existing direction to hold prices interim for trading periods 37 – 42 on 9 August 2024 and directed the clearing manager to finalise prices for those trading periods. On 5 March 2024 the clearing manager finalised prices.

2.32. The resetting of prices without the application of scarcity pricing reduces prices for trading periods 39 – 42 from approximately \$10,000 MW/h to well under \$1,000 MW/h. This is set out in further detail in section 7 below. Scarcity pricing had not been applied to trading periods 37 and 38.

2.33. The High Court decision referred to trading periods 39-42 as these were the periods that scarcity pricing applied to. As set out above, the Authority's UTS investigation is not confined to these trading periods, as without scarcity pricing ensuring the correct incentives in last resort generation, it was necessary to look at all trading periods where prices may have been artificially depressed as a result of demand management.

3. This investigation considered whether prices being determined by offers in conjunction with demand management amounts to a UTS

3.1. On 29 February 2024, the Authority decided to commence an investigation into whether final prices for 9 August 2021 being determined by offers in conjunction with demand management, in the absence of scarcity pricing, could threaten confidence in, or the integrity of the wholesale market.

⁶ Previously pricing manager at the time PEC 075 was made.

- 3.2. The Authority acknowledged that the introduction of real time pricing will prevent the same event happening again. Scarcity pricing will apply automatically and without the requirement of an ISS notice.
- 3.3. The Authority was mindful, however, of the risk that either error or other action or event could result in prices that are in some way inappropriate given market conditions. It is important that the industry has confidence that the Authority will take any necessary action where prices have been artificially depressed or inflated, to send the appropriate price signals to the market.
- 3.4. As noted in the PDP, the decision in 2021 that there was no UTS as a result of scarcity pricing applying is not necessarily binary. That is to say, while the Authority found that scarcity pricing did not create a UTS, it does not automatically follow that the absence of scarcity pricing results in a UTS.
- 3.5. The issue to be determined in the 2021 UTS investigation was whether the application of scarcity pricing could amount to a UTS. The Authority determined that the circumstances of 9 August 2021 were those in which scarcity pricing was designed to apply, and there was no UTS as prices were what the market might expect given the underlying conditions.
- 3.6. In this UTS investigation, the issue has been whether final prices that are depressed by demand management amounts to a situation that threatens or may threaten, confidence in or integrity of the wholesale market.
- 3.7. In line with this, as noted in the PDP, if a UTS were found to have occurred, it was not necessarily the case that corrective action to set prices as high as those applied by scarcity pricing, for example, would be required to restore confidence in the wholesale market.

4. Legal framework for a UTS

- 4.1. Under Part 5 of the Code the Authority is responsible for investigating any situation that it suspects or anticipates may be a UTS. A UTS is a situation that threatens, or may threaten, confidence in, or the integrity of, the wholesale market, and which cannot be satisfactorily resolved via other mechanisms under the Code (aside from the trading conduct provisions). The Code gives the Authority power to take corrective action if it considers a UTS is developing or has developed. This section provides further detail on the legal framework for a UTS.

The Code defines what a UTS is

- 4.2. Part 5 of the Code governs the Authority's ability to act in respect of a UTS. Specifically, clause 5.1 of the Code provides that:
 - (1) *If the Authority suspects or anticipates the development, or possible development, of an undesirable trading situation, the Authority may investigate the matter.*
- 4.3. A UTS is defined in clause 1.1 of the Code as:
 - any situation—*
 - (a) *that threatens, or may threaten, confidence in, or the integrity of, the wholesale market; and*

(b) that, in the reasonable opinion of the Authority, cannot satisfactorily be resolved by any other mechanism available under this Code (but for the purposes of this paragraph a proceeding for a breach of clause 13.5A is not to be regarded as another mechanism for satisfactory resolution of a situation).

4.4. To assist in identifying a potential UTS, clause 5.1(2) of the Code provides the following examples of what the Authority may consider to constitute a UTS:

(a) manipulative or attempted manipulative trading activity:

(b) conduct in relation to trading that is misleading or deceptive, or is likely to mislead or deceive:

(c) unwarranted speculation or an undesirable practice:

(d) material breach of any law:

(e) a situation that threatens orderly trading or proper settlement:

(f) any exceptional or unforeseen circumstance that is contrary to the public interest.

4.5. However, as is noted in clause 5.1(3) of the Code:

(3) To avoid doubt,—

(a) the list of examples in subclause (2) is not an exhaustive list, and does not prevent the Authority from finding that an undesirable trading situation is developing or has developed in other circumstances; and

(b) an example listed in subclause (2) does not constitute an undesirable trading situation unless the example comes within the definition of that term in Part 1.

4.6. Therefore, even if a situation does not come within the examples in clause 5.1(2), it may still be a UTS under the Code. Similarly, even where a situation does come within those examples, the Authority will still need to establish that the situation comes within the definition of a UTS as set out in Part 1 of the Code.

4.7. Where the Authority does find a UTS, clause 5.5 of the Code requires that the Authority “must” attempt to correct the UTS and “restore the normal operation of the wholesale market as soon as possible”.

Scope of the Code’s UTS provisions

4.8. For a situation to be categorised as a UTS it must meet the criteria set out in paragraphs (a) and (b) of the definition in clause 1.1 of the Code, as set out above. That is, the situation threatens, or may threaten, confidence in, or the integrity of, the wholesale market and, in the reasonable opinion of the Authority, the situation cannot satisfactorily be resolved by any other mechanism available under the Code (aside from the trading conduct provisions).

4.9. A UTS may exist even if there is no Code breach, and a Code breach may occur without a UTS arising.

4.10. The UTS provisions are deliberately very broad in scope. The Authority is ultimately responsible for determining whether, and how, they apply to a particular situation.

The analysis the Authority undertakes to inform and support that judgement may take different forms depending on the situation.

- 4.11. In exercising this broad discretion, the Authority is guided by its main statutory objective, which is “to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.”
- 4.12. The Authority must also be mindful of the specific purpose of the UTS provisions. As illustrated by clause 5.5 of the Code, the UTS regime is designed to allow the Authority to correct a situation that threatens, or may threaten, the wholesale market, and to restore normal operation.
- 4.13. In determining whether confidence in the wholesale market is, or may be threatened, the Authority avoids hindsight-bias and will take into account all the factors that might have led to imperfect decision-making at the time.
- 4.14. The nature of the Authority’s UTS powers is informed by the examples given in clause 5.2(2) of powers which the Authority can exercise to correct a UTS:
 - (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; and/or
 - (d) directing a participant to take any actions that will, in the Authority’s opinion, correct or assist in overcoming the undesirable trading situation.
- 4.15. In determining whether there is a UTS, there are three questions to consider:
 - (a) whether the situation affects the wholesale market
 - (b) whether the situation threatens, or may threaten, confidence in, or the integrity of, the wholesale market; and
 - (c) whether the situation may be resolved by any other mechanisms available under the Code (aside from the trading conduct provisions in clause 13.5A of the Code).

Question 1: Does the situation affect the wholesale market?

- 4.16. The wholesale market is defined in clause 1.1 of the Code⁷ and includes:
 - (a) *the spot market for electricity, including the processes for setting—*
 - (i) *[Revoked]*
 - (ii) *forecast prices and forecast reserve prices:*
 - (iii) *[Revoked]*
 - (iv) *interim prices and interim reserve prices:*
 - (v) *final prices and final reserve prices:*
 - (vi) *dispatch prices and dispatch reserve prices*
 - (b) *markets for ancillary services:*

⁷ Electricity Industry Participation Code 2010 (current version).

(c) the hedge market for electricity, including the market for FTRs.

4.17. The Authority is required to assess whether the situation impacted the wholesale market as provided for in the above definition. The Authority's view is that, in order to come within this, any threat must be significant enough to be a threat to the wholesale market as a whole, and the Authority needs to be satisfied that the issue has wider implications that might threaten confidence in, or the integrity of, the wholesale market more generally.⁸

Question 2: Does the situation threaten, or may it threaten, confidence in, or the integrity of, the wholesale market?

4.18. The definition of a UTS requires the situation to actually or potentially threaten "confidence in" or "the integrity of" the wholesale market.

4.19. The Authority's view is that threatening the wholesale market's integrity requires a situation that directly impacts how the market operates, such that it might jeopardise the market's ability to function.⁹

4.20. By contrast, threatening confidence in the wholesale market requires that the situation jeopardises participants' faith in the market. This may involve considering how participants in the market would perceive and react to the situation.

4.21. Assessing confidence and/or integrity requires the Authority to look at indicators and other indirect factors to decide whether a UTS has occurred. It is not possible to directly observe or measure confidence in, or the integrity of, the wholesale market. Indicators that the Authority may consider – if relevant – could include:

- (a) prices and whether these are consistent with underlying supply and demand
- (b) prices and whether these are consistent with the conditions of the market
- (c) the scale and duration of an event in order to assess whether it threatened confidence
- (d) whether the conduct and decisions of participants were consistent with what might be expected if the market was operating normally.

4.22. The Authority needs to consider the particular facts of each situation and apply indicators that are relevant and material. These may differ from case to case.

Question 3: Can the situation be resolved by any other mechanisms available under the Code?

4.23. Where the Authority considers that there is a situation which threatens, or may threaten, confidence in, or the integrity of, the wholesale market, it must then consider whether the matter can be satisfactorily resolved under any other Code provisions. The trading conduct provisions, contained in clause 13.5A of the Code, are expressly excluded from this analysis.¹⁰

⁸ For more information in relation to the UTS provisions and previous decisions, see: [Undesirable trading situations | Electricity Authority \(ea.govt.nz\)](#)

⁹ In relation to para 5.19 – 5.22, see: [Undesirable trading situations | Electricity Authority \(ea.govt.nz\)](#)

¹⁰ Electricity Industry Participation Code 2010, pt 1, cl 1.1

5. The Authority considered its main statutory objective

- 5.1. In considering the application of the UTS provisions, the Authority considered its main statutory objective. While the Code sets out the legal framework within which the Authority's consideration of a UTS must occur, the application of the Authority's main statutory objective provides an economic context.
- 5.2. The Authority considers that its main statutory objective requires it to exercise its functions—set out in section 16 of the Electricity Industry Act 2010 (Act)—for the long-term benefit of electricity consumers to deliver the following outcomes:
- (a) facilitate or encourage increased competition in the markets for electricity and electricity-related services, taking into account long-term opportunities and incentives for efficient entry, exit, investment and innovation in those markets.
 - (b) encourage industry participants to efficiently develop and operate the electricity system to manage security and reliability in ways that minimise total costs whilst being robust to adverse events.
 - (c) increase the efficiency of the electricity industry, taking into account the transaction costs of market arrangements and the administration and compliance costs of regulation, and taking into account Commerce Act 1986 implications for the non-competitive parts of the electricity industry, particularly in regard to preserving efficient incentives for investment and innovation.
- 5.3. The UTS provisions promote, and should be interpreted in light of, the Authority's main statutory objective as set out in section 15 of the Act, specifically:
- ... to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.*
- 5.4. The broad UTS provisions are also consistent with the economic rationale for UTS-type provisions. Such provisions are intended to achieve operationally efficient and competitive markets. In particular, they recognise that market providers cannot foresee all eventualities and that some practices may be difficult to identify and prevent in advance of using other rules. As such, UTS provisions often give market providers broad discretion to address practices which might in some way threaten the market.

