

The Authority's final decision on claim of an undesirable trading situation

Claim submitted 12 August 2021

June 2022



Executive summary

Background

In August 2021 the Electricity Authority (Authority) received a claim that an undesirable trading situation (UTS) had occurred. This claim related to six trading periods (37-42) on the evening of Monday 9 August 2021, when New Zealand faced the largest demand peak on record because of one of the coldest nights of 2021.

The situation on 9 August (referred to as the Event) rapidly escalated from a forecast generation shortfall into a challenging grid emergency with the risk of cascade failure of the grid and potentially widespread outages.

While the most extreme outcomes were avoided, the incident had a major impact on the electricity market. Approximately 34,000 customers had their supply of electricity interrupted including 17,000 in the Waikato. Scarcity pricing¹ was applied to trading periods 39 - 42, with a significant impact on final prices.

The UTS claim alleged that Contact Energy Limited (Contact Energy) and Genesis Energy Limited (Genesis Energy) individually and jointly caused the 9 August peak demand. The claim was received within the ten working day limit prescribed by the Electricity Industry Participation Code 2010 (Code).

Although not part of the claim, the Authority decided to also consider the conduct of Transpower, in its role as the system operator.

The Code sets the rules for the electricity industry. The Code provides that a UTS is a situation that threatens, or may threaten, confidence in, or the integrity of, the wholesale market and which cannot in the Authority's reasonable opinion be satisfactorily resolved by other provisions of the Code. The UTS provisions of the Code provide the Authority with the ability to correct such situations and restore the normal operation of the market.

In addition to the UTS claim, other activity relating to the events of 9 August 2021 has occurred in parallel including:

- Various reviews (collectively the "9 August Reviews") into the Event, including by the Ministry of Business, Innovation and Employment (MBIE), the Authority and Transpower. The Authority has been running several work streams into different aspects of the Event, including a review under section 16 of the Electricity Industry Act 2010 (Act), which commenced immediately following the Event, to consider the role of various parties: including the system operator, lines companies, generators, and retailers.
- Compliance investigations considering several alleged breaches of the Code. These allegations relate to the system operator's and generators' actions in relation to the Event. As a result of one investigation, the Authority laid a formal complaint with the Rulings Panel against the system operator. The Authority has not laid a complaint against any generators in relation to the Event.

The Authority also reviewed a pricing error claim² (PEC) in relation to the Event. The Authority determined that there had not been a pricing error as that term is defined in the Code.

¹ Scarcity pricing is discussed further in the body of this paper.

² Details relating to pricing error claims are set out on the Authority website at - <https://www.ea.govt.nz/operations/wholesale/spot-pricing/how-spot-prices-work/pricing-error-claims/#:~:text=Once%20interim%20prices%20are%20published,NZX%2C%20for%20a%20pricing%20error>

It is important to be clear about the functions of these activities and how these differ from the focus of the UTS investigation:

- The 9 August Reviews have assessed the Event and provided recommendations to mitigate the possibility that similar events could occur again.
- The compliance processes focus on whether there has been a breach of the Code by the system operator or the generators through their actions or omissions in relation to the Event.
- In contrast, the UTS investigation is assessing whether the Event threatens, or may threaten, the confidence in or integrity of the wholesale market in a way which cannot be resolved via other mechanisms under the Code.

Different analyses and tests apply to the different activities. In relation to a UTS, the Code provides the Authority wide powers to take corrective action if it considers a UTS has developed or is developing.

The Authority has investigated this Event under its UTS functions and carefully reviewed the submissions it received. This final decision paper (FDP) sets out the Authority's investigation and the basis for its decision.

Authority's decision

The Authority considered whether any of three aspects of the Event could have resulted in a UTS:

- Genesis Energy and Contact Energy not making certain generation assets available to service the evening peak on 9 August 2021.
- The way in which the system operator managed the grid emergency.
- The triggering of the Code's scarcity pricing regime by the system operator.

The scarcity pricing issue assumed significance after the Authority's preliminary decision paper (PDP) was published. The Authority issued a supplementary consultation paper (SCP) to provide interested parties an opportunity to comment.

Actions of the generators

Genesis Energy

The Authority's finding is unchanged from the PDP – on an objective standard, Genesis Energy's decision to not offer Huntly Rankine Unit 4 (HLY4) was a decision that was within the range of what the market might normally expect in the circumstances. In reaching this conclusion, the Authority considered the data the trader was observing, the uncertain nature of the information available, and the range of potential price outcomes. The Authority also considered the narrow time window Genesis Energy had to make a decision about whether to commit HLY4.

In this context, the Authority concluded the decision to not offer HLY4 did not threaten confidence in, or the integrity of, the wholesale market and so did not amount to a UTS.

Contact Energy

The Authority's finding in the PDP is unchanged — by the time that Contact Energy had sufficient information to conclude that the Taranaki Combined Cycle (TCC) would be needed during the relevant trading periods on 9 August 2021, it was too late to bring the unit online.

In those circumstances, the failure to bring the TCC online did not threaten confidence in, or the integrity of, the wholesale market and so did not amount to a UTS.

System operator's management of the grid emergency

The Authority considers that the system operator made errors during the Event. While it avoided the worst outcomes of the grid emergency, it did not minimise the impact of the grid emergency on consumers.

Disruption to consumers on the scale that occurred during the Event *could* threaten confidence in, or the integrity of, the wholesale market.

However, all consumers were reconnected on 9 August 2021. There is no situation that the Authority needs to correct by using its UTS powers in this regard. Any breaches of the Code by the system operator will be determined by the Rulings Panel.

The Authority's finding in the PDP on this aspect of the Event is therefore unchanged.

Triggering of scarcity pricing

The system operator triggered the Code's scarcity pricing provisions in relation to four trading periods on 9 August 2021 by issuing an Island Shortage Situation³ (ISS) Notice.

The Authority's view is that the system operator was not entitled to trigger scarcity pricing under the Code. The Code prescribes conditions that must be met before scarcity pricing can be engaged, and these were not met on 9 August 2021.

The incorrect triggering of scarcity pricing is clearly a situation that affected the wholesale market. The gross settlement amount for electricity was approximately \$130 million higher than it would have been if scarcity pricing was not triggered, although that figure overstates the true economic effect given that many generators are also retailers, and many retailers have hedge contracts.⁴

This situation is within the Authority's power to remedy as a UTS because it relates to finalising prices, which are currently being held as interim.

However, after detailed consideration, the Authority has concluded that the application of scarcity pricing to these trading periods does not threaten confidence in, or the integrity of, the wholesale market. This is for the following key reasons:

- Scarcity pricing exists to ensure that prices are not artificially depressed when the system operator directs demand reductions.
- The conditions that existed at the time were precisely those that the scarcity pricing provisions were designed to manage. 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.

³ As defined in Part 1 of the Code.

⁴ As was noted by Nova Energy Ltd in its submission, the actual financial gain for generators is likely to have been significantly less than \$130 million. This is because generators that are also retailers ("gentailers") were both selling and buying electricity. Additionally, many retailers will have hedge contracts that seek to protect them (to varying degrees) from price spikes. While the Authority's focus must be on the functioning of the market as a whole, we accept Nova's submission that it would not be correct to imply that "consumers are \$130 million worse off" because of scarcity pricing, in part because wholesale prices are not directly passed on to a large number of particularly residential consumers on fixed price contracts.

- The conclusion that the technical requirements for scarcity pricing were not met rests on a relatively fine distinction under the Code. As set out in the SCP, the Code requires scarcity pricing to be triggered only where the system operator has required electrical disconnection of demand, but not where it has requested reduction of demand. While the system operator originally considered that it had required electrical disconnection of demand, it now accepts that the notices issued during the grid emergency were notices requesting a reduction in demand.

Consistent with this conclusion, the incoming real-time pricing reforms will remove the distinction that means that scarcity pricing should technically not have applied in this case.

The Authority therefore considers that corrective action is not necessary as, in these circumstances, the application of scarcity prices was not likely to threaten confidence in, or the integrity of, the wholesale market.

Next steps

The Authority's decision ends the UTS investigation and consultation process.

