

Preliminary decision on claim of an undesirable trading situation: Supplementary consultation

Claim submitted 12 December 2019 by Haast
Energy Trading, Ecotricity, Electric Kiwi, Flick
Electric, Oji Fibre, Pulse Energy Alliance, and

Vocus

Consultation paper

Submissions close: **5pm 20 November 2020**

6 November 2020



Executive summary

We have appreciated the thoughtful engagement throughout the consultation process to date.

The Authority's review of the circumstances alleged to be an undesirable trading situation (UTS) is ongoing and a final decision has not yet been made. As part of this process, we have identified a limited number of matters on which we consider further submissions from interested parties would be useful as we look to build upon the preliminary decision paper (PDP) released earlier this year and before a final decision is made.

In particular:

- We noted that many submissions did not address the proposition that factors identified in the PDP (a "confluence of factors") resulted in reduced competition during the period in issue and that this led to outcomes that would not reasonably be expected in the spot market. We consider that this is a key issue in analysing the relevant situation and request further input from submitters on this point.
- We have continued to refine aspects of the empirical analysis that we are using to assist us in assessing whether the market was operating normally.
- Based on our continued work, we consider there may be grounds for extending the period of any UTS we may find to cover the period from 3 to 27 December 2019.

We seek further submissions on these matters.

We know all parties would appreciate a decision as soon as possible to avoid any ongoing uncertainty in the wholesale market. We also know all parties want us to get this right. That is why we consider a supplementary consultation is an important and necessary step before making a final decision.

At this stage, we intend to make a final decision in December 2020, once we have had the opportunity to review submissions made as part of this consultation.

If the final decision finds that a UTS existed, the Authority will then consult on proposed actions to correct the UTS. Authority staff have commenced doing some work in parallel to the ongoing UTS investigation to understand what actions to correct might be possible. This is being done in the interests of ensuring a timely resolution if a UTS is ultimately found but remains separate from the investigation into whether there was in fact a UTS.

It is also important that parties are aware that the claimed UTS is only one part of the work the Authority is doing to consider activity in the wholesale market. Other workstreams include the:

- Review into 2019/20 wholesale market prices - the Authority actively monitors the market and may initiate an enquiry, review or investigation in various circumstances. At the time of the UTS claim, there was an ongoing review into wholesale market prices in 2019/20. This review is distinct from and focusses upon some issues that are not covered by, the UTS investigation.
- Review of the high standard of trading conduct (HSOTC) provisions - Part 13 of the Code includes the HSOTC provisions. These are intended to encourage wholesale electricity market participants to carry out appropriate trading behaviour. These are currently under review.
- Compliance investigations related to the UTS investigation period of alleged breaches of the HSOTC by Meridian and Contact. The 2019 UTS claim is being considered

independently of the compliance investigations into these alleged breaches for the same period. The test for a UTS is distinct from, and addresses different concerns to, the compliance process.

We note that in assessing this UTS allegation, we are not looking to establish particular blameworthy conduct by participants as might be required to establish some of the specific examples set out in clause 5.1(2) of the Code. Rather, our approach is based on establishing whether the outcomes that have occurred during the period were the result of reduced competition brought about by a confluence of factors. While identifying particular blameworthy conduct may in some cases form part of the UTS process, the appropriate mechanism for alleging and addressing Code breaches is the Compliance process. By contrast, the purpose of the UTS process is to correct situations which threaten, or may threaten, confidence in, or the integrity of the wholesale market.

We have set out more information on these other workstreams at <https://www.ea.govt.nz/code-and-compliance/uts/undesirable-trading-situations-decisions/10-november-2019/> It should be noted that these are all quite separate and distinct processes and governed by different rules.

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1 What you need to know to make a submission

What this consultation paper is about

- 1.1 The purpose of this paper is to engage in supplementary consultation with interested parties regarding particular points developing from the Authority’s preliminary decision in relation to the claim of an undesirable trading situation (UTS) submitted on 12 December 2019 by Haast Energy Trading, Ecotricity, Electric Kiwi, Flick Electric, Oji Fibre, Pulse Energy Alliance, and Vocus.
- 1.2 The submissions received and the process to date have highlighted the complexity of this matter. We are committed to a thorough and robust process and for this reason we are seeking further limited submissions to assist us in reaching a final decision. We wish to receive further submissions in three main areas:
- (a) Any comments on our analysis of the reduced competition during the UTS investigation period;
 - (b) Any comments on the data/analysis we are using to assist us in assessing whether the market was operating normally;
 - (c) Any comments on potentially extending the period of any UTS we may find out to 27 December 2019.