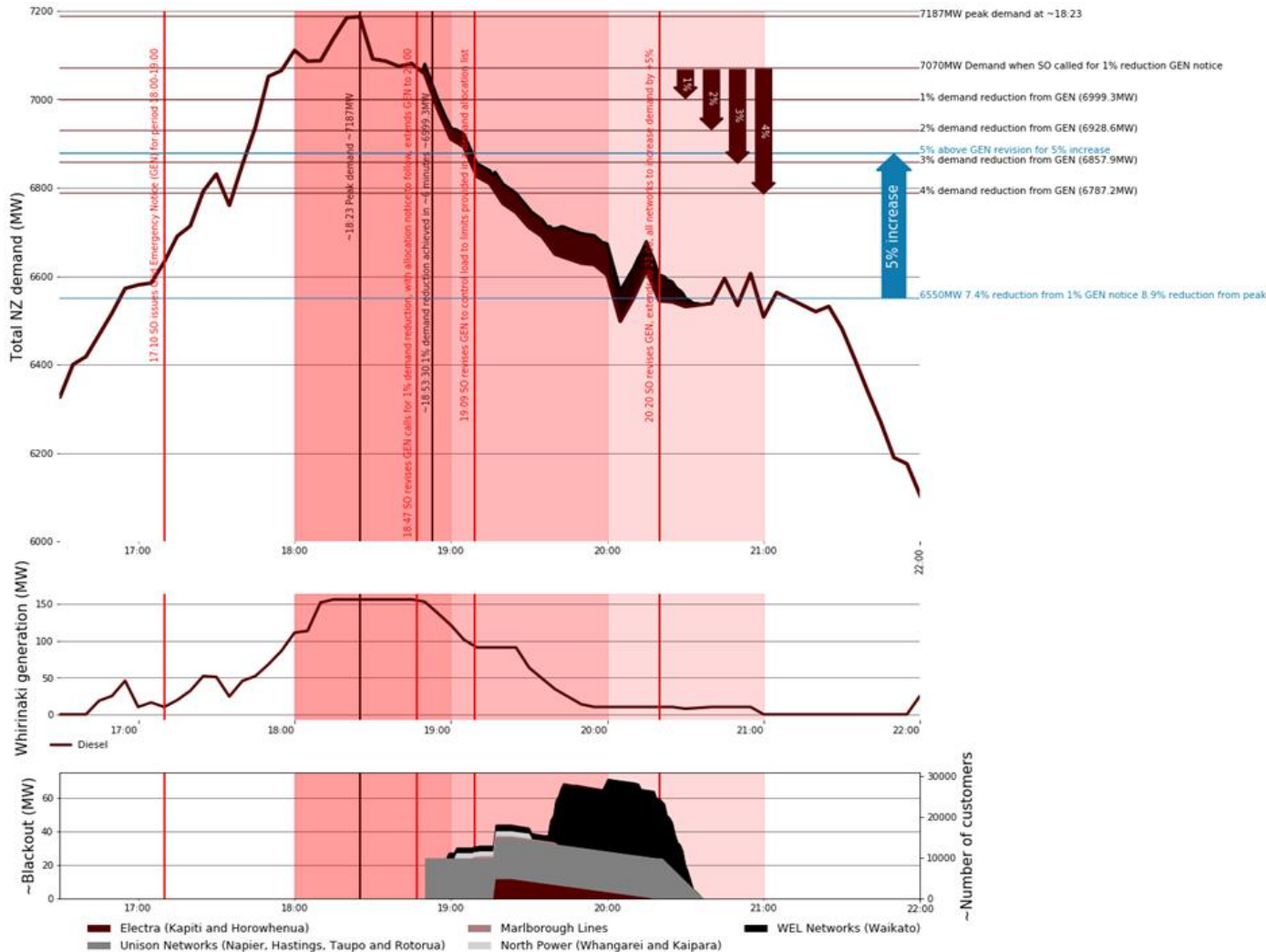
6. Context for the wholesale market on 9 August 2021

- 6.1. The timeline of the events of 9 August and the system operator notices are set out in Appendices A and B. In summary, however:
- (a) the 18:47 Grid Emergency Notice (GEN) is the first system operator action that caused demand to be disconnected. Figure 1 shows that this happened in three lines companies' areas.
 - (b) at 18.52 the power system lost 47 MW at Tokaanu.
 - (c) by 18.53 a 70 MW reduction in load was achieved relative to 18:47 when the 1% GEN was issued.

(d) at 19:09 Transpower issued the demand allocation notice that resulted in more consumers being disconnected.

6.2. Figure 1 illustrates the 9 August peak event. It shows the timing of the system operator GENs against total demand (top chart), diesel generation at Whirinaki (middle chart), and the timing (and approximate magnitude) of customer disconnections (bottom chart).

Figure 1 - The August 9 event summarised: load, Whirinaki generation and disconnections



6.3. The vertical red lines indicate the timing of when the GEN was sent, while the shaded pink regions indicate the evolving Grid Emergency period. At 5:10pm, the system operator issued the first GEN for the peak period between 6pm and 7pm (darker shaded pink region), calling for increased generation offers and decreased demand.

6.4. Network companies responded by reducing controllable demand such as hot water heating and other industrial demand. By 6pm the grid emergency had started. Total generation reached a peak by about this time. To complicate matters, between 6:05pm and 6:10pm around 124 MW of generation was lost on contingency from the Tokanu hydro station (later cited as being caused by lake weed). This loss was partially replaced by additional generation, mainly from Whirinaki diesel generation in Hawke’s Bay and Maraetai hydro generation on the Waikato river.

- 6.5. By around 6:20pm peak demand was reached, remaining essentially constant for around 25 minutes until 6.45pm. At 6.47pm the system operator issued a revision to the GEN. This GEN asked for all network companies to reduce demand by 1%. It also extended the grid emergency end time from 7pm to 8pm and stated that a demand allocation notice would follow. Immediately following this GEN, demand fell.
- 6.6. Lines companies (especially those who had used all controllable demand) started tripping distribution feeders to customers in their attempts to comply with the 1% reduction notice – these power cuts are illustrated in both the bottom chart and also by the darker brown area in the top chart. By 6:53pm, around 6 minutes after the GEN revision, total demand had decreased by the 1% targeted reduction set by the system operator. However, with network companies responding at different times and with natural demand reduction occurring after the peak period, demand continued to drop as illustrated in the top chart.
- 6.7. By 7:09pm the system operator revised the GEN notice and issued individual demand allocations for various participants. As illustrated in the top chart, by this time total demand had decreased by over 3% since the 1% call and many generators had run back from their maximum generation. The middle chart shows Whirinaki diesel generation which had decreased from over 150 MW to under 100 MW by 7:09pm. Additionally, both Stratford gas peakers, Tokaanu hydro station, Maraetai hydro station and hydro stations on the Ohau scheme in the South Island had all reduced generation output to match the now falling demand.
- 6.8. Network companies such as WEL Networks (Hamilton/Waikato), who responded quickly to the 1% request were later required to trip customers. The timing and approximate magnitude of the power cuts resulting from this action are illustrated on the bottom panel of Figure 1 along with the brown shaded area on the top panel. We estimate that approximately 80 MWh was lost through feeder tripping/power cuts, with perhaps an additional 300-400 MWh of demand response by network companies during this time.
- 6.9. At 8:20pm the system operator issued a further GEN revision, extending the grid emergency end time from 8pm to 9pm – illustrated by the lighter shaded pink area. This GEN revision stated that all network companies could increase demand by 5%. As illustrated in the top chart, by this time total demand was around 6550 MW, or 7.4% lower than when the 1% GEN notice was sent. As illustrated by the blue arrow, a 5% increase in demand from this point indicates a total demand higher than the demand at the time of the 7:09pm demand allocation notice.
- 6.10. At 9:01pm the system operator revised the GEN, ending the grid emergency.

The system operator was observing that the power system was under stress

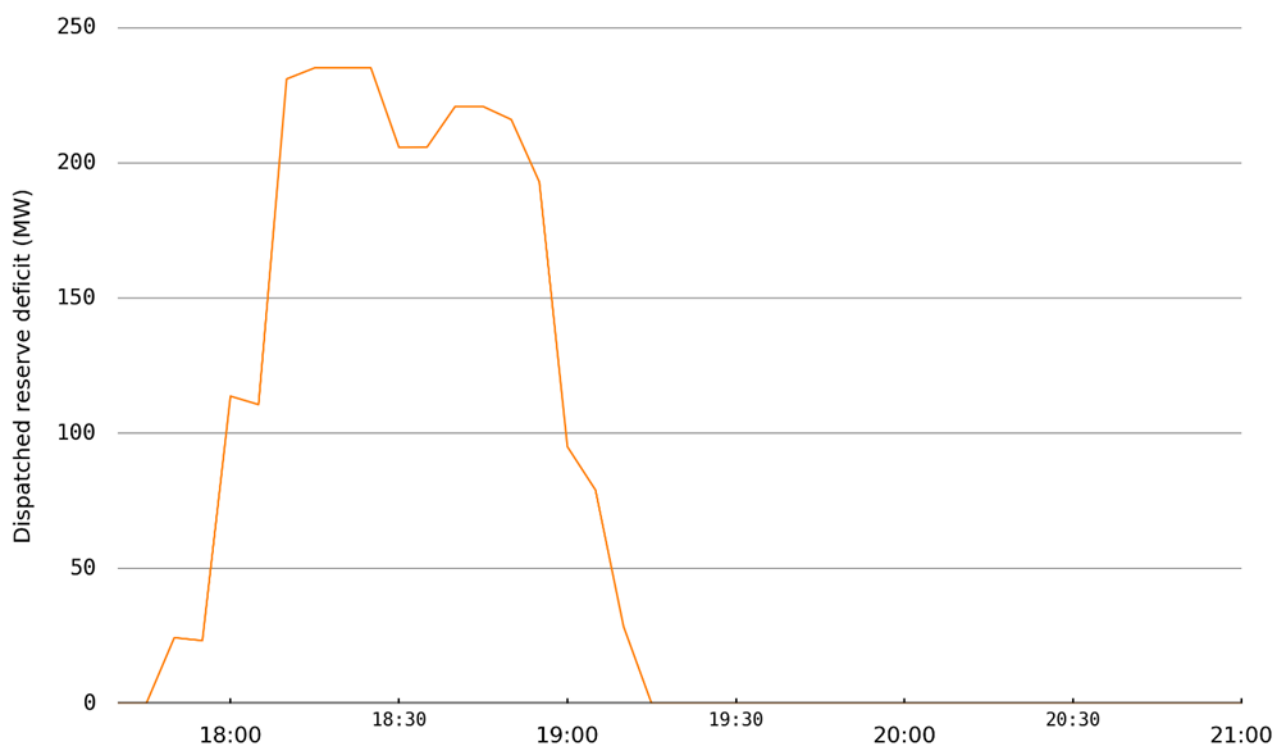
- 6.11. The interim final pricing schedule indicates a reserve deficit of less than 1 MW for trading periods 37 and 38. This gives the incorrect impression that the event could have been managed without any load shedding. As the interim final pricing schedule is an ex-post schedule, it includes the actions taken by the system operator to mitigate the security issues they observed in real time in its calculation of the final prices.

6.12. As such, the situation facing the system operator in real time was very different. There are several reasons why ex-post schedules may not appear as bad as real time schedules:

- (a) The NRSS (non-responsive short schedules) run at 17:03, 17:33, 18:33 and 19:03 showed infeasible prices for trading periods 37 through 39 (ie, 18:00 through 19:30), which indicated a shortage of instantaneous reserve to maintain a secure power system. This triggered the system operator to issue the first GEN notice at 17:10.
- (b) Figure 2 shows that between 17:45 and 18:10, the system operator observed a real time reserve deficit steadily increasing up to 230 MW. When the GEN was issued at 18:47, the reserve deficit was still running at 220 MW and showing no sign of abating. The subsequent reduction in reserve deficit was due in large part to the instructed load shedding.

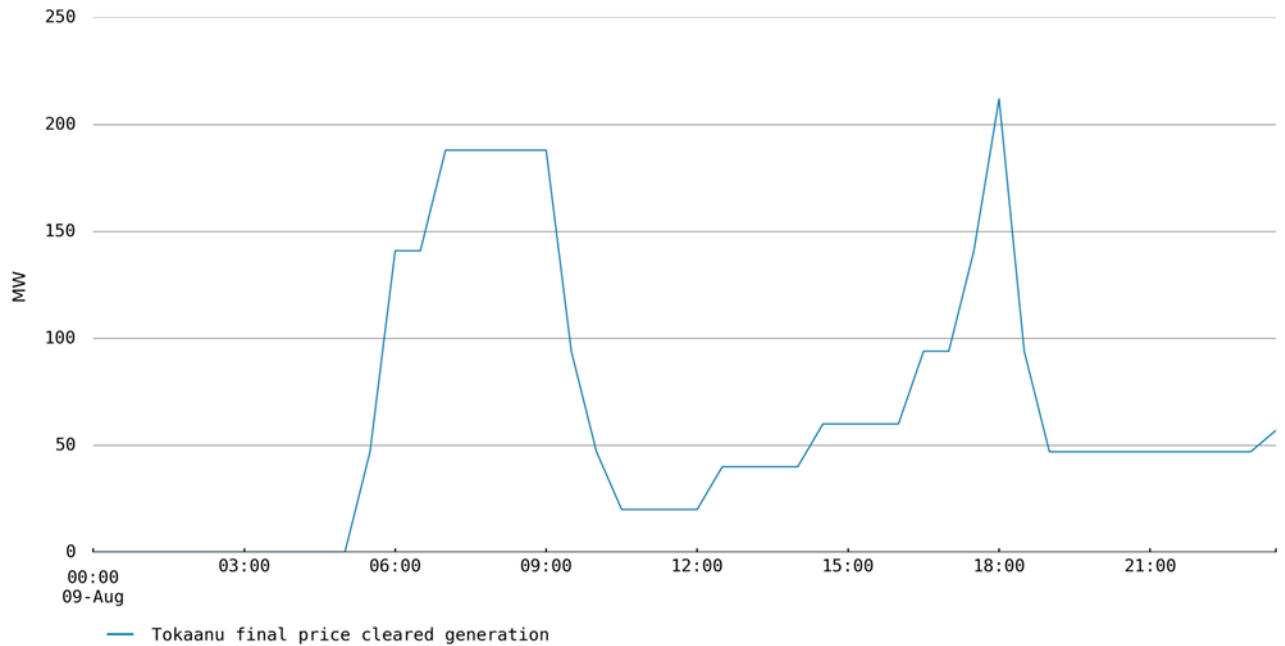
6.13. This is an obvious sign of system stress as it suggests that if a generator faults, there may be insufficient reserves, leading to automatic under frequency load shedding (AUFLS).