The Authority's conclusion that there was no UTS does not mean that the Authority is satisfied that all industry participants complied with the Code on 9 August 2021. An industry participant can breach the Code without causing a UTS. As mentioned above, the Authority is currently taking enforcement action in relation to alleged Code breaches by the system operator.

This conclusion also does not mean that the Authority considers that there are no lessons that could be adopted to prevent a similar event recurring. That will be addressed by the work arising from the various 9 August Reviews but is not relevant for determining whether a UTS has occurred.

Contents

	Actions of the generators	iii
	Genesis Energy	iii
	Contact Energy	iii
	System operator's management of the grid emergency	iv
	Triggering of scarcity pricing	iv
1	Introduction	1
	Summary of the UTS claim	1
	Background	1
	The Authority's response	3
2	Circumstances of the Event	5
	The 9 August 2021 grid emergency	5
	Initial indications	7
	GEN at 5.10pm	7
	GEN at 6.47pm	7
	GEN (DAN) at 7.09pm	8
	Revised GEN at 8.20pm	8
	Revised GEN at 9.01pm	8
	ISS Notice at 11.54pm	8
3	Framework for decision	9
	Legal framework	9
	The Authority's approach in this case	11
	The Authority considered its statutory objective	12
4	Question 1 – Is there a situation involving the wholesale market?	12
	What the Authority said in the PDP	12
	Key themes from submissions	12
	The Authority's final view	12
5	Question 2 – Does the situation threaten confidence in, or the integrity of, the wholesale market?	13
	What the Authority said in the PDP	13
	Actions of the generators	13
	Genesis Energy	13
	Contact Energy	14
	The system operator's management of the grid emergency	14
	Triggering of scarcity pricing	14
	Key themes from submissions	15
	Conduct that threatens confidence in, or the integrity of, the wholesale market	15
	Actions of the two generators	15
	The system operator's management of the grid emergency	16
	Triggering of scarcity pricing	16
	The Authority's final view	18
	The two generators	18
	The system operator's management of the grid emergency	18
	Triggering of scarcity pricing	19
6	Question 3 - Whether the situation can be satisfactorily resolved by any other mechanism available under the Code?	21
7	The Authority's conclusion is that a UTS did not occur in relation to the Event	21
8	Comments on other issues raised in submissions	21
	Glossary of abbreviations and terms	23

Appendix A	9 August 2021 event timeline	24
Appendix B	Extracts from the Code	28
Appendix C	Formal notices issued by the system operator on 9 August 2021	29
	Issued 5:10 pm	31
	Issued at 6:47 pm	32
	Issued at 7:09 pm	33

1 Introduction

Summary of the UTS claim

- 1.1 On 12 August 2021, the Authority received a claim from Haast Energy Trading Limited (Haast Energy) and Electric Kiwi Limited (Electric Kiwi) that a UTS occurred on 9 August 2021 in relation to six trading periods (37 to 42). Two more parties subsequently joined the claim: Flick Energy Limited (Flick Electric) and Switch Utilities Limited (Vocus New Zealand) (collectively these four parties are referred to as the “Independent Retailers”).
- 1.2 The claim alleged that the UTS was individually and jointly caused by Contact Energy and Genesis Energy on the grounds that:
 - (a) Genesis Energy did not offer HLY4 to the market, and
 - (b) Contact Energy had the TCC available but did not run it.
- 1.3 Although not part of the claim, the Authority also decided, based on an initial review of the data, to consider whether the actions of Transpower as the system operator contributed to a potential UTS.⁵
- 1.4 As further detailed in the PDP, the Independent Retailers requested the Authority exercise its powers in the UTS provisions by, among other things, directing the wholesale market pricing manager not to finalise prices for the six trading periods in question while the Authority investigated the alleged UTS. That direction was made and the prices in question have not yet been finalised.
- 1.5 Information received after the PDP consultation raised the question of whether the scarcity pricing provisions of the Code had been correctly applied to trading periods 39 - 42 during the grid emergency on 9 August 2021. The Authority undertook supplementary consultation on this question.
- 1.6 The Authority therefore considered whether a UTS had arisen through any one or more of the following:
 - (a) Genesis Energy and Contact Energy not making certain generation assets available to service the evening peak on 9 August 2021; and/or
 - (b) the way in which the system operator managed the grid emergency; and/or
 - (c) the triggering of the Code’s scarcity pricing regime by the system operator.

Background

- 1.7 The factual circumstances of the Event are described in Section 2. However, the circumstances of the Event and an overview of the relevant parts of the Code can be summarised as follows.
- 1.8 On the cold evening of 9 August 2021, peak electricity demand reached its highest level on record. Simultaneously, available generation unexpectedly declined – a result of a drop in wind generation and weed clogging the intakes of the Tokaanau power station. Slower-start generating assets (such as the HLY4 and TCC) were offline in the afternoon and could not be brought online in time to service the evening peak.

⁵ The UTS claim, consultation papers, submissions and decision papers are available at - <https://www.ea.govt.nz/code-and-compliance/uts/undesirable-trading-situations-decisions/9-august-2/>

- 1.9 Looking at this data in real time, it appeared to the system operator that there was insufficient generation available to meet demand and have sufficient reserves for any contingent event. In simple terms, there was a risk that the national power system would collapse. While smaller-scale grid emergencies do occur from time to time,⁶ an event of this scale is unprecedented. In the words of MBIE’s report on 9 August 2021 (MBIE Report): *“It is the first time an event of this nature has occurred since the electricity market began in 1996.”*⁷
- 1.10 Maintaining system security is one of the system operator’s principal obligations under the Code. The system operator must ensure it is operating the power system within the required parameters to preserve power quality and avoid cascade failure. To do this:
- (a) The system operator monitors system conditions in real-time and maintains communication with asset owners including electricity distribution businesses (EDBs).
 - (b) If a problem arises, the system operator can request outage recalls, or changes in generation or load, and works with asset owners on reconfiguration and restoration both through phone calls and emailed notices.
 - (c) If this does not resolve the issue, the system operator can instruct managed shedding of load to avoid cascade failure if there is insufficient supply to meet demand in real time.
- 1.11 If these actions do not restore the balance of generation and demand within the power system, the final line of defence is Automatic Under Frequency Load Shedding (AUFLS), which automatically disconnects significant portions of the national grid. This is designed to prevent cascade failures, which would result in even more widespread outages.
- 1.12 In dealing with the escalating situation on 9 August, the Authority considers that the system operator made several process and administrative errors (including in relation to its instructions to EDBs).
- 1.13 However, the system operator did succeed in maintaining system frequency, as well as providing some generation reserves to cope with the possibility of further generation losses. As summarised in the MBIE Report:
- We nonetheless find that the system operator staff acted capably and professionally during a challenging evening. They got us through, notwithstanding inadequate information and a faulty allocation tool. Their skill and commitment avoided the next stage of system defence, known as Automatic Under Frequency Load Shedding (AUFLS), which would have seen 16 per cent of New Zealand’s electricity load shed, automatically.*⁸
- 1.14 Following the conclusion of the grid emergency, the system operator issued an ISS Notice, which triggered the scarcity pricing provisions of the Code.

⁶ See <https://www.ea.govt.nz/operations/market-operation-service-providers/system-operator/grid-emergency-reports/>

⁷ 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>

⁸ See paragraph numbered 4. of the Executive Summary - <https://www.mbie.govt.nz/dmsdocument/17988-investigation-into-electricity-supply-interruptions-of-9-august-2021>

- 1.15 Scarcity pricing exists to prevent electricity prices being artificially depressed during times of high demand. Where the system operator has directed demand 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. As 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.

- 1.16 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 set out in Figure 1 of the PDP.⁹ 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.¹⁰
- 1.17 The Code contains provisions to give effect to the policy discussed above.¹¹ 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). As outlined in the SCP in the Authority's view this means that the ISS Notice, and thus the triggering of scarcity pricing, did not follow the Code.

The Authority's response

- 1.18 Upon receipt of the Independent Retailers' complaint, and after carrying out an initial analysis of the Event, the Authority released the PDP. The PDP set out the Authority's initial view that the Event had not resulted in a UTS. Interested parties were given an opportunity to make submissions. Subsequently, the Authority published a supplementary consultation paper requesting further submissions.