How to make a submission

- 1.3 Our preference is to receive submissions in electronic format (Microsoft Word) in the format shown in Appendix B. Submissions in electronic form should be emailed to uts@ea.govt.nz with “Preliminary decision on 12 December 2019 claim of an undesirable trading situation— Supplementary consultation” in the subject line.
- 1.4 If you cannot send your submission electronically, post one hard copy to either of the addresses below, or fax it to 04 460 8879.

| <u>Postal address</u> | <u>Physical address</u> |
|---|---|
| Submissions Electricity Authority PO Box 10041 Wellington 6143 | Submissions Electricity Authority Level 7, Harbour Tower 2 Hunter Street Wellington |

- 1.5 Please note the Authority wants to publish all submissions it receives. If you consider that we should not publish any part of your submission, please
- (a) Indicate which part should not be published
 - (b) Explain why you consider we should not publish that part
 - (c) Provide a version of your submission that we can publish (if we agree not to publish your full submission).
- 1.6 If you indicate there is part of your submission that should not be published, we will discuss with you before deciding whether to not publish that part of your submission.
- 1.7 However, please note that all submissions we receive, including any parts that we do not publish, can be requested under the Official Information Act 1982. This means we would

be required to release material that we did not publish unless good reason existed under the Official Information Act to withhold it. We would normally consult with you before releasing any material that you said should not be published.

When to make a submission

- 1.8 Please deliver your submissions by **5pm on 20 November 2020**.
- 1.9 We will acknowledge receipt of all submissions electronically. Please contact the Authority info@ea.govt.nz or 04 460 8860 if you don't receive electronic acknowledgement of your submission within two business days.

2 Introduction

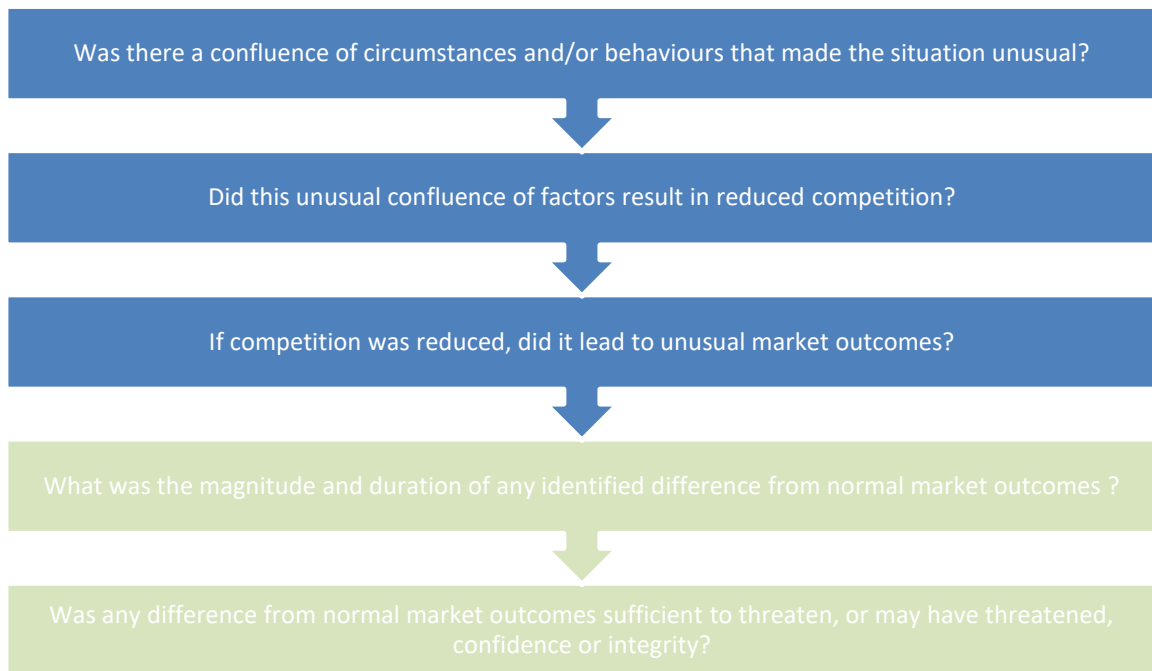
- 2.1 Details of the UTS claim and our preliminary views on that claim are set out in the PDP. This supplementary consultation paper (SCP) builds upon the initial analysis set out in the PDP.
- 2.2 Our review of the relevant period is still ongoing. We have not yet made a final decision, but having received submissions and cross submissions, we are refining our thinking in some areas. Our focus in this SCP is the outcomes that were observed during the period due to reduced competition. Reduced competition and the connections to the outcomes during the period in question were discussed in the PDP but were not a focus of submissions. We provide this supplementary consultation period to allow parties an opportunity to comment further on this and our view that unusual outcomes may have been due to reduced competition.