Figure 2 – Reserve deficit



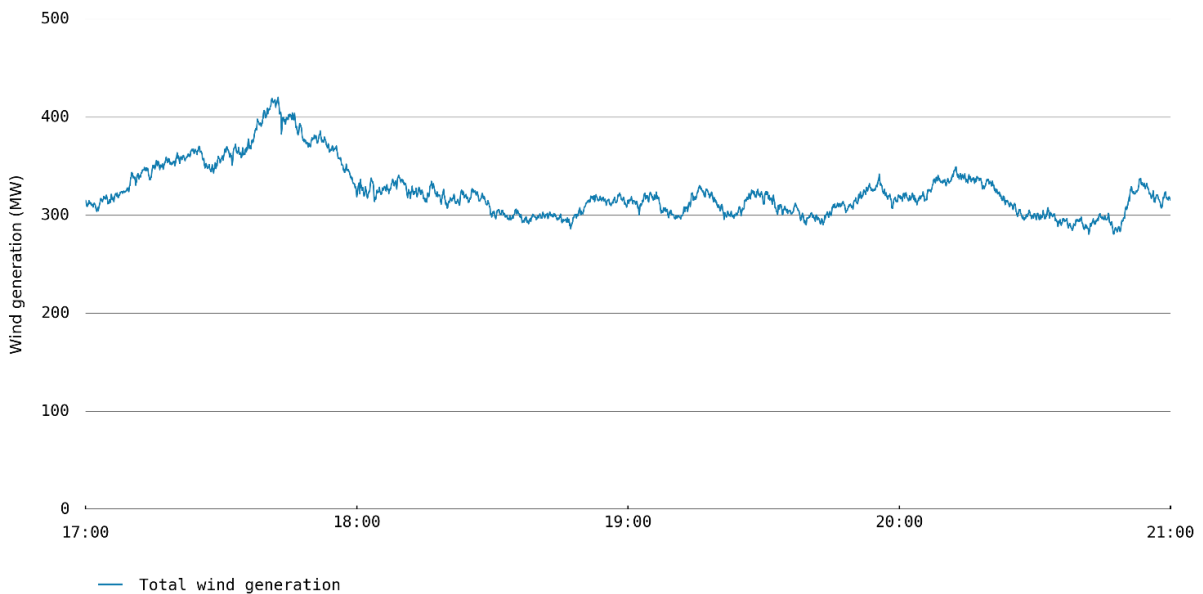
6.14. Figure 3 shows that between 18:06 and 18:52, Tokaanu’s output progressively reduced from 218 MW down to 47 MW due to weed blocking the intake screens (the second time this had occurred that day). This meant that a system already stressed lost about 150 MW at a time of peak demand.

Figure 3 – Tokaanu generation



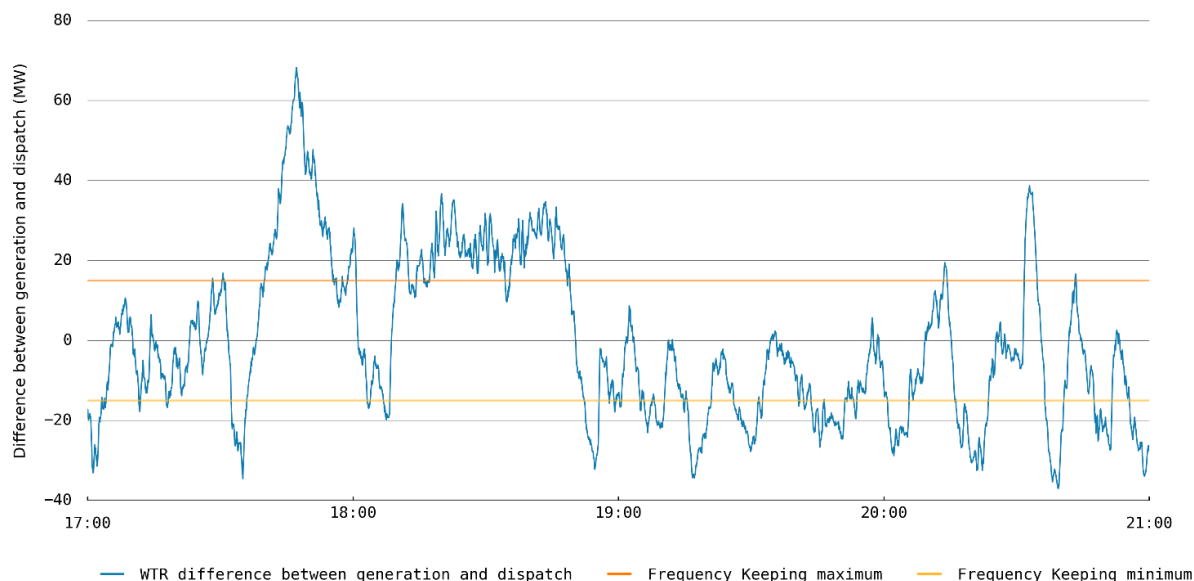
6.15. In addition, Figure 4 shows that between 17:40 and 18:40 wind generation had dropped by around 120 MW. Similar to the reduced output from Tokaanu, this meant less generation in an already stressed system.

Figure 4 – Total NZ wind generation



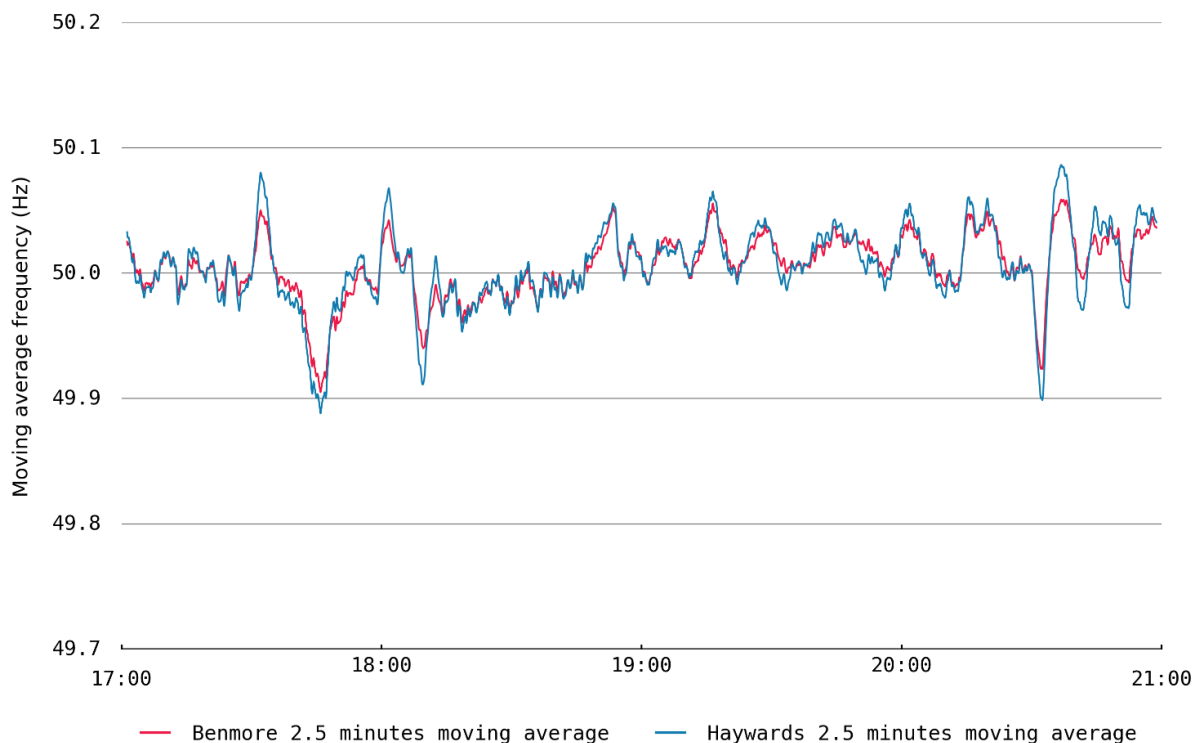
6.16. The system operator had been unable to keep the Waitaki River block within its frequency keeping band, indicating that there was next to no uncleared generation offers available for dispatch. Figure 5 shows the Waitaki River block operating above its maximum limit from 17:40 to 17:55 and again from 18:10 to 18:48. This is a sign of severe shortage in the power system as the frequency keeper is not able to balance supply and demand as it is supposed to.

Figure 5 – Waitaki River frequency keeping performance



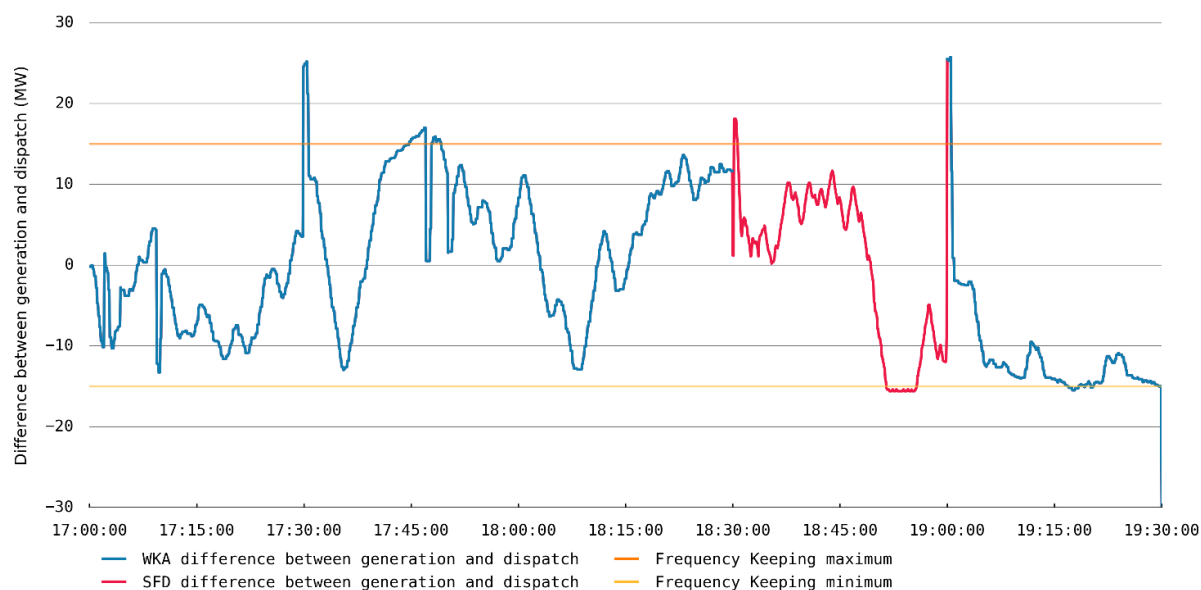
6.17. Figure 6 shows that, as a result, the system frequency sagged significantly below 50 Hz during the earlier part of this period. This is a sign that demand is overwhelming supply. The risk is that if the frequency dips low enough then instantaneous reserves will trip leaving the power system exposed to any fault that might occur. With the power system as exposed as it was, the consequences of this could be more disconnected load because of AUFLS, or cascade failure. This would involve widespread disconnection of customers.

Figure 6 – Island frequency



6.18. Figure 7 shows that that the North Island frequency keeping stations managed to stay essentially within their regulating bands.

Figure 7 – North Island frequency keeping performance



The system operator’s actions were appropriate and proportionate given the real time information available

6.19. The Authority considers the actions taken by the system operator on 9 August 2021, while not perfect, were reasonable and justified in the circumstances given the real time information available. The Authority brought proceedings before the Rulings Panel against the system operator in connection with its actions on 9 August 2021, in particular its demand allocation. Both parties agreed that the system operator breached clause 7(1)(a) of the Code, the “reasonable and prudent” operator standard, based on deficiencies in the use of the load shed restore (LSR) tool, and the issuing of the ISS notice. However, the Rulings Panel noted in relation to the statement of facts agreed by the Authority and the system operator that “the combined effects of the demand reductions requested by the system operator successfully allowed control of system frequency to be maintained”.¹¹ If the situation had continued to deteriorate, system frequency could have fallen below 49.25 Hz, which could ultimately have triggered AUFLS.