⁹ <https://www.ea.govt.nz/assets/dms-assets/30/UTS-preliminary-decision-supplementary-consultation.pdf>

¹⁰ See the discussion at paragraph 2.22 below.

¹¹ Details on scarcity pricing are available at - <https://www.ea.govt.nz/operations/wholesale/spot-pricing/scarcity-pricing/> and further details on the policy rationale and design can be found in the [2011 consultation](https://www.ea.govt.nz/assets/dms-assets/9/9784scarcity-pricing-arrangements-proposed-design.pdf) paper: <https://www.ea.govt.nz/assets/dms-assets/9/9784scarcity-pricing-arrangements-proposed-design.pdf>

1.19 The UTS claim, the consultation papers and submissions can be found on the Authority's website:

<https://www.ea.govt.nz/code-and-compliance/uts/undesirable-trading-situations-decisions/9-august-2/>

1.20 The Authority received eight submissions on the PDP from nine parties, with supporting letters from a further two parties. Four parties supported the Authority's finding in the PDP that there was no UTS; one party stated it did not dispute the preliminary finding and noted this was a decision for the Authority; four parties were of the view that this was a UTS; and two parties did not endorse or disagree with the PDP but essentially sought further information and / or clarification of the approach taken or on specific points raised in the PDP.

Table 1: Summary of submissions on the PDP

Name	General view
Contact Energy	Agrees that not a UTS
Genesis Energy	Agrees that not a UTS
Nova Energy	Agrees that not a UTS
Trustpower Limited	Agrees that not a UTS
Haast and Electric Kiwi	View is that there is a UTS
Flick Electric and Vocus New Zealand	Supports Haast / Electric Kiwi view that there is a UTS
Meridian Energy Limited	Requests further information / clarification
Transpower	Provides clarification of a specific issue
Major Energy Users Group (MEUG)	Proposes that further information is required

1.21 The Authority then issued a supplementary consultation paper asking for submissions on whether it was appropriate for scarcity pricing to apply to trading periods 39 – 42¹² on 9 August 2021, notwithstanding that the ISS Notice may not have been issued in accordance with the Code.

1.22 The Authority received nine further submissions from 12 parties discussing this point. Five parties submitted it was appropriate for scarcity pricing to apply to the four trading periods, six parties submitted it was not appropriate for scarcity pricing to apply, and one party did not respond to the question but raised a number of matters related to the issue.

Table 2: Summary of supplementary submissions

Name	General view
Pioneer Energy Limited	Not appropriate for scarcity pricing to apply

¹² Noting that this is a subset of the six trading periods alleged to be a UTS, i.e., if the Authority determines that scarcity pricing should not have applied, this finding would only relate to four of the six trading periods.

Name	General view
Haast, Electric Kiwi, Flick Electric, Vocus	Not appropriate for scarcity pricing to apply
Genesis Energy Limited	Not appropriate for scarcity pricing to apply
EMHTrade Limited	Appropriate for scarcity pricing to apply
Mercury NZ Limited	Appropriate for scarcity pricing to apply
Nova Energy Limited	Appropriate for scarcity pricing to apply
Transpower New Zealand Ltd (as system operator)	Appropriate for scarcity pricing to apply
Bold Market Making NZ Ltd	Appropriate for scarcity pricing to apply
Meridian Energy Ltd	Does not provide a view as to whether scarcity pricing should apply.

- 1.23 Where relevant, this FDP discusses the general themes raised in submissions. The Authority has endeavoured to accurately summarise views expressed in the submissions. However, the summaries necessarily compress the information provided in submissions and the individual submissions should be read to obtain a full account of submitters' views.
- 1.24 The Authority has carefully considered all submissions. Having done so, the Authority remains of the view that there was no UTS. However, our reasoning has developed in response to the matters raised in submissions. The reasons for our decision are set out in the remainder of this report.

2 Circumstances of the Event

The 9 August 2021 grid emergency

- 2.1 The circumstances leading up to the grid emergency in the early evening of 9 August 2021 have been thoroughly researched and documented in the Electricity Authority's immediate assurance report,¹³ a report by PBA Consulting¹⁴ and the MBIE Report.¹⁵ The following is a description of the key aspects of the Event, based in part on those three reports. A more extensive timeline is set out in Appendix A. Copies of the notices issued by the system operator are included in Appendix C.

WRN – Warning Notice

GEN – Grid Emergency Notice

GEN Revision – an update to a previously issued GEN

¹³ Electricity Authority, *Immediate assurance review of the 9 August 2021 demand management event*, 10 September 2021

¹⁴ PBA Consulting, *Independent Investigation of the 9 August 2021 Grid Emergency*, 6 October 2021 (for Transpower)

¹⁵ Ministry of Business, Innovation and Employment, *Investigation into electricity supply interruptions on 9 August 2021*

Table 3: Summary of notices issued on 9 August 2021

Time of issue	Type of notice	Notice content
6:42 am	CAN	Notification of low residual situation (i.e. North Island residual generation forecast at less than 200 MW for trading periods 36 – 41 (5:30 pm – 8 pm). Participants asked to ensure energy and reserve offers and demand bids are accurate.
1:02 pm	WRN	Notification of risk of insufficient generation offers nationally from 5:30 pm – 8:30 pm. Participants requested to increase energy offers, increase instantaneous reserve offers and decrease demand.
5:10 pm	GEN	Notification of insufficient generation offers nationally from 6:00 pm – 8:00 pm. Participants requested to increase energy offers, increase instantaneous reserve offers and decrease demand.
6:47 pm	GEN Revision	All network companies to reduce load by 1% until further notice.
7:09 pm	GEN Revision	Demand allocation notice (DAN) – a table of maximum demands for each connected party (includes distributors and direct connect customers).
8:20 pm	GEN Revision	Situation update. Network companies may increase load by 5% on current load.
9:01 pm	GEN Revision	Grid emergency ended. All participants can restore load.
11:19 pm	GEN Report	Cause of the grid emergency was insufficient generation offers nationally to meet demand and provide for N-1 security for a contingent event between 6 pm and 9 pm.
11:54 pm	ISS Notice	In accordance with clause 5(1A) of Technical Code B of Schedule 8.3, a notice to inform the pricing manager and market participants that an island-wide instruction to disconnect demand has been issued.

Initial indications

- 2.2 The system operator's demand forecast early on Monday 9 August 2021 initially indicated that there was sufficient generation capacity offered to meet a forecast record peak demand, as well as to provide a normal reserve margin to cover for a possible loss of generation.
- 2.3 A CAN was issued at 6:42am advising the excess generation offered (called the 'residual') for the period from 5:30pm to 8:00pm was less than the normal margin of 200MW. This was supplemented at 1:02pm with a WRN advising that there was a risk of insufficient generation to meet demand from 5:30 pm – 8:30 pm. There was still sufficient generation offers to meet forecast demand and reserves.

GEN at 5.10pm

- 2.4 The situation worsened by late afternoon as wind generation declined and one hydro station (Tokaanu) experienced ongoing trouble with weed blocking its inlet screens, resulting in sudden reductions in generation. These circumstances prompted the system operator to issue a GEN at 5:10 pm, requesting that participants increase energy offers, increase instantaneous reserve offers and decrease demand. Some distributors responded by reducing controllable load.
- 2.5 Controllable load is mostly "ripple-controlled" water heating load that can be switched off for relatively short periods (typically for a few hours at a time) without loss of consumer amenity.

GEN at 6.47pm

- 2.6 As the Monday evening peak demand approached, it became evident that the situation may become more serious. To keep control of system frequency, the system operator issued a second GEN at 6:47pm¹⁶, reiterating the previous request for generation and reserve offer increases and demand decreases. In addition, the GEN stated "All network companies to reduce load by 1% until further notice. A demand allocation notice will follow shortly".
- 2.7 Distributors responded very quickly to reduce demand such that the requested 1% demand reduction was achieved within 6 minutes of the GEN. Indeed, a 3% demand reduction (three times the amount requested) was achieved within 20 minutes of the GEN.
- 2.8 The distributor demand reductions were mostly achieved by switching off any remaining controllable load. However, some distributors had already reduced demand in response to the 5:10 pm GEN and simply did not have a further 1% of controlled load resource. Some of the distributors in this situation reduced demand by bulk disconnecting consumers where no more controllable load was available. These disconnections were carried out by remote switching selected distribution feeders using the distributors SCADA systems, causing a total loss of supply for the customers on those feeders.
- 2.9 The demand reductions allowed the system operator to keep control of system frequency, as well as providing some generation reserves to cope with the possibility of further generation losses.