3 Reduced competition due to a confluence of factors

- 3.1 The PDP identifies a number of factors that may have acted in combination to reduce competitive pressure on South Island hydro generators to reduce their offer prices in response to high inflows and consequent spilling. However, this impact on competition was not generally addressed in submissions. In this section, the Authority focusses upon its views on how a confluence of factors may have led to reduced competition and seeks further submissions on this point.
- 3.2 In the PDP, the Authority set out the reasonable expectations of how the market should have operated and compared these against what actually happened. At a high level, the Authority was seeking to establish a 'comparator', representing normal outcomes of the wholesale market based on previous observations, and assessing what happened against that comparator to determine whether the outcomes observed reflected normal operation of the market. If the comparison suggested the outcomes were unusual, the next step would then be to assess whether the situation may have threatened confidence in, or the integrity of, the wholesale market.
- 3.3 Figure 1 sets out the approach we have followed in assessing a possible UTS and how competition fits into this assessment in this case. This paper covers aspects of the first three steps highlighted in blue. The two further steps setting out the final parts of the UTS assessment were covered in the PDP and will be discussed again in the final decision and are depicted here for completeness.
- 3.4 The test applied in the PDP and reiterated here is an objective one. In this paper we implement the same test using an empirical comparator to assess outcomes against what could reasonably be expected in the market.

- 3.5 To meet the test for a UTS, the situation needs to threaten, or may threaten, confidence in, or the integrity of, the wholesale market, for example because of the scale of the outcomes from the situation. As such, a transitory period of reduced competition may, of itself, be unlikely to constitute a UTS. Rather, we need to look at all of the circumstances and whether they threatened or may have threatened market confidence or integrity.
- 3.6 We note that in assessing this UTS allegation, we are not looking to establish particular blameworthy conduct by participants as might be required to establish some of the specific examples set out in clause 5.1(2) of the Code. Rather, our approach is based on establishing whether the outcomes that have occurred during the period were the result of reduced competition brought about by a confluence of factors.¹ While identifying particular blameworthy conduct may in some cases form part of the UTS process, the appropriate mechanism for alleging and addressing Code breaches is the Compliance process. By contrast, the purpose of the UTS process is to correct situations which threaten, or may threaten, confidence in, or the integrity of the wholesale market.

Figure 1: Process used for assessing whether there was a UTS in this case



Confluence of factors

- 3.7 The first part of the assessment set out in Figure 1 involves identifying whether there were circumstances and/or behaviours (“factors”), which together or alone, were unusual, and could have led to outcomes that were not reasonably expected under normal market operations. In this case, it is not just one factor that we consider may have contributed to the unusual outcomes, but a confluence of factors.
- 3.8 The various factors observed during the period are set out in some detail in the PDP and have been further developed in light of submissions. These are:

¹ We note that issues related to the test the Authority is applying were raised in more detail by various submitters. They will be addressed further in our final decision.

- (a) There was a series of very large inflow events. Total inflows into several catchments were amongst the highest since records began.
 - (b) Contact was using its automated spill gates for the first time during a flood event. This resulted in Contact trying to avoid being the marginal generator and the consequent frequent changes in dispatch. While this is not unusual behaviour, Contact has submitted that it was more motivated than usual to avoid being marginal. As a result, competition was reduced and Contact did not participate in price discovery.
 - (c) The scheduled HVDC outage and a planned Pohokura outage during the first quarter of 2020 meant Mercury was trying to conserve water in anticipation of future high prices that were evident in the forward curve.
 - (d) Genesis stated in its submission that it is a price taker in the South Island due to its scale.
 - (e) Meridian's internal reporting indicated it was withholding generation to avoid the HVDC binding.
- 3.9 These circumstances and behaviours are described in more detail in the PDP, including the impact of the Resource Management Act (RMA) and operating constraints that the spilling South Island hydro generators needed to abide by. These restrictions affected how generators offered in the spot market.
- 3.10 It is the Authority's view that this confluence of factors may have resulted in a lack of competitive pressure which has then resulted in unnecessary spilling. The Authority has then looked to establish an objective comparator against which to assess outcomes observed, to determine whether this lack of competitive pressure has led to the market operating otherwise than it would normally. This approach then assists the Authority in determining whether there was a UTS.