6.20. While the Authority and the system operator agree that the ISS notice was issued in error, as the Code mandated prerequisites were not met, the Authority considers the system operator would have been justified in requiring the electrical disconnection of demand based on what it was seeing on the evening of 9 August. As a result, the issuing of the ISS notice was deemed in breach of the Code based on the wording contained in the 18:47 GEN notice, which “requested” demand reduction by 1% rather than “requiring” demand reduction.

¹¹ *Electricity Authority v Transpower New Zealand Limited* Rulings Panel decision C-2022-002, 2 May 2023

7. The depression of prices on 9 August 2021

The Authority's analysis of the effects of disconnections on prices

- 7.1. This section details the analysis undertaken by the Authority, which was set out in the PDP, to assess the extent to which prices were depressed on 9 August 2021 as a result of disconnection.
- 7.2. This analysis was undertaken to determine if there was a material change in prices as, absent a material change in prices, prices would be consistent with the underlying fundamentals.
- 7.3. In order to determine the effect of the system operator notices to reduce demand the Authority has used vectorised scheduling, pricing and dispatch (vSPD)¹² to model market outcomes as if demand had not been cut. This analysis shows prices were depressed on 9 August 2021 as a result of the actions taken by the system operator to manage the risk of cascade failure.
- 7.4. As explained in the PDP, in its analysis, the Authority used just the demand cuts that resulted in disconnected consumers and has not included the other demand that was cut due to the GEN notices from the system operator. As demand response, such as ripple control, is used routinely in the power system, this demand was not added back in for this simulation, because the focus was on measuring how much prices were depressed when the expectation, as a result of either the scarcity pricing provisions or the underlying fundamentals, (in particular the unprecedented high demand and low supply) was that there would be high prices. For this purpose, it is the demand from disconnected consumers that is relevant. Demand from ripple control is not relevant as it is not contrary to expectations.

Prices were depressed as a result of disconnections following demand management by the system operator

- 7.5. Prices were depressed because unpriced demand was competing with high priced thermal generation, causing it to be dispatched down and to receive a lower price. The impact was felt by marginal generation that was both dispatched for less quantity as well as receiving a lower price.
- 7.6. As supply on 9 August 2021 became increasingly tight, more expensive generation sources were called upon to satisfy demand, which would ordinarily have caused the spot price to rise. However, the system operator notices to reduce demand to reduce the risk to the power system, resulted in demand (and consequently spot prices) being suppressed.
- 7.7. The analysis undertaken using vSPD shows that compared to final prices, spot prices in trading periods 38 and 39 are higher, with the largest effect in trading period 38, which is not one of the scarcity trading periods. This is shown in Figure 12 below.
- 7.8. The Authority acknowledges that this situation would be unlikely to occur in reality, as it would require the system operator to ignore the indicators of system stress set out

¹² The Authority is responsible for developing, maintaining and updating vSPD, which is an analytical tool that the Authority uses to simulate Transpower's scheduling, pricing and dispatch model so we can analyse the New Zealand electricity market. This model is publicly available and allows the sort of simulation set out in this section.

in section 6 above. This modelling exercise simply provides an estimate of the effect of disconnections directed by the system operator on prices. The difference between the modelled spot prices in this scenario and the final prices represents the range of outcomes that could have happened with different levels of disconnection.

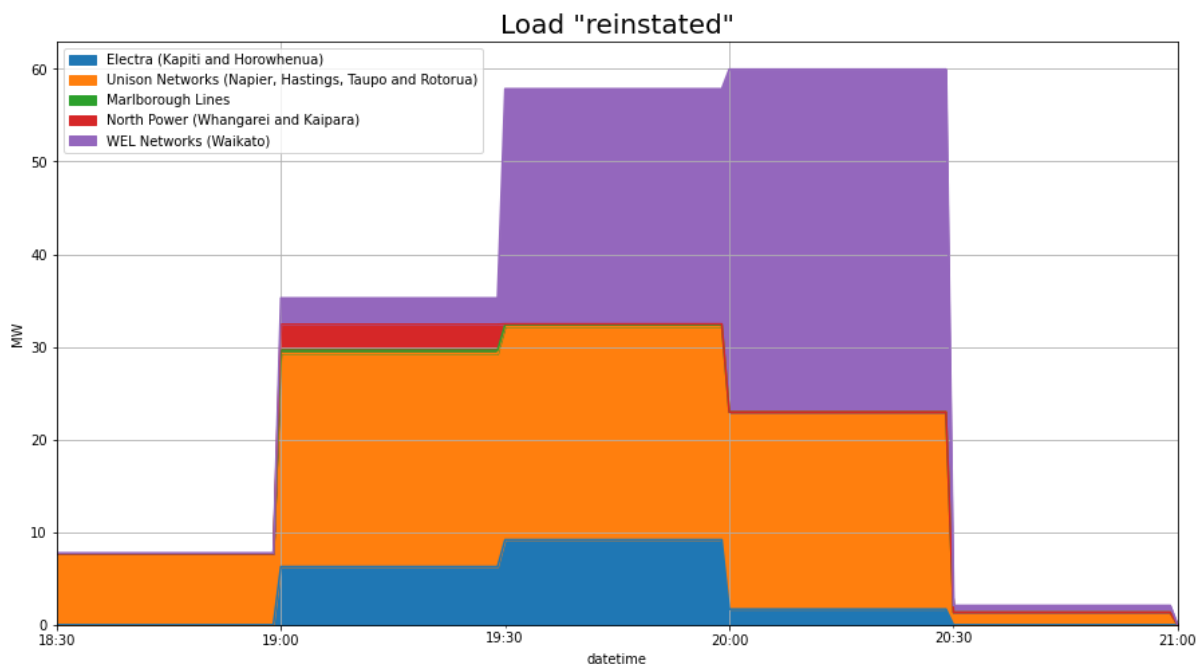
- 7.9. If demand reduction resulting in disconnections had not occurred as a result of the system operator notices, prices would have been much higher in trading periods 38 and 39 to reflect the scarcity of generation and high demand.
- 7.10. The effect of disconnecting consumers was to add up to 80 MW of unpriced demand response into the power system. This unpriced demand response displaced last resort generation plant effectively outcompeting offered generation.
- 7.11. The impact on competition is twofold: it reduced the marginal price in the spot market, and reduced the volume that was being generated by the generators at the end of the offer stack. Using the evidence from the simulation above, the effect is mostly a price effect. The total difference in generation revenue is between final prices and the simulation being \$10.144m of which \$10.072m is a price effect.
- 7.12. Table 1 below shows the difference between current final prices and adding the disconnected demand back in and resolving using vSPD. This is an empirical estimate of the impact on spot prices of disconnecting demand.

Table 1 – system cost for the scenario compared to final prices

Scenario	Generation revenue	Difference from final prices
Final prices	\$15.249mm	0
Modelled prices adding in disconnected demand	\$25.321m	10.145m

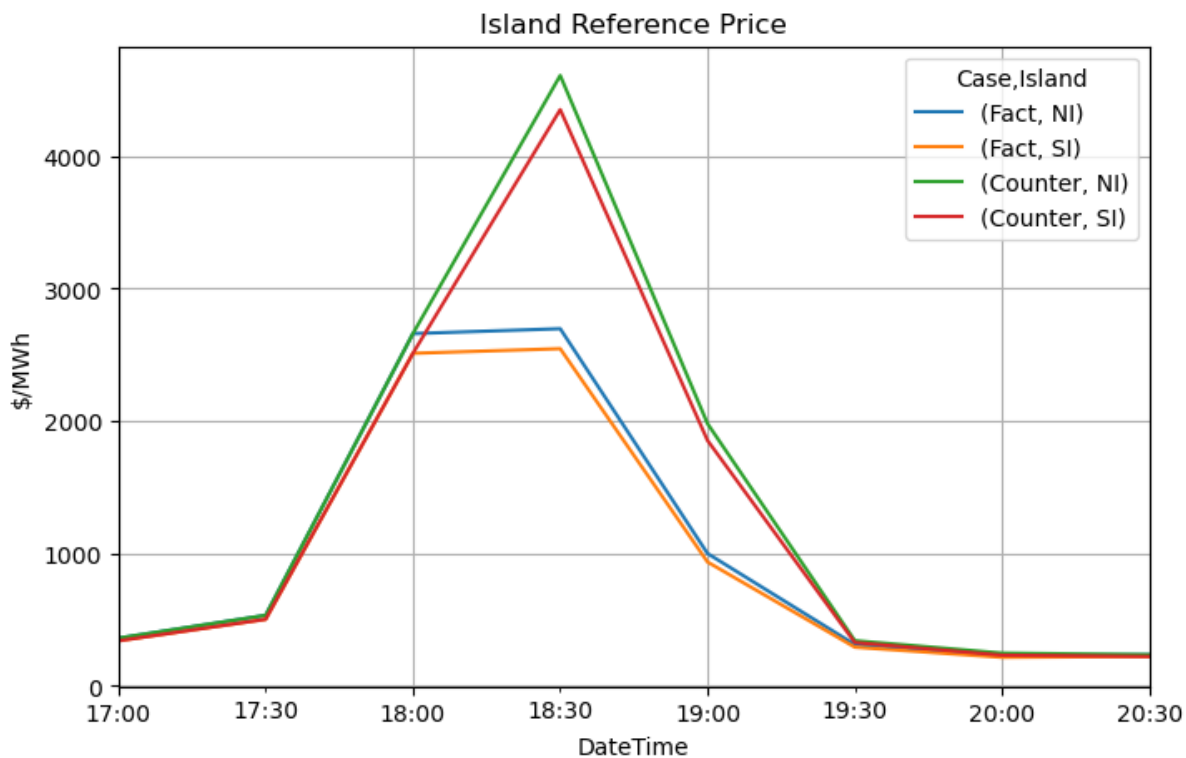
- 7.13. Figure 8 below shows the disconnected load by trading period. This is based on the estimates in Figure 1, which in turn came from a survey of electricity lines businesses soon after the event.
- 7.14. We added this demand onto system demand on 9 August 2021 and resolved vSPD. We needed to use a virtual reserve provider in trading period 39 to avoid infeasible prices.

Figure 8 – Disconnected load by trading period



7.15. Figure 9 below shows the change in energy prices at Benmore and Ōtāhuhu as a result of the disconnected demand being added to system demand on 9 August 2021. There is a circa \$2,000/MWh increase in the energy price during trading period 38, and circa \$1,000/MWh in trading period 39.

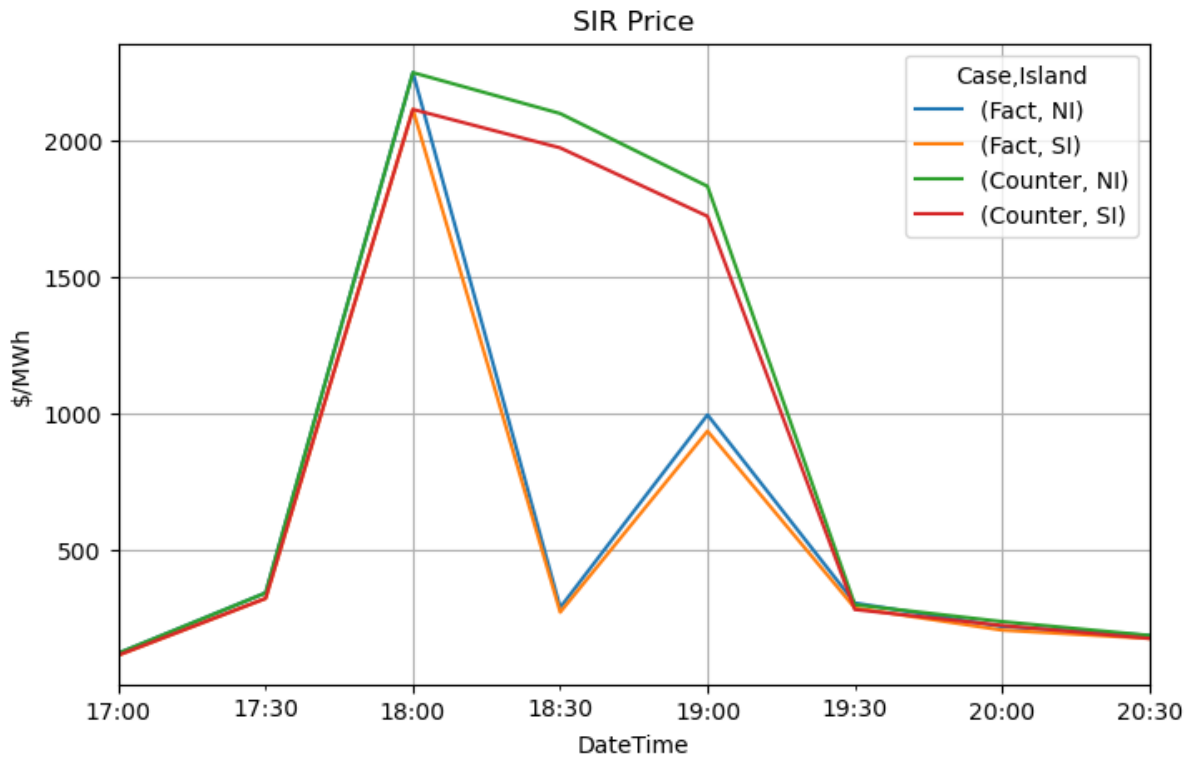
Figure 9 – Energy price changes



7.16. Figure 10 below shows the sustained instantaneous reserve price (SIR) price went up as energy was substituted for reserves. There was a \$2,000/MWh increase in trading