¹⁶ The notice was issued at 6.47pm, but the email was received by distributors at 6.48pm. This paper therefore refers to the "6.47pm Notice"

- 2.10 The steps taken by the system operator and distributors prevented the system frequency (which reflects the balance of supply and demand) from falling to levels where automatic defence mechanisms would have been triggered. If the frequency had fallen far enough, interruptible load (offered by ancillary services providers) would have been shed. If it continued to fall, it would reach the point at which AUFLS would have disconnected a very large number of consumers – at least 16% of New Zealand’s overall demand. The necessary drops in frequency could have happened very quickly – likely within fractions of a second – which is why interruptible load and AUFLS are automated responses.
- 2.11 By 7:08 pm, the situation had improved, largely because of the demand reductions.

GEN (DAN) at 7.09pm

- 2.12 At 7:09 pm, 22 minutes after the 6:47 pm GEN, the system operator issued a GEN containing a demand allocation notice (DAN) to 27 distributors and 8 direct connect customers. The DAN was intended to allocate the overall 1% demand reduction sought by the system operator in the 6:47 pm GEN equitably amongst distributors and large customers directly connected to the grid.
- 2.13 The DAN contained materially incorrect allocations that allowed some recipients to increase demand above their original levels, but meant that 8 recipients further decreased demand, some by significant amounts.
- 2.14 Several distributors suspected the DAN contained incorrect allocations due to the large amount of demand reduction it called for. Some queried their regional Transpower National Grid Operations Centre (NGOC) or the system operator’s National Control Centre (NCC).
- 2.15 Some queries to the regional NGOCs were passed on to NCC, alerting coordinators to problems with the DAN. Those distributors were asked to hold-off following the DAN.
- 2.16 However, the other 5 distributors who had queried their NGOC had the DAN allocations confirmed. Of these, 2 distributors (Electra and WEL) reported that they needed to disconnect additional consumers, equivalent to about 37 MW of demand in total.

Revised GEN at 8.20pm

- 2.17 By 8:20 pm, the evening peak was passing, meaning that demand had naturally reduced. The system operator issued a revised GEN, notifying distributors that they could increase demand by up to 5%.

Revised GEN at 9.01pm

- 2.18 At 9:01 pm the system operator issued a further revised GEN notifying participants that the grid emergency had ended and that all reduced demand could be restored.
- 2.19 All reduced demand was restored by 9:15 pm.

ISS Notice at 11.54pm

- 2.20 At 11.54pm, after the grid emergency had ended, the system operator issued the ISS Notice. The Notice provided as follows:

“[T]his 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.”

- 2.21 The ISS Notice resulted in the pricing manager applying the scarcity pricing provisions in the Code. As discussed above, this resulted in prices for the affected trading periods being fixed at approximately \$10,000 MW/h.
- 2.22 The overall effect was to raise the gross settlement amount for electricity by approximately \$130 million. However, as was noted by Nova Energy Limited in its submission, the actual financial gain for generators is likely to have been significantly less. This is because generators that are also retailers (“gentailers”) were both selling and buying electricity. Additionally, many retailers will have hedge contracts that seek to protect them (to varying degrees) from price spikes. While the Authority’s focus must be on the functioning of the market as a whole, we accept Nova’s submission that it would not be correct to imply that “consumers are \$130 million worse off” because of scarcity pricing, particularly as many consumers will be on fixed price contracts.
- 2.23 The Authority and the system operator are of the view that the ISS Notice was erroneously issued. The system operator did not, in fact, issue an island-wide instruction to disconnect demand. Instead, the GENs discussed above were only requests to decrease demand. Clause 5(1A) of the Code does not require an ISS Notice to be issued in such circumstances.
- 2.24 This means that the Code’s pre-requisites for triggering scarcity pricing were not met during the Event. However, because the pricing manager must take the ISS Notice at face value, and the other criteria in the Code were met, the pricing manager was required to apply scarcity pricing to trading periods 39 - 42.

3 Framework for decision

Legal framework

- 3.1 Under Part 5 of the Code 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, and which cannot be satisfactorily resolved via other mechanisms in 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. Relevant extracts from the Code are provided in Appendix B.
- 3.2 Clause 1.1 of the Code defines a UTS. For one to exist, the following criteria must be met:
- (a) there is a situation which involves the wholesale market;
 - (b) that situation threatens, or may threaten, confidence in, or integrity of, the wholesale market; and
 - (c) the situation cannot, in the Authority’s reasonable opinion, be satisfactorily resolved via another mechanism of the Code (apart from the trading conduct provisions).

- 3.3 Clause 5.1(2) of the Code provides examples of situations that the Authority may consider constitute a UTS. However, as provided in clause 5.1(3), this list is not exhaustive, nor will the examples provided constitute a UTS unless they also fall within the definition provided in clause 1.1.
- 3.4 Clause 5.5 of the Code provides that the Authority must attempt to correct each UTS, and restore the normal operation of the market, as soon as possible.
- 3.5 When correcting a UTS, the Authority may direct participants to take actions inconsistent with the Code.¹⁷ When amending the UTS provisions in 2013, the Authority explained that this is because “there is a strong likelihood that, in some cases, actions will need to be inconsistent with at least some aspects of the Code. Indeed, the UTS may have arisen because the Code itself is leading to some major unintended problem”.¹⁸
- 3.6 As this highlights, 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.
- 3.7 In exercising this broad discretion, the Authority is guided by its 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.”¹⁹
- 3.8 The Authority must also be mindful of the specific purpose of the UTS provisions. As illustrated by clause 5.5, 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. They are, broadly speaking, designed to allow the Authority to remedy an ongoing state of affairs.
- 3.9 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
- 3.10 The UTS provisions are not primarily a means of enforcing compliance with the Code, or to hold an industry participant accountable for bad or negligent behaviour. The Electricity Industry (Enforcement) Regulations 2010 (Regulations) empower the Authority to seek penalties and orders for compensation in relation to breaches of the Code. The UTS provisions will not normally be an appropriate tool to compensate participants, and — as

¹⁷ See cl 5.2(2A)(a).

¹⁸ Authority *Decision Paper: Review of the Undesirable Trading Situation provisions in the Code* (17 June 2013) at [4.9.4] available at <https://www.ea.govt.nz/assets/dms-assets/15/15156Decision-paper-UTS-provisions-amendment.pdf>.

¹⁹ The statutory objective of the Authority was further considered in section 5 of the PDP.

the Authority has made clear in previous UTS decisions — “are not designed to punish individual participants”.²⁰

- 3.11 Enforcement actions may be appropriate in response to conduct that occurred in the past and cannot be “undone” or corrected. But it is unlikely that a UTS exists if there is no ongoing situation for the Authority to correct. As the Authority has said previously, a UTS “must require us to take some corrective action. If ... the situation does not require corrective action, the situation is not a UTS.”²¹
- 3.12 Put another way: if the issues are in the past, and the only way to address ongoing effects is to order compensation or to penalise an industry participant, then it is unlikely that a UTS will be found.
- 3.13 A useful reference point from the Code is the concept of “normal” market operations. As noted above, if normal market operations have been restored (including any consequent impact on price), a UTS is unlikely to exist. Moreover, if the market never stopped operating “normally”, then a UTS is unlikely to have developed.
- 3.14 As discussed in the PDP, normal market operations are not the same as perfect market operations: the Authority must avoid hindsight-bias and instead focus on what market participants should reasonably expect to happen in certain situations, taking into account all the factors that might lead to imperfect decision-making. This FDP draws on the concept of normal market operations to illustrate the Authority’s reasoning.

The Authority’s approach in this case

- 3.15 In considering each of the three limbs of the UTS definition (set out above at paragraph 3.2) this FDP will:
- (e) provide a summary of key details from the PDP and SCP;
 - (f) summarise key themes from the submissions and provide comments; and
 - (g) set out the Authority’s final view on each question.
- 3.16 There will inevitably be differences in the approach to be taken between each different potential UTS given the different circumstances of each situation. However, the Authority considers that the approach taken in this case is consistent with the approach taken in previous cases.
- 3.17 As noted above, the Authority has endeavoured to accurately summarise views expressed in the submissions. However, summaries necessarily compress the information provided in submissions and the individual submissions should be read to obtain a full account of submitters’ views.