Objective comparator

- 3.11 The comparator (or counterfactual) sets out what is reasonably expected when the market (and competition within the market) is operating normally. The comparator provides the basis for assessing whether the outcomes observed were unusual. In this case, because we have identified a range of factors which may have resulted in reduced competition, the comparator allows us to assess whether reduced competition has resulted in the market operating otherwise than it normally would have.
- 3.12 We refine the comparator using empirical indicators based on historical data, discussed further in section 4 below. The empirical indicators that we identify build on those explained in the PDP. We use pairwise correlations to measure normal relationships within the market and link these relationships back to competitive outcomes.
- 3.13 Table 1 below expands on why the Authority considers that the empirical observations it has made in forming its comparator (and as set out in section 4) are consistent with normal competitive market outcomes.
- 3.14 We consider that the comparator shows how the market operates normally, when an expected level of competition is present – in particular, we consider that our empirical analysis shows that market outcomes generally reflect underlying supply and demand conditions, which is consistent with what might reasonably be expected with normal levels of competition. By comparing what actually happened against the comparator, the

Authority can therefore look to assess what impact the identified reduced competition during the investigation period had on the market.

Table 1: Outcomes under the comparator

| Market dynamic | The link to competitive outcomes and the expected relationship |
|---|--|
| <p>The relationship between South Island hydro generation and South Island hydro storage</p> | <p>Normally, South Island hydro generation increases with South Island hydro storage, as the opportunity cost of water decreases and offer prices decrease to reflect this abundant cheaper fuel. This in turn means cheaper South Island generation competes to be dispatched in preference to higher cost generation, increasing the amount of hydro generation that is dispatched.</p> <p>The relationship between storage and generation was not assessed directly in the PDP, although it was examined indirectly through the generation and spill charts.</p> |
| <p>The relationship between thermal generation and hydro storage and hydro generation</p> | <p>Usually, thermal generation decreases as South Island hydro storage increases because an abundance of cheaper renewable energy in the South Island means lower offers and lower spot prices. This in turn means cheaper South Island generation competes to be dispatched in preference to higher cost thermal generation, reducing the amount of thermal generation that is dispatched. In contrast, as water gets scarce and South Island hydro storage falls, North Island thermal generation firms South Island hydro generation.</p> <p>This was assessed in the PDP by the correlation between hydro generation and thermal generation, which was positive over the investigation period.</p> |
| <p>The relationship between the spot price and hydro storage and hydro generation</p> | <p>While storage (fuel supply) and price are negatively related and this relationship is well known, usually more South Island hydro generation has little effect on spot prices. This suggests that South Island hydro generators are not setting the price.</p> <p>This was assessed in the PDP by graphical analysis of hydro storage and the spot price, and average spot prices over different periods.</p> |
| <p>The relationship between South Island hydro storage and northwards flow over the HVDC</p> | <p>Usually, as South Island hydro storage increases, northwards flow over the HVDC increases. As South Island storage increases, so does South Island hydro generation. This lower cost generation then displaces other higher cost North Island generation leading to more export to the North Island over the HVDC.</p> <p>This was assessed visually in the PDP.</p> |
| <p>The relationship between North Island hydro generation and</p> | <p>Usually, as with South Island hydro generation and storage, North Island hydro generation increases with increasing North Island storage. However, during the UTS investigation period it might reasonably be expected that North Island hydro operators would be wanting to store water for later use (given the impending HVDC</p> |