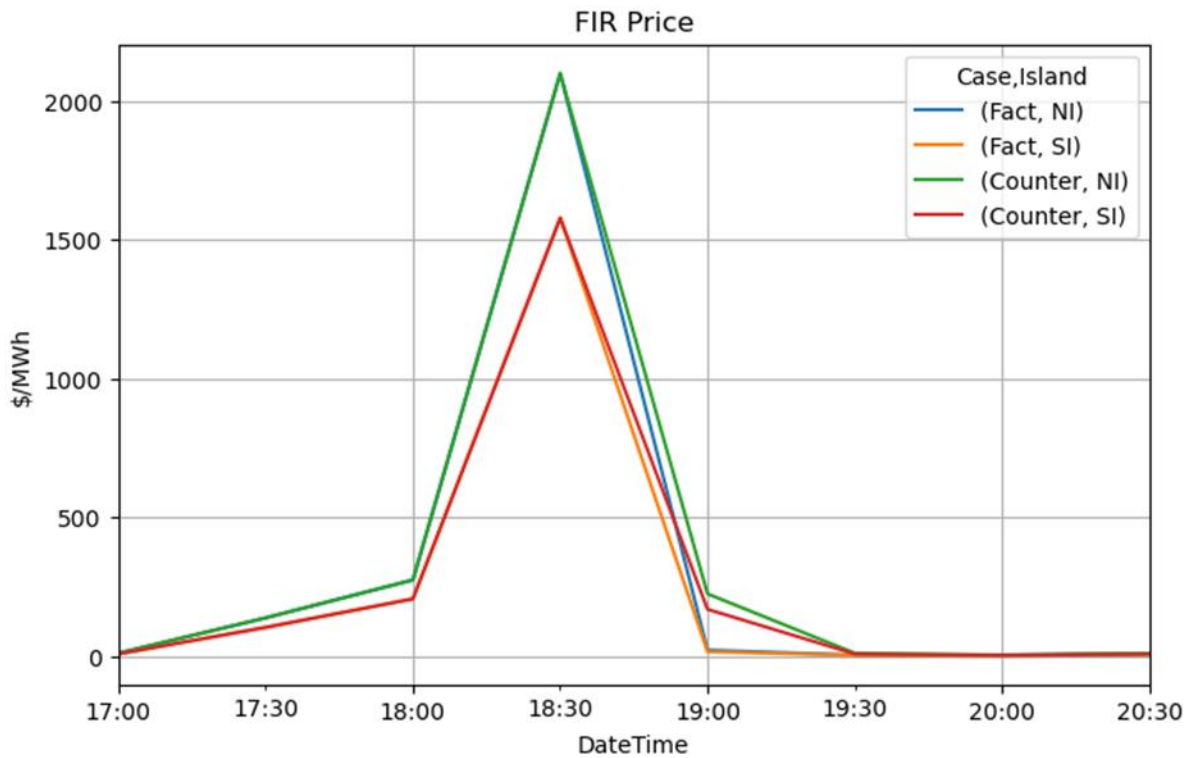
period 38 matching and driving the energy price. There was a \$750/MWh increase in trading period 39.

Figure 10 – Sustained instantaneous reserve price changes



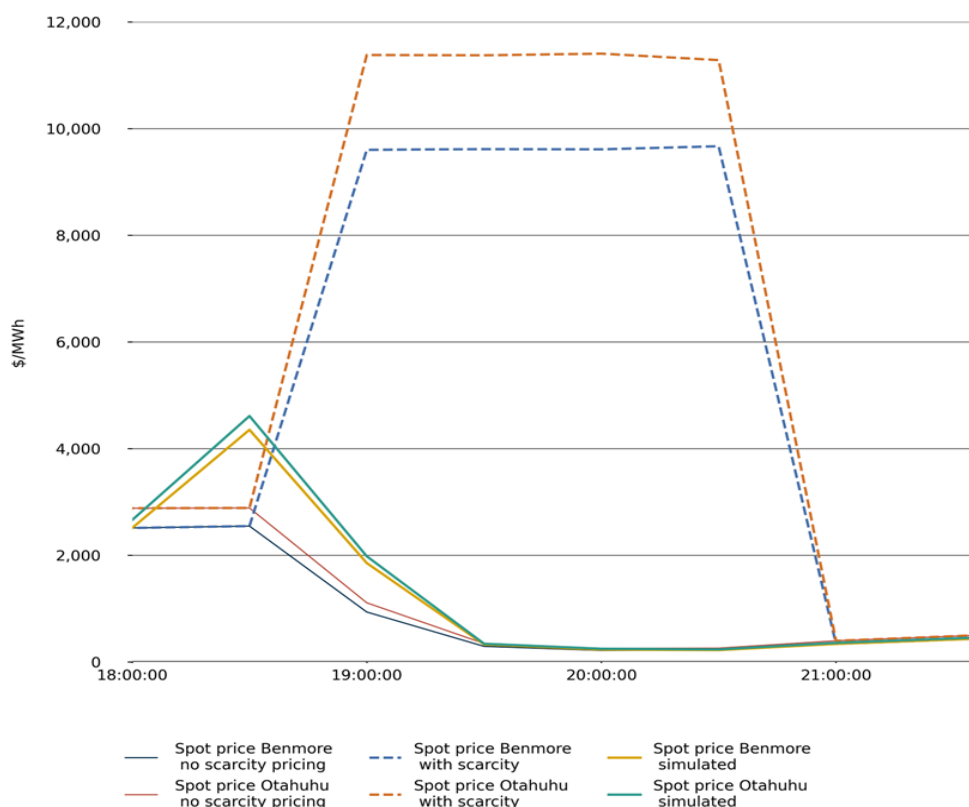
7.17. Figure 11 below shows the fast instantaneous reserve (FIR) price also went up but not as much as SIR prices. There was a \$500/MWh increase in trading period 38 matching and driving the energy price. There was a \$250/MWh increase in trading period 39.

Figure 11 – Fast instantaneous reserve price changes



- 7.18. The simulation shows how much disconnecting demand affected prices.
- 7.19. Figure 12 shows final prices (without scarcity pricing), the scarcity price for 9 August 2021, and the spot prices from the simulation. Figure 12 does not determine what prices should be but rather highlights that final prices reflect demand management that significantly depressed prices in trading periods 38 and 39.

Figure 12 – Final prices with and without scarcity pricing



Prices being depressed on 9 August is contrary to prices the market would expect to see in such circumstances

- 7.20. The Authority considered in the PDP that prices in trading periods 38 and 39 being artificially depressed as a result of the system operator’s notices to reduce demand, combined with the absence of scarcity pricing, threatens, or may threaten, confidence in, or the integrity of, the wholesale market. This is because the market expects high prices during times of scarcity; if prices are too low, it will mute the incentives for investment in last resort generation which will undermine security of supply.
- 7.21. In circumstances such as 9 August, where there were unprecedented levels of demand, scarce generation, and disconnections resulting from demand management by the system operator, last resort generators would expect to receive a high price for their generation. High prices would be expected as a result of the scarcity pricing provisions which were designed to apply where prices were depressed as a result of disconnections. In the absence of demand management resulting in disconnections, participants would expect high prices (such as those modelled in the Authority’s vSPD analysis where cut demand was restored) to apply where demand is very high, and generation is scarce.
- 7.22. High prices for last resort generation creates the incentives to invest in, and run, this type of generation when required. The absence of pricing reflecting the underlying

fundamental reduces the incentives for last resort generation and is contrary to prices the market would expect to see following a scarcity event.

- 7.23. Scarcity pricing was designed to address the risk to security of supply incentives in the event of demand management which results in disconnection and prices being artificially depressed. The rationale for why price intervention in the form of scarcity pricing was required where load is shed is outlined in the Authority's Explanatory Paper: *Summary of Scarcity Pricing and Related Measures dated 27 July 2011*:

3.4 ... Because spot prices fall once demand is reduced in these situations, the incentive for generators to make more power available (e.g. bring a generating unit back from maintenance early) or to preserve more fuel is reduced. It can also discourage electricity retailers and electricity consumers' plans to voluntarily reduce their load.

3.5 Future investment decisions may also be affected. Generators and electricity retailers make their decisions based on their expectations of future spot prices. If they expect spot prices to be suppressed below their true value in a supply emergency, this will reduce their incentive to build last-resort generation plant or invest in demand-response capability. It also weakens the incentive on electricity retailers and other large wholesale buyers to enter into hedge contracts with providers of last-resort generation plant. These contracts can help to underpin generation investment

- 7.24. No participants questioned the application of scarcity pricing based on the system operator's communications following 9 August. It was not until the Authority raised questions about the ISS notice that the system operator's underlying notices were scrutinised, ultimately leading to the pricing error identified by the High Court.
- 7.25. This could indicate that the market expected scarcity pricing to apply given the circumstances of 9 August. The Authority acknowledges, however, that the absence of questions from participants is not determinative. Indeed, once the issue with the ISS notice was identified by the Authority, some participants considered it justified a finding of a UTS in the 2021 investigation on the basis that scarcity pricing should not apply.
- 7.26. The Authority considers higher prices than those based on offers in conjunction with demand management was expected in the circumstances. Higher pricing (if not necessarily scarcity pricing) would be consistent with the underlying rationale for scarcity pricing. As set out in the Authority's final decision paper on the 2021 UTS:

During [9 August], generation was scarce. The system operator declared a grid emergency because there was insufficient generation to meet demand and ensure the safe functioning of the national grid. There was a real risk of frequency dropping to dangerous levels.

It was predictable that the system operator took action to reduce demand so that it could be met by available supply. While the system operator's particular actions are open to criticism, and there are real questions as to the necessary scale of the disconnections, the Authority considers that forced demand reduction of some type was to be expected during the trading periods to which scarcity pricing has been

applied. The Event involved unprecedented demand and an unexpected decline of generation on the coldest night of the year.

.... Without the application of these provisions, the resulting prices would reflect the distortions arising from the system operator's demand management, and fail to provide appropriate price signals to the market. Put another way: industry participants could reasonably expect scarcity pricing to apply in these circumstances. The system operator needed to manage demand during the Event, and prices would have been artificially low if the scarcity pricing regime were not applied.

8. The Authority's preliminary decision

- 8.1. The Authority's preliminary view, following its investigation and consideration of the matters detailed above, was that final prices for trading periods on 38 and 39 on 9 August 2021 being determined by offers and demand management is a situation that could threaten confidence in, or the integrity, of the wholesale market.
- 8.2. The Authority identified that the particular combination of the unexpected depression of prices resulting from the system operator's demand management, and the non-application of scarcity pricing since 16 February 2024, might serve to mute participants' incentives to provide last resort generation and/or voluntary demand side response, both in a 'real time' context, and from a longer-term investment perspective.
- 8.3. Last resort generation benefits customers and promotes security of supply because artificially depressed spot prices may mean inefficient fuel use and investment decisions, and ensuring the correct price signals for last-resort generation ensures the appropriate incentives for investment in, and the operation of, this type of generation. The absence of investment in this generation being built in sufficient quantities would mean that the power system will increasingly rely on disconnections to manage peak demand. This is harmful to consumers, particularly as it can be reasonably anticipated that these events will happen during cold weather. This is contrary to consumers' interests, and the Authority's statutory objectives.
- 8.4. In particular, while acknowledging that the introduction of real time pricing means the circumstances that have led to prices for 9 August 2021 cannot be repeated because the dispatch model responds in real time to scarcity, the Authority considered it possible that confidence could be affected if the Authority did not take steps to intervene, as there is always a risk that either error or other action or event could result in inappropriate prices. The Authority was conscious of the need to provide participants confidence that the Authority will regulate the market in a consistent manner and that it will act to intervene where prices are artificially depressed or inflated or in some way inappropriate relative to the conditions.
- 8.5. The Authority also identified that, given the passage of time, it could be argued that there should be no finding of a UTS as the industry has moved on, or alternatively that further changes to final prices could create uncertainty, potentially threatening confidence in the wholesale market.