²⁰ Authority *Final Decision – Actions to Correct Undesirable Trading Situation December 2019* (17 August 2021) at [3.4] available at <https://www.ea.govt.nz/assets/dms-assets/28/Final-Decision-Actions-to-Correct-2019-Undesirable-Trading-Situation.pdf>.

²¹ Authority *The Authority’s decision on claim of an undesirable trading situation* (28 February 2019) at [5.7], available at <https://www.ea.govt.nz/assets/dms-assets/24/2488615-September-2018-UTS-decision-paper.PDF>.

The Authority considered its statutory objective

- 3.18 As set out in the PDP, in considering the application of the UTS provisions, the Authority considered its 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 statutory objective provides context.²²

4 Question 1 – Is there a situation involving the wholesale market?

- 4.1 Following review of submissions, the Authority's position on this question is unchanged from the PDP and the view that each aspect of the Event did affect the wholesale market.

What the Authority said in the PDP

- 4.2 The PDP provided detailed analysis as to whether the circumstances of the 9 August 2021 peak demand event affected the wholesale market.
- 4.3 The Authority's preliminary view was that the Event affected the wholesale market because scarcity pricing was invoked, which set prices for the wholesale market for trading periods 39 to 42.

Key themes from submissions

- 4.4 The Authority notes the feedback on the quantum of the impact from disconnections and scarcity pricing. The Authority agrees that both disconnections and scarcity pricing have had a significant impact on the market but, as discussed further below, require separate analysis to determine whether each element meets some of the other components of the legal test for a UTS.
- 4.5 Transpower's submission²³ (along with others) focused on clarifying the impact of the various notices on disconnections and scarcity pricing (as was also discussed in the PBA Report²⁴). On the basis of these submissions, the Authority has concluded that both the GEN at 6.47pm and the GEN at 7.09pm resulted in consumer disconnections.
- 4.6 Several submissions that provided comments about the impact of scarcity pricing, combined the issue of whether there was an impact on the wholesale market and whether it was outside the range of normal market operations and threatened confidence or integrity. For this reason, the FDP deals with a number of the issues raised by submitters on this question under the section on Question 2.

The Authority's final view

- 4.7 The Authority's view continues to be that each aspect of the Event affected the wholesale market. The financial and security impacts of the Event on the market were significant.

²² See section 5. of the PDP and sections 15 and 16 of the Electricity Industry Act 2010

²³ The Transpower submissions is available at - <https://www.ea.govt.nz/assets/dms-assets/29/Transpower-submission-on-preliminary-2021-UTS-decision.pdf>

²⁴ The PBA Consulting Report is available at - <https://www.transpower.co.nz/sites/default/files/bulk-upload/documents/PBA%20Consulting%209%20Aug%2021%20Grid%20Emergency%20Investigation%20Report.pdf>

- 4.8 The Authority view is that, in terms of the first limb of the UTS test, each of the three areas of conduct set out at paragraph 1.6 contributed to the effect on the wholesale market:
- (a) Genesis Energy and Contact Energy not making certain generation assets available to service the evening peak on 9 August 2021 contributed to the scarcity of supply during the grid emergency;
 - (b) the way in which the system operator managed the grid emergency resulted in demand constraints; and
 - (c) the triggering of the Code's scarcity pricing regime by the system operator resulted in significantly different prices than would have otherwise been the case.

5 Question 2 – Does the situation threaten confidence in, or the integrity of, the wholesale market?

What the Authority said in the PDP

- 5.1 The PDP discussed the conduct of the system operator and the two generators separately.
- 5.2 The issue of scarcity pricing was not raised in the context of the UTS until after the PDP was published and was the subject of a supplementary consultation.

Actions of the generators

Genesis Energy

- 5.3 The PDP accepted that Rankine units (such as HLY4) are not well-suited to a short-term peaking role for the following reasons:
- (a) bringing a unit online is a complex process, involving managing differential expansion while the unit is brought to operating temperature;
 - (b) under a best-case scenario it takes a minimum of 8 hours 13 minutes to bring a unit from cold to full load, but Genesis Energy usually allows 12 hours, to allow some contingency for potential plant, fuel and staffing issues;
 - (c) the units have significant start-up costs; and
 - (d) the units have a significant minimum operating load, which will tend to depress the market price.
- 5.4 The UTS claim alleged that Genesis Energy ignored weather and wind forecasts and the Customer Advice Notice (CAN) issued by the system operator at 6:42am. However, based on the analysis in the PDP (paragraphs 8.1 to 8.27), which includes such matters as validation of start-up costs, the Authority's preliminary conclusion was that not offering HLY4 was an operational decision consistent with what the market might reasonably expect in the circumstances. In reaching this initial view, the Authority considered the data that the trader was observing, the timing of that data, the uncertain information available, and the range of potential price outcomes.
- 5.5 The Authority also notes that the CAN notice issued at 6:42am signalled a low residual situation. This means that forecasts suggested that once the system had been fully dispatched, there would not be much excess generation left. However, these notices are relatively common and cannot necessarily be interpreted as a signal of actual scarcity to

the extent observed on the evening on 9 August 2021. They are a signal that if things get worse, there could be actual scarcity.

- 5.6 The Authority therefore reached the preliminary conclusion that, in this context, that Genesis Energy's decision not to offer HLY4 on 9 August 2021 did not threaten confidence in, or the integrity of, the wholesale market.

Contact Energy

- 5.7 The UTS claim alleged that Contact Energy "could have reorganised their existing supplies and had TCC plus both peakers on for the critical period, without burning significantly more gas than they did".
- 5.8 As explained above and in paragraphs 8.7-8.11 of the PDP, the decision to offer plant needs to be made based on forecast prices. The Authority assessed a range of material²⁵ provided by Contact Energy and made a number of findings. Based on these materials and further validation and analysis the Authority determined that Contact Energy could not have made TCC available during the relevant trading periods on 9 August in response to any forecast data for the relevant trading periods.
- 5.9 In these circumstances, the Authority reached the preliminary conclusion that Contact Energy's decision not to offer TCC on 9 August 2021 did not threaten confidence in, or the integrity of, the wholesale market. The Authority found that the lead time for starting TCC in the circumstances existing at the time was too long for it to have responded to any prices forecast on 9 August for the relevant trading periods that evening.

The system operator's management of the grid emergency

- 5.10 The PDP focused on whether the system operator's actions in managing the market security impacts of the Event fell outside what could be expected during the normal operation of the market (taking into account the context of a grid emergency). To understand this, the Authority analysed data and assessed the actions of the system operator.
- 5.11 The PDP contains detailed analysis of the events as they occurred and what data was available to the system operator as the grid emergency escalated in severity. This analysis assisted the Authority making an assessment as to what the market might have reasonably expected the system operator would do in this situation.
- 5.12 As noted in the PDP, several actions and decisions by the system operator were not perfect and could be improved.
- 5.13 However, the Authority's preliminary view was that the actions of the system operator during the Event, on the whole, did not threaten confidence in, or the integrity of, the wholesale market.

Triggering of scarcity pricing

- 5.14 The PDP did not specifically address whether the system operator issuing an ISS Notice in error would threaten confidence in, or the integrity of, the wholesale market.
- 5.15 As discussed above, the Authority undertook supplementary consultation. The Authority invited submitters to comment on whether scarcity pricing should apply to the relevant

²⁵ This material includes the check list for putting TCC into preservation mode that was completed after the unit shut down at the end of July, and telemetry showing that the heat recovery steam generator was drained and filled with nitrogen on 2 August 2021. Contact also provided the start-up check list and timings for bringing TCC out of preservation mode to generating.

trading periods, even though the ISS Notice had not been issued in accordance with the Code.

Key themes from submissions

- 5.16 Submitters made specific comment on the actions of the system operator and the two generators. In addition, they queried how the Authority had assessed whether conduct rose to the level where it could threaten confidence in, or the integrity of, the wholesale market.