| | |
|--|--|
| <p>North Island hydro storage</p> | <p>constraint) and therefore be raising their offer prices (and hence being dispatched less). This was an expected response to known information. This relationship would then be expected to reverse during the UTS investigation period.</p> <p>This was only discussed in the PDP insofar as referring to the scheduled HVDC outage, so North Island hydro generators were expected to be trying to conserve water in the anticipation of impending higher prices. Analysis presented in the PDP estimated that if offer prices had been lower in the SI, this would have resulted in an extra 12.6GWh of energy stored in Taupo ahead of the scheduled outage.</p> |
| <p>The relationship between South Island hydro storage and generation and transmission constraints and price separation</p> | <p>When there is abundant cheap fuel, it would reasonably be expected that stations with abundant cheap fuel would have low offer prices and for these stations to be dispatched accordingly. This will increase generation in the area where the abundant fuel is located. If this increased generation exceeds the transmission capacity of the available lines for exporting this generation, the transmission constraint will bind. This causes prices to be different at different points in the network and this variation in prices at different locations one of the reasons for having a nodal market.</p> <p>However, as pointed out in submissions generators may manage these lines conservatively to avoid them binding. If this behaviour is usual, then we would expect no relationship between price separation and storage. Otherwise we would expect to see more price separation as storage increases. This could be local—for example:</p> <ul style="list-style-type: none"> • an increase in lower South Island storage compared to price separation between Invercargill and Benmore; or • interisland price separation with an increase in total South Island storage. <p>As in the PDP, we analyse this through price separation (see below). This was assessed in the PDP by looking at price separation visually.</p> |

4 Empirical analysis in assessing outcomes

- 4.1 In this section we set out details of our empirical analysis of what happened during the UTS investigation period against the comparator. We have reframed (and in some areas expanded upon) the analysis in the PDP to assist in assessing the degree to which outcomes during the investigation period differed from what would reasonably be expected if the market (and competition within the market) had been operating normally.
- 4.2 Specifically, we have used historical data to calculate the correlations between pairs of variables to form expectations of how the market operates normally. We have then calculated an equivalent correlation for the investigation period and compared the two.
- 4.3 A correlation measures how two variables change in relation to each other. By using correlations, it is possible to compare the typical dynamics of the market with the dynamics observed during the UTS investigation period. This helps understand the data from the perspective of competitive interactions between market participants. A correlation can be between -1 and +1. A correlation of +1 means that the two variables move perfectly together in the same direction. A correlation of -1 means that the two variables move perfectly together in opposite directions. The closer the correlation gets to zero, the weaker the effect. A correlation does not make a judgement on causality, any judgement about causality must be drawn from the context.
- 4.4 Correlations do not capture the relationships between more than two variables. However, analysing a number of correlations provides a comparison that we consider is sufficient to indicate abnormal market outcomes, when combined with the other parts of our approach (that is, the confluence of factors explaining why there may have been reduced competition, and the scale of the excess spill).
- 4.5 We do not use a regression analysis because the data is strongly autocorrelated—that is, the value on one day is strongly related to the value on the previous day. However, we are interested in the relationships between things like storage, price, transmission constraints, and generation. The relationships between these fundamentals were overwhelmed by the autocorrelation when we tried using models that address this feature of the data.
- 4.6 This empirical analysis shows that market outcomes during the investigation period were substantially different from historic outcomes. This suggests that reduced competitive pressure led to the unexpected outcomes during the investigation period, specifically energy not being exported northwards; North Island and hydro generation not being displaced; and the spot price not falling during a period of surplus South Island supply.
- 4.7 For the UTS investigation period discussed in the PDP (10 November 2019 to 16 January 2020), we have only included data for the correlations up to 6 January 2020, rather than to 16 January 2020 when spilling stopped. This is because the HVDC outage began on 7 January 2020. Once the HVDC outage began, this changed the market, constraining northwards flow to about half that which is normally possible. As this change in the market could have a big impact on correlations analysis, we do not include this period. If we did include this period, we would be unable to tell whether any difference to the comparator was due to the confluence of circumstances and behaviours described in Section 3 or from the HVDC outage.
- 4.8 Table 2 shows the results of our correlation analysis. We compute correlations using data from 1 June 2011 to 9 November 2019 to provide our comparator (1 June 2011 was when the transfer of Tekapo A and B to Genesis was completed). The reason for using

data over all past periods (back to 2011) is to use the full range of data available to capture the dynamic relationships.