- 8.6. The Authority did not identify any other mechanisms under the Code to satisfactorily resolve the situation of final prices being determined by offers (in conjunction with demand management) resulting in artificially depressed prices.
- 8.7. The Authority's assessment at the time of its preliminary decision was that the balance of factors favoured a conclusion that a UTS had occurred.

9. What we heard from submitters

- 9.1. The Authority invited submissions on all aspects of the PDP. Submissions were open until 19 June 2024. The Authority also invited cross-submissions by 3 July 2024. Six submissions and three cross-submissions were received.
- 9.2. The Authority has endeavoured to accurately summarise views expressed in the submissions in this FDP and in the table summarising submissions attached as Appendix C. However, the summaries necessarily compress the information provided in submissions and the individual submissions should be read to obtain a full account of submitters' view. The submissions and cross-submissions can be found on our website [here](#).

Submissions expressing support for the preliminary decision

- 9.3. Two submitters – Nova and Contact Energy – expressed support for the Authority's preliminary decision.
- 9.4. In its submission, Nova expressed support for the Authority's conclusions and reasoning in the PDP. In addition, Nova submitted that ensuring that price signals accurately reflect underlying fundamentals not only incentivises investment in the availability of last resort generation, but also investment in the availability of capacity more generally. Nova noted, in line with comments in the PDP, that the availability of dispatchable generation, and therefore investment in capacity, will become increasingly important as the power system becomes more reliant on renewable generation.
- 9.5. In its submission, Contact made similar observations regarding the importance of accurate price signals to incentivise investment in providing dispatchable capacity, both in a 'real time' context, and from a longer-term investment perspective.
- 9.6. Nova also expressed agreement with the Authority's comments regarding the broader importance of the Authority providing participants with confidence that the Authority will regulate the market in a consistent manner and that it will act to intervene where prices are artificially depressed or inflated or in some way inappropriate relative to the conditions.
- 9.7. Contact, in addressing wider issues, did express some concern with the Authority's decision not to consider the impact of ripple control because it is used routinely in the power system, suggesting that while its use is routine, it is not routine for it to be used as a substitute for available generation, such that its use may mean that assets in the market are not rewarded as expected.

Submissions not supporting the preliminary decision

- 9.8. Two submitters – Haast Energy Trading and the "Independent Retailers" (2degrees, Flick, and Electric Kiwi) – did not support the preliminary decision.

- 9.9. These submitters focused on arguments about the Authority's jurisdiction to investigate a UTS in the circumstances, submitting that the Authority was time-barred from doing so as any UTS in fact arose from the disconnections that took place on 9 August 2021, not as a result of circumstances arising from the delivery of the High Court judgment. The submitters also argued that the terms of the High Court judgment mean that trading period 38 could not be considered.
- 9.10. As to confidence in the wholesale market, Haast submitted the Authority should give greater weight to the impact that re-pricing trading periods on 9 August 2021 at this time might have on the integrity of, and confidence in, the market. Haast submitted that the real time pricing amendments have addressed the particular circumstances that occurred, such that any unexpected pricing that did occur on 9 August 2021 cannot reoccur. Haast submitted that there is an absence of evidence that investment in last resort generation relies on confidence in higher pricing applying in circumstances like 9 August 2021. In support of that submission, Haast pointed to participants having invested in such capacity before scarcity pricing came into place, and after the real time pricing reforms had been announced.
- 9.11. The Independent Retailers disagreed with the reasoning in the PDP regarding the need to promote confidence in the accuracy of price signals to avoid muting incentives to invest in last resort capacity. The Independent Retailers also submitted that participants' expectations must follow the strict application of the Code.
- 9.12. More generally, the Independent Retailers submitted that the subsequent introduction of real time pricing means that prices being set in the circumstances prevailing after the High Court's decision will not threaten confidence as there is no impact on future expected spot prices, and therefore no impact on future decisions.
- 9.13. A fifth submitter – Meridian – expressed support in principle for scarcity prices being an appropriate response to the demand shedding that occurred on 9 August 2021, agreeing with the preliminary decision to that extent. However, Meridian submitted that the passage of time and the implementation of real time pricing have likely already restored the normal operation of the market, and that a UTS finding at this point in time may itself extend uncertainty and result in abnormal outcomes. Meridian noted that the reforms will serve to determine future spot prices, and expressed doubt that a UTS finding and corrective actions were necessary or would benefit consumers.
- 9.14. The sixth submitter – the Major Electricity Users' Group – noted its members' concern regarding the amount of time that has elapsed between 9 August 2021 and the conclusion of this investigation. It submitted that is undermining confidence by impacting on the finality of prices and market decisions.

Cross-submissions expressing support for the preliminary decision

- 9.15. Nova provided a cross-submission expressing support for the preliminary decision.
- 9.16. Nova emphasised its view that the primary issue for the Authority is the need to ensure that wholesale spot prices reflect underlying fundamentals, including during periods of high demand such as 9 August 2021.
- 9.17. In this respect, Nova submitted that the introduction of real time pricing should be afforded limited weight by the Authority. This because there will be other circumstances in which incentives to provide demand response and last resort

generation during grid emergencies remain important, even if the particular circumstances of 9 August 2021 are now unable to reoccur. Nova's position was that a UTS should be found to have occurred despite the passage of time, as the impact on future decisions on ensuring that generation plant is available at critical times remains the same in 2024 as it was in 2021. Participants' past experiences of market and Authority responses, Nova said, will be material to parties' future financial decisions on plant maintenance, investment in demand response, and in making dispatch decisions.

9.18. Responding to particular comments made by other submitters, Nova submitted that:

- (a) The notices issued on 9 August 2021 would have been naturally understood as requiring electrical disconnection of demand, even if not strictly issued in terms of the Code, such that a depression of prices contrary to participants' reasonable expectations did occur. An approach placing undue focus on the form of the notices, would undermine the policy underlying scarcity pricing, contrary to the interests of consumers and the efficient functioning of the market.
- (b) The legal issues identified by Haast and the Independent Retailers do not apply, as the situation the Authority is investigating – prices being determined by offers in conjunction with demand management in circumstances where participants would expect higher prices to apply – did not arise before the date of the High Court's decision. Because artificial suppression of final prices without scarcity pricing has now occurred across trading periods 39-42 on 9 August 2021, and the presence of scarcity pricing was part of the underlying rationale of the Authority's determination in 2021, the Authority can properly consider whether a UTS occurred across all of those periods.
- (c) The Authority has proceeded as quickly as possible to undertake this investigation following the situation being investigated arising on 16 February 2024.

Cross-submissions not supporting the preliminary decision

9.19. Haast and the Independent Retailers made cross-submissions, which continued to express disagreement with the preliminary decision.

9.20. Haast submitted that the level and extent of engagement in response to the PDP was muted, extending to only six submissions, most of which Haast said were "pitched at a high-level". It submitted that the lack of detailed engagement "tends to suggest the industry has moved on since the events of 9 August 2021, which have already been thoroughly investigated". The Independent Retailers made a similar comment, suggesting "substantially more support" could have been expected if confidence had in fact been harmed.

9.21. Relatedly, both repeated their submissions, and endorsed Meridian's comments, to the effect that any potential re-pricing at this time would have a net detrimental effect on confidence in, and the integrity of, the wholesale market. Both of these cross-submitters noted Meridian's submission that adjusting spot prices may lead to divergence between the spot and hedge markets. This, they submitted, would produce arbitrary results undermining certainty.

9.22. The Independent Retailers submitted that Nova’s submissions focusing on the need for market prices to reflect underlying market fundamentals did not engage with the test for a UTS, as that does not, in itself, give rise to a lack of confidence in the market. They also made a similar cross-submission regarding Contact’s submissions. The Independent Retailers again advanced the submission that 9 August 2021 prices will not mute incentives for investment in last resort generation because they have no bearing on future expected spot and hedge prices and will therefore not impact investment decisions. They noted that no submitters had explained, beyond making a general statement about the importance of accurate price, how pricing outcomes for 9 August 2021 impact expectations about future spot prices, and therefore investment behaviour.

10. Final decision that prices being determined by offers in conjunction with demand management on 9 August 2021 since 16 February 2024 is not a UTS

- 10.1. The PDP acknowledged that whether there was a UTS in this situation was a balanced call. Having considered the submissions received, the Authority has adjusted its view of the balance between the relevant considerations and its final assessment is that an undesirable trading situation has not occurred following 16 February 2024.
- 10.2. As set out in section 4 above, there are three questions that the Authority must address in assessing whether there has been a UTS. These were whether the situation:
- (a) affects the wholesale market
 - (b) threatens, or may threaten, confidence in, or the integrity of, the wholesale market
 - (c) can be resolved by any other mechanism available under the Code.
- 10.3. It is the second of these questions that has proved most significant in determining if a UTS has occurred. Below, we set out why we have now taken a different view of the balance between the factors relevant to indicating impacts on confidence in the market outlined in the preliminary decision.
- 10.4. Before addressing this, we briefly address the first and third questions. We also briefly respond to the submissions regarding the legal basis for this investigation recognising the detailed attention given to this issue by submitters.

The situation is one affecting the wholesale market

- 10.5. Submitters did not suggest that the Authority was incorrect in its preliminary assessment that the situation is one affecting the wholesale market. The wholesale market, as defined in the Code, includes final prices and final reserve prices, and, as set out in section 7 above, final prices for 9 August 2021 were depressed and did not reflect underlying market fundamentals. The Authority remains satisfied with this assessment.

The situation is not one capable of being addressed by another mechanism available under the Code

- 10.6. Some submitters suggested that the situation is one capable of being addressed by the “normal operation” of the Code, as it has been addressed by the amendments to the Code introducing real time pricing.
- 10.7. After considering these submissions, the Authority has not altered its preliminary view that had there been an undesirable trading situation, the UTS provisions would be the only available response, for two reasons.
- 10.8. First, the real time pricing amendments do not go to the wider issue identified in the PDP: the importance of confidence that the Authority will take action where prices have been unexpectedly suppressed by error or another action or event resulting in inappropriate prices.
- 10.9. Second, the amendment of the Code is not a mechanism available “under” the Code. As the High Court noted in *Bay of Plenty Energy Ltd v Electricity Authority*, it is rather a mechanism available under the Act.¹³ The possibility of Code amendment – while a normal part of the life cycle of the Code – therefore does not mean that the situation is one capable of being addressed by another mechanism available under the Code.

Legal issues concerning the opening of this investigation

- 10.10. As the Authority has ultimately decided no UTS has occurred, submitters’ legal arguments as to the timing and scope of the UTS investigation have been overtaken.
- 10.11. Nevertheless, the Authority is mindful that most submitters expressed the view that consistency and transparency by the Authority in its regulatory approach will promote confidence in and the integrity of the market. Also, a key factor in assessing the impact on confidence in the market is participants being confident the Authority will intervene where prices are artificially depressed or inflated or in some way inappropriate relative to the conditions. Clarifying the circumstances in which the Authority considers it can intervene serves both these purposes. We therefore briefly address this issue.
- 10.12. The successful High Court appeal meant that the pricing manager was required to recalculate prices for the affected trading periods without reference to the scarcity pricing provisions. This meant that final prices on 9 August 2021 became determined by offers in conjunction with demand management, rather than the scarcity pricing provisions. Until then, scarcity pricing had applied, meaning that prices for 9 August 2021 reflected appropriate incentives. It was only once scarcity pricing ceased to apply to the calculation of final prices – which was on 16 February 2024 – that a situation had developed that potentially impacted confidence in the wholesale market. This investigation commenced within 10 business days after that situation developed, and therefore within the clause 5.1A time-bar.
- 10.13. As set out in the PDP, the Authority considers it was properly able to consider trading periods 37-42 on 9 August 2021 because these were the trading periods where prices may have been artificially depressed as a result of demand reduction notices by the system operator. While scarcity pricing had not applied to all of these periods, its application to trading periods 39-42 promoted the correct incentives in last resort

¹³ *Bay of Plenty Energy Ltd v Electricity Authority* [2012] NZHC 238 at [313].

generation. Now that scarcity pricing applies to none of these trading periods, it was necessary to look at all trading periods where prices may have been artificially depressed as a result of demand management to establish whether a UTS has resulted.