Conduct that threatens confidence in, or the integrity of, the wholesale market

- 5.17 Submitters queried language in the PDP suggesting that the Authority applied a “reasonableness” test when assessing whether conduct threatened confidence in, or the integrity of, the wholesale market.
- 5.18 The Authority accepts that the “normal operations”²⁶ threshold being applied was not always consistently expressed in the PDP. It is difficult to set out, in the abstract, what types of situations will threaten the wholesale market. As noted in the PDP and in submissions, the existence of a UTS does not depend on “blameworthy” conduct by industry participants. It is possible that all participants may be abiding by the Code, yet a UTS might still develop. Conversely, the fact that an industry participant has breached the Code does not mean that a UTS is inevitable. As discussed above, the Code’s UTS provisions are deliberately broad.
- 5.19 However, this does not mean that the presence or absence of “blameworthy” conduct is irrelevant to the decision whether a UTS has occurred.²⁷ For example, if all industry participants are acting as they would be expected to do within a normally-operating market, this points away from a UTS.²⁸
- 5.20 In this case, the Authority has concluded that Genesis Energy and Contact Energy acted reasonably in response to the information available at the relevant times and that this conduct was within the range of what the market might normally expect in the circumstances.

Actions of the two generators

- 5.21 Submissions, particularly from Genesis Energy and Trustpower, provided further details around the decision-making processes for slow-start generation such as HLY4. The Authority accepts this analysis, which is consistent with the position taken in the PDP.
- 5.22 In relation to Genesis Energy, the Authority accepts the submission that it was reasonably expected, at the time that Genesis Energy had to decide, not to bring HLY4 online. The Authority has determined that given the timing and content of both the CAN and forecast prices, it was reasonable in the circumstances that Genesis Energy made this decision. The factors that ultimately resulted in a drop in generation (from Tokaanu

²⁶ Under clause 5.5 of the Code, the Authority must attempt to correct every UTS and restore the normal operation of the wholesale market as soon as possible. As was analysed in the December 2019 UTS, ‘normal operations’ may be assessed by considering what the market might reasonably expect to occur in the circumstances existing at the time.

²⁷ Clause 5.1(2) of the Code sets out examples of what may constitute a UTS and some of these include conduct that is blameworthy.

²⁸ Though of course this would not be the only, or necessarily the determinative, factor.

between 6.06pm and 6.52pm, and wind generation between 5.40pm and 6.40pm²⁹) occurred close to or during the evening peak, which was much too late for Genesis Energy to offer HLY4.

- 5.23 Similarly, the Authority considers that the decision by Contact Energy not to offer TCC was also within the range of what the market might reasonably expect in the circumstances. TCC required even longer than HLY4 to be brought online. Based on the information available to Contact Energy at the latest time that it could have done so to service the evening peak, TCC would have run at a loss. The Authority accepts that it was reasonable for Contact Energy to choose to leave the unit offline in those circumstances and something that would not be unexpected for the market.
- 5.24 We note Haast's submission that Genesis could have serviced the evening peak, albeit at "minimum operating load", if it had decided to generate in response to the 10:10am forecast price. The 10.10am forecast price was higher than earlier forecasts and indicated that it might have been possible for HLY4 to run at a profit.
- 5.25 However, the Authority considers that it was reasonable for Genesis Energy not to act in reliance on the 10.10am forecast alone. We note that there was a very narrow time window between when the forecast was available to Genesis Energy and when it would have to begin bringing HLY4 online to reach minimum operating load by the evening peak. Choosing to bring HLY4 online would have risked running at a loss if prices had dropped again. The Authority considers that it was reasonable for Genesis Energy not to take this risk.

The system operator's management of the grid emergency

- 5.26 A number of submitters questioned the Authority's conclusion about the impact of the system operator's decisions on the market. In particular, submitters noted that the impact of the errors in the DAN on consumer disconnections and queried whether scarcity pricing should have been applied given (in the words of one submission) "*there was no genuine scarcity*"³⁰.
- 5.27 The Authority agrees that the system operator made errors in its notices to industry participants – particularly those that resulted in consumer disconnections. The system operator accepted in its submission that the demand allocations in the DAN were incorrect and caused some customer disconnections (and associated demand constraints).
- 5.28 However, for the reasons explained below,³¹ the Authority does not agree that there was no genuine scarcity. There was lack of supply relative to demand, due both to reasonable commercial decisions made by Genesis Energy and Contact Energy and unforeseen disruptions to generation during the day on 9 August 2021.

Triggering of scarcity pricing

- 5.29 As noted above, 9 submissions were received from 12 different parties on the issue of scarcity pricing and its application to trading periods 39 – 42 on 9 August.
- 5.30 Six parties were of the view it was not appropriate for scarcity pricing to apply. Some of the key themes arising out of those submissions were as follows:

²⁹ See PDP at paragraphs 7.17 and 7.18.

³⁰ See first bullet point on page 2 of the Haast submission on the PDP. This can be seen at: [Independent-Retailers-submission-on-preliminary-2021-UTS-decision.pdf](#)

³¹ See paragraphs 5.44 to 5.47.

- (a) The Code requires the system operator to give instructions to electrically disconnect demand before issuing an ISS Notice.
- (b) The Authority and the system operator are of the view that the ISS Notice was issued incorrectly because instructions to electrically disconnect had not been given.
- (c) Had the system operator not issued the ISS Notice in error, the pricing manager would not have been able to apply scarcity pricing.
- (d) If the trigger for scarcity pricing had not been met, then it follows that scarcity pricing should not apply.
- (e) The material published by the Authority on the scarcity pricing regime shows that the intention was for scarcity pricing to apply in narrow and exceptional circumstances, and only where the notice to disconnect demand had been given.
- (f) If an incorrectly issued ISS Notice and scarcity pricing are allowed to stand, purchasers will overpay by \$130 million. The quantum of this overpayment is such that this will undermine confidence in the market and give rise to a UTS.

5.31 Five parties were of the view that it was appropriate for scarcity pricing to apply. Some of the key themes arising out of those submissions were as follows:

- (a) Conditions consistent with scarcity pricing existed at the time the ISS Notice was issued, regardless of the technical validity of the notice. The system operator was required to take steps to manage demand.
- (b) Notwithstanding the imprecise wording of the written notices issued by the system operator, the practical effect was the electrical disconnection of 34,000 consumers across multiple distributors. Arguably, there was an island-wide instruction to electrically disconnect demand.
- (c) The pricing manager must follow certain procedures once the ISS Notice was issued and has no discretion to contest the validity or correctness of the ISS Notice. The pricing manager's decisions should therefore stand, having gone through the exercise of determining that a scarcity pricing situation existed in good faith. The pricing manager was right to find that the other criteria for scarcity pricing were met.
- (d) When considering the impact of scarcity pricing, a significant proportion of transactions will be internal to the gentailers or fully hedged between retailers and generators, so the net effect on the market will be significantly less than \$130 million.
- (e) While errors were made by the system operator, the market still needed to meet record electricity consumption in circumstances where not all dispatchable generation was available. In such circumstances the need for reliable peak generation capacity and demand response needs to be signalled in market prices. To do otherwise risks damaging the integrity of the market.
- (f) Even if there was a technical breach of the Code, the value of the price signal must be preserved as a priority.

5.32 One submitter, Pioneer Energy Limited, agreed that it was not appropriate for scarcity pricing to apply based on how the Code was currently drafted but noted there was

clearly a shortfall in generation volumes over the four trading periods. Pioneer queried whether the Code's threshold for triggering scarcity pricing was too high.

- 5.33 Meridian Energy Limited's submission did not provide a view as to whether it was appropriate that scarcity pricing applies to trading periods 39 – 42 on 9 August. Meridian did however submit that it is unclear whether the system operator breached the Code in issuing the ISS Notice.

The Authority's final view

- 5.34 As noted above, the Authority has considered whether each of the following threatens confidence in, or the integrity of, the wholesale market:
- (a) Genesis Energy and Contact Energy not making certain generation assets available to service the evening peak on 9 August 2021; and/or
 - (b) the way in which the system operator managed the grid emergency; and/or
 - (c) the incorrect triggering of the Code's scarcity pricing regime by the system operator's issue of the ISS Notice³².

The two generators

- 5.35 The Authority's view remains that both Genesis Energy and Contact Energy acted within the range of what the market might normally expect in the circumstances, based on the information available to them at the relevant points in time, when they decided not to offer HLY4 and the TCC (respectively). The reasons for this conclusion are set out in detail in the PDP, and some additional points are made above in response to submissions.
- 5.36 Accordingly, the Authority considers that neither the actions of Genesis Energy nor Contact Energy threatened confidence in, or the integrity of, the wholesale market and, as such, did not cause or contribute to the UTS.

The system operator's management of the grid emergency

- 5.37 As discussed above and in the PDP, the Authority considers that the system operator's management of the grid emergency did not minimise the impact on consumers. Some consumer disconnections could have been avoided if the system operator had responded better to unfolding events.
- 5.38 If consumers were unnecessarily disconnected, this *could* threaten confidence in, or the integrity of, the wholesale market. Whether confidence or integrity is threatened in a particular circumstance will depend on a number of factors, such as the gravity of the failures by the system operator (or other industry participants).
- 5.39 Both the PDP and submissions discussed this issue at length. Some submitters disagreed strongly with the Authority's preliminary view that the system operator's failures did not reach this threshold.³³
- 5.40 In relation to the system operator's management of the grid emergency, the Authority has considered whether, in accordance with the legal test, there is a situation that the UTS powers are able to resolve.

³² The view of both the Authority and the system operator is that the technical requirements of the Code were not met for the issue of the ISS Notice, which was the trigger for the application of scarcity pricing by the pricing manager.

³³ In particular, the submission from Haast / the Independent Retailers – see the submission at – [Haast+-Independent-Retailers-submission-on-preliminary-2021-UTS-decision.pdf \(ea.govt.nz\)](#)

- 5.41 However, ultimately, in the case of the grid emergency management that led to consumer disconnections, the security impact is no longer ongoing, with all consumers reconnected on the day. Accordingly, the Authority does not consider that this aspect of the Event constitutes a UTS, as there is no situation to be resolved.
- 5.42 The effect on prices is in a different category. Prices have not yet been finalised, meaning that there remains a situation that the Authority could correct pursuant to the UTS provisions. The Authority considers that the issue by the system operator of the ISS Notice and the impact on prices can be best addressed by considering whether scarcity pricing should have applied, despite the technical errors that occurred. The Authority has considered the submissions on the supplementary consultation in reaching the view discussed below.

Triggering of scarcity pricing

- 5.43 The Authority has considered whether the application of scarcity pricing during the Event may have threatened confidence in, or the integrity of, the wholesale market, either because:
- (a) there was “no genuine scarcity”, as suggested by some submitters; or
 - (b) the ISS Notice was invalidly issued, and thus scarcity pricing should not have been triggered.

There was genuine scarcity

- 5.44 The Authority understands that the allegation that there was no genuine scarcity relates to the claim that Genesis Energy and/or Contact Energy should have offered their slow-start generation to service the evening peak on 9 August 2021. The Authority is not aware of any alternative generation that could have been made available during those trading periods.
- 5.45 The Authority accepts that, if Genesis Energy or Contact Energy unreasonably withheld generation, then any scarcity in the evening peak would have been artificial – i.e. not genuine.
- 5.46 However, for the reasons given above and in the PDP, the Authority considers that Genesis Energy and Contact Energy both acted within the range of what the market might reasonably expect in the circumstances based on the information available to them at the crucial points in time.
- 5.47 Based on that, the Authority considers that there was genuine scarcity of generation on the evening of 9 August 2021. This scarcity was caused by a mixture of reasonable commercial decisions by Contact Energy and Genesis Energy, and unforeseen circumstances that arose later in the day (the decline of wind generation and generation issues at the Tokaanu power station).

Scarcity pricing was economically appropriate in these circumstances

- 5.48 The Authority has concluded (and the system operator accepts) that the ISS Notice was issued in error, on the basis outlined in the SCP. The system operator did not require the electrical disconnection of demand during the Event; instead it requested that EDBs reduce demand. Those distributors had a choice about how to do so – some were able to do so through ripple control, rather than disconnecting consumers. As explained above, this means that clause 5(1A) of the Code did not require the system operator to issue the ISS Notice.

- 5.49 This may mean that the system operator has breached the Code. However, that does not necessarily mean that its actions have threatened confidence in, or the integrity of, the wholesale market. Not all Code breaches lead to a UTS.³⁴
- 5.50 In this case, the Authority considers that the proper question is whether the circumstances of the Event were an appropriate precursor for scarcity pricing in terms of confidence in and the integrity of the wholesale market:
- (a) If yes, then the system operator's error was a technical breach of form and not substance – scarcity pricing is appropriate, which means that the market is functioning as normal.
 - (b) If no, then the system operator's error has led to significantly different energy prices for the affected trading periods, which may well threaten confidence in, or the integrity of, the wholesale market.
- 5.51 After careful consideration, the Authority has concluded that it is appropriate for scarcity pricing to apply to trading periods 39 – 42 during the Event.
- 5.52 As discussed above,³⁵ scarcity pricing provisions exist to ensure that prices are not artificially depressed when the system operator directs demand reductions. This is necessary to ensure the secure and efficient operation of the market, and in particular to ensure that generators are incentivised to build and maintain generation to cover rare, but significant, demand spikes. The scarcity pricing provisions are designed to achieve this aim.
- 5.53 During the Event, 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.
- 5.54 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,³⁶ 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.
- 5.55 The Event was thus the exact kind of unusual situation which scarcity pricing is designed to address. 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.

³⁴ Clause 5.1(2)(d) provides that a "material breach of any law" is an example of a possible UTS. The Authority accepts that a material breach of the Code could therefore amount to a UTS. However, clause 5.1(3)(b) makes it clear that the list of examples is not definitive: the Authority must still consider whether "the example comes within the definition" of UTS in Part 1 of the Code.

³⁵ See paragraphs 1.15 to 1.17.

³⁶ Noting in particular the MBIE Report's conclusion that demand reduction could have been limited to hot water.

- 5.56 Further, while the Authority considers that the system operator did not meet the formal prerequisites for issuing an ISS Notice – it did not issue island-wide instructions to disconnect demand – it could potentially have done so during the Event. Indeed, the practical effect of its requests to decrease demand was that demand was disconnected. Moreover, the system operator transcripts show that this is what it believed it was instructing at various points in the grid emergency. This is consistent with why the ISS Notice was issued in the first place.
- 5.57 For those reasons, the Authority considers that the triggering of scarcity pricing – albeit not following the technical requirements of the Code – has not created a situation that could threaten confidence in, or the integrity of, the wholesale market.
- 5.58 Reinforcing this conclusion, when the real-time pricing reforms come into force in November 2022, there will be no distinction (for pricing purposes) between electrical disconnection and other demand-reduction measures taken in real-time. Indeed, scarcity pricing will not be triggered by ISS Notices at all. Instead, scarcity pricing will automatically apply wherever this is merited by the underlying (im)balance of supply and demand. This highlights that the Code’s current focus on electrical disconnection as a pre-requisite for scarcity pricing is not necessary in order to ensure integrity and confidence.
- 5.59 This is not to say that the system operator made only “technical” errors during the Event. The Authority makes no comment on that in this FDP, noting the ongoing enforcement action under the Regulations. The only question for present purposes is whether the circumstances resulting in those prices are so inappropriate that they threaten the wholesale market. In the Authority’s view, they do not.

6 Question 3 - Whether the situation can be satisfactorily resolved by any other mechanism available under the Code?

- 6.1 Given the Authority’s conclusions above, it is not necessary to consider whether the various aspects of the Event can be resolved by any other mechanism under the Code.

7 The Authority’s conclusion is that a UTS did not occur in relation to the Event

- 7.1 Having investigated the alleged UTS relating to this Event and reviewed all the submissions received, the Authority’s conclusion is that a UTS did not occur during trading periods 37 to 42 on 9 August 2021.

8 Comments on other issues raised in submissions

- 8.1 There were a range of issues raised in the submissions on the PDP that are out of scope for the purpose of determining the UTS. Some of these sought to clarify matters or suggest that further information or research was required. Although the Authority has determined that these are out of scope for the purposes of assessing the UTS, we acknowledge the thought that has gone into making these and wish to provide some brief comments on a few of them.