On balance, prices being determined by offers in conjunction with demand management does not threaten confidence in the wholesale market

- 10.14. The Authority is grateful to the participants who made submissions and cross-submissions on this central question.
- 10.15. The Authority remains of the view that final prices for trading periods 37-42 on 9 August 2021 depart from the underlying supply and demand, and that this had the potential to affect wholesale market confidence. The Authority does not agree that pricing since the High Court judgment must represent participants' expectations because it reflects the operation of the Code.¹⁴ Indeed, its actions to correct a UTS include directions that are inconsistent with the Code.¹⁵
- 10.16. Our preliminary decision reflected our assessment of a number of considerations, recognising that:
- (a) The precise circumstances that led to this pricing outcome cannot reoccur. This is an unusual situation in that the particular issue that arose had already been addressed by Code amendments prior to the commencement of the investigation. The intervening Code amendments provide confidence that future spot prices, as the basis for participants' investment decisions, will reflect underlying fundamentals in circumstances like 9 August 2021.
 - (b) Accordingly, our preliminary decision was directed towards the overarching concern that the possibility of either error or other action or event in the future could still result in prices that are in some way inappropriate given market conditions, and the importance of industry confidence that the Authority will take any necessary action where prices have been artificially depressed, or inflated, to send the appropriate price signals to the market. In other words, the Authority is concerned to promote confidence that the Authority will take appropriate action in unexpected circumstances of a similar (but not identical) type.
- 10.17. As noted in the PDP, assessing confidence in the market requires the Authority to look at a range of factors to decide whether a UTS has occurred. It is not possible to directly observe or measure confidence in the wholesale market, and thus determine whether a situation has threatened or may threaten confidence in the market.
- 10.18. The Authority was therefore particularly interested in submitters' views given the unusual circumstances, and the principle-based nature of the overarching concern.
- 10.19. As set out above, submitters essentially split along generator/retailer lines. Generator-side submissions emphasised the importance of appropriate price signals,

¹⁴ In *Bay of Plenty Energy v The Electricity Authority* [2012] NZHC 238 the High Court recognised that "UTS provisions are adopted by market providers because they cannot foresee all future eventualities and hence cater for these in the market's rules, and so are better covered by generic UTS-type rules" (at [31]).

¹⁵ Clause 5.2(2A)(a).

while retailer-side submissions emphasised the effect of the Code amendments already in place, and the passage of time.

- 10.20. Only Nova and Contact supported our preliminary view that industry confidence may require a UTS finding to address the overarching concern that either error or other action or event in the future could still result in prices that are in some way inappropriate given market conditions. Meridian said that it agreed in principle that accurate price signals are necessary, but queried whether a UTS decision and actions to correct are necessary and would benefit consumers given the Code amendments and the passage of time.
- 10.21. A number of submitters emphasised the passage of time, saying that uncertainty could result from altering final prices at this stage. Meridian pointed to the divergence in the spot and hedge markets and said corrective action at this stage would represent an abnormal outcome that would serve to reduce certainty and confidence. The Authority considers that if the status quo promotes greater confidence than would corrective action, that suggests that the situation is not a UTS.
- 10.22. Having reconsidered its assessment in light of the submissions received, the Authority is of the view that this is not a situation that threatens, or may threaten, confidence in the wholesale market.
- 10.23. In the present unusual set of circumstances the Authority considers that its overarching concern has been sufficiently addressed by the UTS investigation itself. The market can be confident that the Authority will consider exceptional situations where prices have been artificially depressed, or inflated, and take appropriate action where necessary.

11. The Authority's final decision: The situation does not constitute a UTS

- 11.1. Having investigated this situation, and considered submissions, the Authority's final decision is that final prices for 9 August 2021 being determined by offers in conjunction with demand management combined with the absence of scarcity pricing does not threaten confidence in the wholesale market.

12. Next steps

- 12.1. The Authority will direct the clearing manager to settle final prices for trading periods 37 – 42 on 9 August 2021.

13. Attachments

- 13.1. The following appendices are attached to this paper:

Appendix A	9 August 2021 event timeline
Appendix B	Formal notices issued by the system operator on 9 August 2021
Appendix C	Summary of submissions and cross-submissions on PDP

Appendix A 9 August 2021 event timeline

Time	Event
Day of the event up to the issuing of the GEN at 17:10	
9 August 2021 6:30am	Overnight, the load forecast increased to 7170MW and the residual dropped to 142MW.
06:42	<p>CAN issued for forecast low residual generation during the 17:30 – 20:00 trading periods. This notice advised the market:</p> <p><i>Transpower as system operator advises that North Island residual generation is less than 200MW, including spare HVDC capacity, for trading periods TP 36 - 41 (17:30 -20:00) on 9 August 2021. If system conditions worsen, it could result in a WRN or GEN being issued due to insufficient offers being available to cover for the largest contingency or meet demand and maintain frequency keeping reserve.</i></p> <p><i>Participants should ensure energy and reserve offers and load bids are accurate for the times noted, and if not, please update accordingly.</i></p> <p><i>If you are aware of information that could impact system security, please advise the System Operator duty operations manager on XX XXX XXXX.</i></p> <p><i>This notice will not be updated unless conditions worsen and a WRN or GEN is required.</i></p>
09:19 – 10:03	Tokaanu claimed a bona fide situation to reduce their market offers in stages to 0MW. High winds had blown weed into the station intake screens blocking them.
10:30	10:00 NRSL schedule published at 10:30 forecasts a reserve deficit of up to 149.6MW for 18:00 – 20:00.
12:30	12:00 NRSL schedule published at 12:30 forecasts a reserve deficit of up to 208MW for 18:00 – 20:00
13:02	WRN notice issued forecasting insufficient generation offers on a national basis during the 17:30 – 20:30 trading periods. This notice advised the market:

Time	Event
	<p><i>Transpower as system operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide for N-1 security for a contingent event.</i></p> <p>It then requested that participants increase generation and reserve offers and decrease demand.</p> <p>It then notified that if there was insufficient response by participants, the system operator would manage demand to restore power system security.</p>
14:30 to 16:30	<p>Tokaanu gradually reoffered its full 240MW capacity for the evening peak. This returned residual to positive in the 14:00 NRSL and 16:00 NRSS schedules. The residual hovers around the 100MW to 200MW range.</p>
17:00	<p>The 17:00 NRSS schedule forecasts a reserve deficit of up to 31MW for the 18:00 – 19:00 trading periods.</p> <p>This is largely driven by a 125MW drop in wind offers for the evening peak and a 21MW increase in forecast load.</p>
GEN declared at 17:10 and GEN notice issued	
17:10	<p>GEN issued forecasting insufficient generation offers on a national basis during the 18:00 – 19:00 trading periods. This notice advised the market:</p> <p><i>This is a New Zealand wide emergency. There is Insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves being scheduled may or will need to be reduced.</i></p> <p>It then requested that participants increase generation and reserve offers and decrease demand.</p> <p>It then notified that if there was insufficient response by participants, the system operator would manage demand to alleviate the grid emergency.</p>
17:30	<p>Visible drop in demand (74MW).</p>
	<p>Several calls from distributors via NGOC, eg, Mainpower noting that controllable demand had been in use most of the day. Two further distributors contacted NCC querying whether immediate demand management was required.</p>

Time	Event
17:50	Unison manage controllable hot water load, confirmed by Unison was in response to 17:10 GEN. Approx. 17MW.
18:06	Tokaanu bona fide their generation offers down from 218MW to 94MW – weed blocking intake screens.
18:25	Mercury call offering extra 12MW of generation for half an hour. This offer was inside the trading period and so was not able to be accepted ^[1] .
18:30 to 18:45	Waipipi generation reduces between 15MW to 20MW over 15 minutes due to falling wind speeds.
1% Load reduction notice issued via GEN	
18:40 to 18:47 1% reduce load notice sent	Frequency keeping (FK) band had been eroded, running deficit reserves, needed demand management to restore FK. 1% (~70MW) requested). NGOCs phoned connected parties to confirm instruction to reduce demand by 1%. Vector raised that it already had controllable load off – relayed to NCC via NGOC. At 18:47, GEN revision notice sent – period extended 18:00 – 20:00 all network companies to reduce load by 1% until further notice. Demand allocation notice to follow.
18:52	Tokaanu bona fide their generation offers down from 94MW to 47MW – weed blocking intake screens.
18:53	1% load reduction achieved on a national basis, 71MW reduction in load measured by system operator indications.
19:08	3% of load reduction has been observed, or 228MW. Many distributors appear to have dropped 1% then declined further.
19:09 to 20:20	19:09 Demand allocation notice sent.

^[1] The market system is configured to only dispatch generation up to the maximum capacity of each generation unit, this prevents the market from scheduling generation above the maximum capacity. Current market system limitations prevent bids and offers from being updated in the current trading period.

Time	Event
Response to the DAN	7 out of 33 recipients are asked to reduce load further. The total reduction requested was 236MW. These recipients are Unison, Electra, TOP, Orion, Delta, Wellington Electricity, Vector, and WEL.
19:26 to 19:59	3 recipients [Orion, WEL, and Electra] appear to have acted on the DAN. Based on 1-minute Scada data there does not appear to be other controlled changes. Voice recordings from the control room identify several participants that phoned and were provided clarity. Orion reduced its demand by 17MW at 19:15. Orion managed demand with controllable load.
19:31	NGOC contacted NCC to pass on demand allocation queries from Wellington Electricity (reduce from 551MW to 430MW) and Unison (reduce from 298MW to 192MW). Both parties were querying the scale of their allocated reduction. Both were told to hold off managing demand. Electra reduced its demand by 4MW at 20:17 until 20:32, then lifted its load (after the 20:20 notice – see below).
19:09 to 20:20	The remaining load reduction across this time for many distributors is consistent with normal post peak demand decline. When a demand curve is superimposed using the demand shape from 29 June 2021 (previous record demand), many of the distributors appear to have acted on the 1% GEN notice at 18:48 and held this reduction and then allowed demand to decline naturally. Across this time, some units, notably, Huntly and Whirinaki were dispatched back to provide reserves (reserves were previously in deficit) and maintain system stability. From approximately 19:50 generation begins to be dispatched down due to dropping demand.
Log of key calls and conversations with distributors, NGOC, and NCC	
19:22	NGOC to NCC: Northpower queried demand allocation. Allocate 207.7MW vs 165MW actual, able to increase to 190MW.
19:26 to 19:59	NGOC Instruction to WEL Networks to stay below total load of 224MW. WEL contacted NGOC to confirm start time of demand management requirement, confirmed as an immediate requirement. Subsequent calls highlighted a discrepancy between the NGOC load indications for WEL Networks compared to the WEL Networks operational indications.

Time	Event
	NGOC advised WEL could come up by 24MW from its current load.
19:31	NGOC contacted NCC to discuss demand allocation for Wellington Electricity and Unison. Advised distributors to stay at current demand with no action required from demand allocation notice, load is falling naturally.
19:34	Orion question demand allocation via NGOC, currently below DAN target. Advised can increase to 675MW.
19:38	NCC to operations management: issues recognised with demand allocation. Current load indications well below allocation total. Agree to plan load restoration allowing to run reserve deficit.
19:54	NCC to operations management: Discussed LSR tool and increasing load by 5%. System operator attempted to solve with LSR but still encountered issues with the tool.
20:03	NCC to operations management: Confirm use of “restore 5% of current load” instruction. Confirmed that 5% does not constitute all load shed.
20:05 - 20:07	NCC to all NGOC: contact distributors to restore 5% of current load, GEN extended to 21:00
20:20	GEN revision notice issued – period extended 18:00 – 21:00 all network companies can increase load by 5% based on current load.
20:25	Residual generation now at 390MW, NCC to instruct full load restoration.
20:28 – 20:33	NCC to NGOC: instruct all distributors to restore all load excluding hot water heating. Vector instructed to restore 50MW every 5 minutes until restored. WEL restore 20MW every 5 minutes until restored.
20:39	NCC to NGOC: instruct all distributors to restore all load including hot water heating.
21:01	GEN revision notice issued – grid emergency ended; all participants can restore all load.

Source: the system operator NCC call logs, supplementary notes, market notices and distributor call transcripts (obtained as part of the Authority's Immediate assurance review of the 9 August 2021 demand management event).

Appendix B Formal notices issued by the system operator on 9 August 2021



Customer Advice Notice

To: CAN NZ Participants
Sent: 09-aug-2021 06:42
Ref: 4025411929

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of:

Low Residual Situation

Transpower as System Operator advises that North Island residual generation is less than 200 MW, including spare HVDC capacity, for trading periods TP 36 - 41 (17:30 -20:00) on 9 August 2021. If system conditions worsen, it could result in a WRN or GEN being issued due to insufficient offers being available to cover for the largest contingency or meet demand and maintain frequency keeping reserve. Participants should ensure energy and reserve offers and load bids are accurate for the times noted, and if not, please update accordingly. If you are aware of information that could impact system security, please advise the System Operator duty operations manager on 07 843 0618. This notice will not be updated unless conditions worsen and a WRN or GEN notice is required.

...

A revision of this notice will be issued if there is any change to the situation above.

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Transpower New Zealand Ltd The National Grid



Warning Notice

To: GEN NZ Participants
Sent: 09-aug-2021 13:02
Ref: 4026187046

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of:

Cause:	Insufficient Generation offers National
Region or GXP affected:	National
Starting:	09-aug-2021 17:30
Ending:	09-aug-2021 20:30
Transpower as System Operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide for N-1 security for a contingent event.	

Consequences on the power system:
Reduced or zeroed reserves for the CE risk may be dispatched, and/or the SO may need to manage demand.

Participants are Requested to:	At:
Increase Energy Offers	North Island, South Island
Decrease demand	North Island, South Island
Increase Instantaneous Reserve Offers	National

Demand Allocations:	Total

Consequences if insufficient responses by participants:
SO will manage demand to restore power system security.

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8

A revision of this notice will be issued if there is any change to the situation above.

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Issued 5:10 pm



TRANSPOWER



Grid Emergency Notice

To: GEN NZ Participants
Sent: 09-aug-2021 17:10
Ref: 4027364789

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of:

Cause:	Insufficient Generation offers National
Region or GXP affected:	North Island, South Island
Starting:	09-aug-2021 18:00
Ending:	09-aug-2021 19:00

Consequences on the power system:

This is a New Zealand wide emergency. There is Insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves being scheduled may or will need to be reduced.

Participants are Requested to:

Increase Energy Offers
Increase Instantaneous Reserve Offers
Decrease demand

At:

North Island, South Island
North Island, South Island
National

Demand Allocations:

Total

Consequences if insufficient responses by participants:

Where participant response is insufficient, the System Operator will manage demand to alleviate the Grid Emergency.

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8

A revision of this notice will be issued if there is any change to the situation above.

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Transpower New Zealand Ltd The National Grid

Issued at 6:47 pm



Grid Emergency Notice

Revision

To: GEN NZ Participants
Sent: 09-aug-2021 18:47
Ref: 4027605215

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of: GEN, 4027364789, 09-aug-2021 17:10, Insufficient Generation offers

Cause:	Insufficient Generation offers National	
Region or GXP affected:	North Island, South Island	
Starting:	09-aug-2021 18:00	09-aug-2021 18:00
Ending:	09-aug-2021 19:00	09-aug-2021 20:00

Consequences on the power system:

This is a New Zealand wide emergency. There is Insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves being scheduled may or will need to be reduced.

Participants are Requested to:

Increase Energy Offers
Increase Instantaneous Reserve Offers
Decrease demand

At:

North Island, South Island
North Island, South Island
National

All network companies to reduce load by 1% until further notice. A demand allocation notice will follow shortly.

Demand Allocations:

Total

Consequences if insufficient responses by participants:

Where participant response is insufficient, the System Operator will manage demand to alleviate the Grid Emergency.

A revision of this notice will be issued if there is any change to the situation above.

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Transpower New Zealand Ltd The National Grid

Issued at 7:09 pm



Grid Emergency Notice

Revision

To: GEN NZ Participants
Sent: 09-aug-2021 19:09
Ref: 4027589876

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of: GEN,4027605215,09-aug-2021 18:47,Insufficient Generation offers

Cause:	Insufficient Generation offers National	
Region or GXP affected:	North Island, South Island	
Starting:	09-aug-2021 18:00	09-aug-2021 18:00
Ending:	09-aug-2021 19:00	09-aug-2021 20:00

Consequences on the power system:

This is a New Zealand wide emergency. There is Insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves being scheduled may or will need to be reduced.

Participants are Requested to:

	At:
Increase Energy Offers	North Island, South Island
Increase Instantaneous Reserve Offers	North Island, South Island
Decrease demand	National

All network companies to control load to the limits provided below. Thank you.

Demand Allocations:	Total	7245.9
Company	NGOC	MW
Alpine Energy	RCS	151.8
Buller Network	RCS	7.2
Centralines	RCC	23.0
Counties Power	RCN	149.5
Delta Utility Services	RCS	227.6
Eastland Network	RCC	58.5
Electra	RCC	85.7

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Electricity Ashburton	RCS	124.1
Electronet/ Westpower	RCS	26.9
Horizon Energy Distribution	RCN	93.8
MainPower	RCS	122.1
Marlborough Lines	RCS	77.7
Methanex	RCC	10.0
Network Tasman	RCS	155.1
Network Waitaki	RCS	53.5
Northpower	RCN	207.7
NZAS	RCS	993.4
Origin Energy	RCC	11.1
Orion	RCS	645.7
Powerco Eastern	RCN	480.1
Powerco Southern	RCC	213.4
Powerco Western	RCC	194.3
PowerNet	RCS	223.7
Rayonier	RCS	10.9
Scanpower	RCC	16.1
The Lines Company	RCC	15.1
The Lines Company	RCN	36.2
Todd	RCC	0.0
Todd Generation Taranaki Limited	RCC	0.0
Top Energy	RCN	31.9
Tranz Rail	RCC	3.6
Tranz Rail	RCN	1.0
Unison Networks	RCC	192.3
Unison Networks	RCN	128.5
Vector	RCN	1101.1
Vector Northern	RCN	593.3
Waipa Networks	RCN	77.0
WEL Networks	RCN	224.7
Wellington Electricity	RCC	430.7
Whareroa Power	RCC	0.0
Winstones	RCC	47.6

Demand Allocations:	Total
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Transpower New Zealand Ltd The National Grid

Consequences if insufficient responses by participants:

Where participant response is insufficient, the System Operator will manage demand to alleviate the Grid Emergency.

- Participants are required to limit load off-take to no greater than the level allocated for the duration of the above time.
- Participants must verbally acknowledge notice within 15 minutes to the Grid Asset Controller at the normal point of contact.
- If participants are unable or unwilling to comply fully with the instruction they advise must the Grid Asset Controller immediately.
- If at any time actual load is less than the allocation, and is expected to remain so, then that party must advise the Grid Asset Controller to allow re-allocation to other parties.

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8

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Transpower New Zealand Ltd The National Grid



TRANSPOWER



Grid Emergency Notice

Revision

To: GEN NZ Participants
Sent: 09-aug-2021 20:20
Ref: 4027590150

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of: GEN, 4027589876, 09-aug-2021 19:09, Insufficient Generation offers

Cause:	Insufficient Generation offers National	
Region or GXP affected:	North Island, South Island	
Starting:	09-aug-2021 18:00	09-aug-2021 18:00
Ending:	09-aug-2021 19:00	09-aug-2021 21:00

Consequences on the power system:

This is a New Zealand wide emergency. There is Insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves being scheduled may or will need to be reduced.

Participants are Requested to:

Increase Energy Offers
Increase Instantaneous Reserve Offers

At:

North Island, South Island
North Island, South Island

All network companies can increase load by 5% on current load.

Demand Allocations:

Total

Consequences if insufficient responses by participants:

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8

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Transpower New Zealand Ltd The National Grid



TRANSPOWER



Grid Emergency Notice

Revision

To: GEN NZ Participants
Sent: 09-aug-2021 21:01
Ref: 4027590320

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of: GEN, 4027590150, 09-aug-2021 20:20, Insufficient Generation offers

Cause:	Insufficient Generation offers National	
Region or GXP affected:	North Island, South Island	
Starting:	09-aug-2021 18:00	09-aug-2021 18:00
Ending:	09-aug-2021 19:00	09-aug-2021 21:00

Participants are Requested to:	At:
The Grid Emergency has ended. All participants can restore all load.	

Demand Allocations:	Total

Consequences if insufficient responses by participants:

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8

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Grid Emergency Report

To: GEN NZ Participants
Sent: 09-aug-2021 23:19
Ref: 4027365293

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of:
Grid Emergency Notice ref: 4027364789

Cause:	Insufficient Generation offers National
At:	National
Starting:	09-aug-2021 18:00
Ending:	09-aug-2021 21:00
Action Taken:	This was a New Zealand wide emergency. There were insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves dispatched needed to be reduced, producing a reserve deficit situation. Load management was required to maintain frequency keeping capability.

This notice is issued in accordance with Clause 13.97 (1), Part 13

A revision of this notice will be issued if there is any change to the situation above.

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TRANSPOWER



Island Shortage Situation Notice

To: ISS Recipients
Sent: 09-aug-2021 23:54
Ref: 4027696092

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Grid Emergency Notice ref: 4027364789

Revision of:

Cause: Insufficient Generation offers
Island: National
Starting: 09-aug-2021 19:00
Ending: 09-aug-2021 20:30

There were insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves dispatched needed to be reduced, producing a reserve deficit situation. Load management was required to maintain frequency keeping capability.

Verbal GEN Reference:

There were insufficient Generation offers to meet demand and provide for N-1 security for a contingent event. The level of instantaneous reserves dispatched needed to be reduced, producing a reserve deficit situation. Load management was required to maintain frequency keeping capability.

This notice is issued in accordance with Technical Code B - Emergencies, Schedule 8.3, Part 8, clause 5(1A).

This Island Shortage Situation (ISS) notice has been issued by the System Operator to inform the Pricing Manager and Market Participants that an island wide instruction to disconnect demand has been issued, amended or revoked. Refer to the related GEN notice for details of the instruction. The ISS notice serves as an indication to the market that the Pricing Manager may invoke Scarcity Pricing subject to meeting additional market criteria.

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Transpower New Zealand Ltd The National Grid

Appendix C Summary of submissions and cross-submission on PDP

Initial submissions		
Submitter	Submission supports the Authority's preliminary decision?	Key issues
Nova	Yes	None raised – agrees with reasoning and analysis in PDP.
Contact Energy	Yes	Agrees with reasoning and analysis in PDP and asks Authority to expand analysis to include demand reduction through ripple control (note analysis did include this, but because ripple control is routinely used the PDP found prices being depressed by this type of demand management was not a UTS).
Meridian Energy	On balance suggests a UTS is not appropriate	<p>Meridian agrees in principle that scarcity prices are an appropriate response to the demand shedding that occurred on 9 August 2021. However, the passage of time and implementation of real time pricing have likely already restored the normal operation of the market.</p> <p>While the Authority seeks the right outcome in principle, in practice it may be too late and a UTS finding and corrective actions may extend uncertainty and result in abnormal market outcomes.</p>
Haast Energy Trading	No	<p>The focus is on legal issues:</p> <ul style="list-style-type: none"> - the High Court (HC) decision cannot give rise to a UTS, and the Authority is time barred from commencing a UTS investigation into the events of 9 August - as the HC decision did not relate to trading period 38, and the Authority determined in its 2021 decision that no UTS occurred in relation to trading period 38, the Authority cannot consider it in this UTS investigation.
2degrees, Flick and Electric Kiwi	No	<p>Briefly notes the same legal issues identified by Haast and they are of the same view. Recommend finding no UTS, but that if there is a UTS that actions to correct are spot prices being adjusted to reflect the curtailed demand (the \$10M as opposed to scarcity pricing). The submission focuses on reasons why they disagree with finding that a UTS has occurred in the PDP:</p> <ul style="list-style-type: none"> - prices being determined by demand management is not inconsistent with the scarcity pricing regime as there was no requirement by the System Operator to reduce demand (request only)

		<ul style="list-style-type: none"> - prices are not contrary to what the market would expect to see in these circumstances, they expect prices consistent with the Code and only a minority of participants may have expected higher prices (also reference 10 May where demand management occurred) - prices being set as directed by the HC will not threaten confidence as there is no impact on future expected spot prices and will therefore not impact investment decisions in generation.
MEUG	N/A	Does not comment on the PDP finding but expresses concern with the time taken to resolve the events of 9 August.

Cross-submissions	
Submitter	Key issues
2degrees, Flick and Electric Kiwi (“the independent retailers”)	<p>Agreed with the Haast submission in full, in particular the key legal issues raised.</p> <p>The limited submissions, and the content of submissions received, indicate confidence was not harmed.</p> <p>Agree with Meridian that the passage of time and implementation of real time pricing have likely already restored the normal operation of the market.</p> <p>In particular, they note that a UTS would have an asymmetric effect on contracts for the relevant period that have already settled, leading to a risk of a divergence between spot and hedge markets that will undermine confidence.</p>
Haast	<p>Limited submissions received suggests confidence has not been harmed, reiterates concerns about the impact of delay and any potential re-pricing on certainty and confidence in the market. Makes the same point as the independent retailers about the risk of divergence in the spot and hedge markets resulting from a UTS leading to undesirable uncertainty.</p> <p>Reiterates position that the Authority is time barred from initiating a UTS investigation and considering trading period 38.</p>
Nova	<p>A detailed cross-submission addressing a number of points raised in the original submissions with particular emphasis on Haast’s submission.</p> <p>Responds to the legal issues identified by Haast and strongly disagrees that the Authority is time barred from opening an investigation, that the Authority is prevented from considering trading period 38, and that the Authority’s investigation is solely concerned with trading periods 38 and 39.</p> <p>Refers to the events of 10 May 2024, suggesting that incentivising demand response and generation during grid emergencies remains a valid concern even under real time prices.</p>