- 8.2 The Authority notes that several submitters (including Haast, Meridian Energy and Trustpower), commented on the need to progress the recommendations out of the 9 August Reviews. Examples include:
- (a) Trustpower agreed with the Authority’s preliminary finding that a UTS did not occur endorsed progressing the review processes:

“While we recognise it is a very challenging job for the system operator to manage the power system and avoid cascade failure during this type of event, the issues that arose (as are well documented) suggest that significant improvements to the system operator’s utilisation of demand response are required. ... We recommend that the progression of those outstanding recommendations from the reviews should be progressed as a matter of priority by the relevant agencies to ensure better outcomes arise for consumers if similar circumstances arise again in the future.”³⁷
 - (b) Meridian Energy requested Authority comments on the MBIE Report (and noted the correct timing of the report), including in relation to whether the Code should be changed to provide for different levels of scarcity pricing; the ability for the system operator to have accurate real time awareness of the size of each EDB’s discretionary load; and the need to change the equity rule.
 - (c) Haast submitted that “the Authority should review the scarcity pricing provisions, including triggers, in the Electricity Industry Participation Code” and referenced proceedings against the system operator under the Regulations, and the outcome of the PEC.
- 8.3 The MBIE report and the other 9 August Reviews are concerned with making changes for the future. The focus of the UTS provisions is solely on restoring normal operations if a UTS has occurred. On that basis the feedback from submitters relating to progressing the 9 August Review matters is out of scope for the purpose of this UTS investigation. However, the Authority notes it is engaged in various workstreams relating to the recommendations out of those reviews, including the recommendations from the MBIE Report and there is separate reporting on progressing completion of the recommendations³⁸.
- 8.4 Several submissions suggested a range of further information would assist assessment of the UTS. The MEUG submission is the most extensive: suggesting the Authority consider (amongst other things) - estimated VoLL and compensation; who benefited from, or was impacted by, scarcity pricing (with / without hedges); analysing historical CAN notices to understand impact and bias; and carrying out additional validation work around the data and timing requirements for generation decisions.
- 8.5 The Authority appreciates the consideration that has gone into the submissions, in particular from MEUG. However, our view is that the Authority has followed an appropriate process (including in its data analysis), and that an assessment of whether a UTS has arisen is possible without consideration of the range of additional data suggested.

³⁷ See Trustpower submission at <https://www.ea.govt.nz/assets/dms-assets/29/TrustPower-submission-on-preliminary-2021-UTS-decision.pdf>

³⁸ See details of progress (including the Authority’s final report into the 9 August 2021 demand management event) at: <https://www.ea.govt.nz/monitoring/enquiries-reviews-and-investigations/2021/electricity-authority-review-of-9-august-2021-event-under-the-electricity-industry-act-2010/>

Glossary of abbreviations and terms

Authority – Electricity Authority

AUFLS – Automatic under-frequency load shedding

Code – Electricity Industry Participation Code 2010

CAN – Customer Advice Notice

DAN – Demand Allocation Notice

GEN – Grid Emergency Notice

HLY4 – Huntly Unit 4

Infeasibility: An infeasibility occurs when the scheduling pricing and dispatch (SPD) model cannot produce a solution that is physically feasible. When this occurs, the SPD model flags the infeasible solution, and the system operator reconfigures the input information.

LSR – load shed and restore decision support tool

NRSL – non-responsive long

NRSS – non-responsive short schedules

PRSL – Price Responsive Schedule Long

TCC – Taranaki Combined Cycle station

UTS – Undesirable trading situation

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>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. 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 XX XXX XXXX. This notice will not be updated unless conditions worsen and a WRN or GEN notice is required.</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	<p>WRN notice issued forecasting insufficient generation offers on a national basis during the 17:30 – 20:30 trading periods. This notice advised the market:</p> <p>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.</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 will manage demand to restore power system security.</p>
14:30 to 16:30	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.
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>

Time	Event
GEN declared at 17:10 and GEN notice issued	
17:10	<p>GEN notice issued forecasting insufficient generation offers on a national basis during the 18:00 – 19:00 trading periods. This notice advised the market:</p> <p>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.</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 will manage demand to alleviate the grid emergency.</p>
17:30	Visible drop in demand (74MW).
	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.
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 notice	
18:40 to 18:47	Frequency keeping (FK) band had been eroded, running deficit reserves, needed demand management to restore FK. 1% (~70MW) requested).
1% reduce load notice sent	<p>NGOCs phoned connected parties to confirm instruction to reduce demand by 1%.</p> <p>Vector raised that it already had controllable load off – relayed to NCC via NGOC.</p> <p>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.</p>
18:52	Tokaanu bona fide their generation offers down from 94MW to 47MW – weed blocking intake screens.

^[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
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 Response to the DAN	19:09 Demand allocation notice sent. 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 lift its load (after the 20:20 notice – see below).
19:09 to 20:20 Total load reduction	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 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. NGOC advised WEL could come up by 24MW from its current load.

Time	Event
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 Extracts from the Code

B.1 Clause 5.2

- (1) *If the Authority finds that an undesirable trading situation is developing or has developed, it may take any action that—*
 - (a) *the Authority considers necessary to correct the undesirable trading situation; and*
 - (b) *relates to an aspect of the electricity industry that the Authority could regulate in this Code under section 32 of the Act.*
- (2) *The actions the Authority may take under subclause (1) include any 1 or more of the following:*
 - (a) *directing that an activity be suspended, limited, or stopped, either generally or for a specified period:*
 - (b) *directing that completion of trades be deferred for a specified period:*
 - (c) *directing that any trades be closed out or settled at a specified price:*
 - (d) *directing a participant to take any actions that will, in the Authority’s opinion, correct or assist in overcoming the undesirable trading situation.*

B.2 Clause 5.5

The Authority must attempt to correct every undesirable trading situation and, consistently with section 15 of the Act, restore the normal operation of the wholesale market as soon as possible.

B.3 Clause 5(1A), Schedule 8.3, Technical Code B

The system operator must issue a notice in writing to all participants whenever, or as soon as practicable after, an island wide instruction to electrically disconnect demand has been issued, amended, or revoked under clause 6.

B.4 Clause 6, Schedule 8.3, Technical Code B

- (1) *If insufficient generation and frequency keeping gives rise to a grid emergency, the system operator may, having regard to the priority below, if practicable, and regardless of whether a formal notice has been issued, do 1 or more of the following:*
 - (a) *request that a generator varies its offer and dispatch the generator in accordance with that offer, to ensure there is sufficient generation and frequency keeping:*
 - (b) *request that a purchaser or a connected asset owner reduce demand:*
 - (c) *require a grid owner to reconfigure the grid:*
 - (d) *require the electrical disconnection of demand in accordance with clause 7A:*
 - (e) *take any other reasonable action to alleviate the grid emergency.*
-
- (5) *The system operator may, if an unexpected event occurs giving rise to a grid emergency, take any reasonable action to alleviate the grid emergency.*

Appendix C 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.

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

Transpower New Zealand Ltd The National Grid



Warning Notice

To:	GEN NZ Participants	From:	The System Operator
Sent:	09-aug-2021 13:02	Telephone:	0800 488 500
Ref:	4026187046	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.

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

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.

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

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: NMDData@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:

Increase Energy Offers
Increase Instantaneous Reserve Offers
Decrease demand

At:

North Island, South Island
North Island, South Island
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

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

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
----------------------------	--------------

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

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

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.



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: NMDData@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:	At:
Increase Energy Offers	North Island, South Island
Increase Instantaneous Reserve Offers	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

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.



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: NMDData@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

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

Transpower New Zealand Ltd The National Grid

Grid Emergency Report

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

From: The System Operator
Telephone: 0800 488 500
Email: NMDData@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.

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.



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: NMDData@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.

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

Limitation Of Liability/Disclaimer

Transpower make no representation or warranties with respect to the accuracy of the information contained in this document. Unless it is not lawfully permitted to do so, Transpower specifically disclaims any implied warranties of merchantability of fitness for any particular purpose and shall in no event be liable for, any loss of profit or any other commercial damage including but not limited to special incidental, consequential or other damages.

Transpower New Zealand Ltd The National Grid