- 4.9 The reason we have not used correlations during other periods of spill or high storage in the South Island to form the comparator is that we are interested in the response of different variables when storage is changing. Having a comparator that consists only of periods when storage is high means that there is little change in these variables in response to changes in storage so these responses are not measured. During the UTS investigation period, storage changed dramatically, so we are effectively comparing how the system responded to that change with how it has responded to changing storage in the past.
- 4.10 However, for sensitivity analysis we did compare to previous periods of high South Island storage (results not shown here).² Results from this comparison suggest that some of the normal relationships do appear to break down during periods of high storage (compared to the relationships over all time periods from 1 June 2011-9 November 2019) as they did during the UTS investigation period. However, this effect was more pronounced during the UTS investigation period. Also, some key differences remain between the UTS investigation period and past periods of high storage.
- 4.11 We also computed the correlations for the comparator using only data from the same period (the same dates in each year) as the UTS investigation period for the previous years (back to 2011), to control for seasonality. The correlations from restricting to these months are very similar to correlations produced using the full range of historical data available (2011 to 9 November 2019), so we do not present the results of this analysis.³
- 4.12 The correlations in Table 2 show that:
- (a) South Island hydro generation normally increases with South Island hydro storage. This is what usually happens with the positive correlation shown in Table 2. During the UTS investigation period this relationship broke down – more storage led to no change in or slightly less generation (a weakly negative correlation). This is consistent with what was set out in the PDP – that Meridian was not offering as much generation at a price that participants would have expected given the circumstances. This is unusual and consistent with South Island generation not competing to be dispatched as it usually would despite the abundant fuel that was available.
 - (b) Normally, thermal generation has a negative relationship with South Island hydro generation. During the UTS investigation period, this relationship reversed, suggesting thermal generation and South Island hydro generation were not substitutes during this time. The fact that abundantly fuelled South Island hydro was not displacing North Island thermal generation as it usually would is unusual and consistent with reduced competition.
 - (c) The spot price usually decreases with increasing South Island storage but has no relationship with South Island hydro generation. However, during the UTS investigation period, prices increased when South Island hydro generation increased. This outcome seems incongruous given the supply conditions at the

² We use periods of high South Island storage as a proxy for spill, as we do not have all historical spill data. We used periods where South Island storage was greater than 2750GWh from 1 June 2011 to 31 March 2019. These results will be uploaded to github.

³ These results will also be uploaded to github.

time in the South Island. This is symptomatic of South Island hydro generation not using its abundant fuel to compete to be dispatched. The relationship with storage remained consistent with previous periods over the UTS investigation period – that is, as storage increased, the spot price decreased. However, the fall in price in late December was mainly due to a fall in demand, coinciding with the increase in storage. This is evident if we look at the correlation between storage and price before and after 18 December – it was 0.06 before 18 December and -0.20 after.

- (d) Northwards flow over the HVDC decreased when South Island storage increased during the UTS investigation period. Again, this is incongruous given the supply conditions in the South Island: usually the opposite occurs. This is symptomatic of South Island hydro generation not using its abundant fuel to compete to be dispatched.
 - (e) One would normally expect North Island generation to increase with North Island hydro storage. This is what happens usually with the positive correlation shown in Table 2. During the UTS investigation period, North Island hydro generators were conserving water as indicated by the negative relationship between North Island hydro generation and North Island hydro storage during this time (although this relationship is quite weak, indicating that perhaps North Island generators were constrained in their ability to conserve water). This would have been expected due to the impending HVDC outage but contributed to reduced competition at the time.
 - (f) Despite generators actively managing transmission constraints, empirical evidence shows that usually price separation (between islands, and between the lower South Island and upper South Island) increases (that is, the ratio of the exporting region nodal price to the importing region nodal price decreases) as South Island storage increases. The opposite occurred for price separation between Benmore and Haywards and for price separation between Invercargill and Benmore during the UTS period.
- 4.13 These correlations suggest that, during the UTS investigation period, the market was operating differently from normal and this was due to reduced competition.
- 4.14 We have also compared the UTS investigation period to the spill that happened in the middle of 2019 in Table 2 below. We have done this because Meridian advised us that the outcomes in April – June 2019 were similar to the UTS investigation period.
- 4.15 The results in Table 2 show the correlations in the mid-year spill period are more like the correlations from the comparator period (i.e. when the market is operating normally) than the UTS investigation period. While six correlations are statistically significantly different from the comparator (compared to seven for the UTS investigation period), some that are statistically significantly different are still correlated in the same way as the comparator (ie have the same +/- sign) whereas for the UTS investigation period the correlation is the opposite (ie a different sign). Note that because the mid-year spill period happened when there is typically higher demand, the UTS investigation period and the mid-year spill period are not directly comparable. In addition, at the time of the mid-2019 spill there were ongoing planned outages at Pohokura, which could explain some of the differences compared to the comparator.

Table 2: Results

| Market dynamic | Correlation between | 1 June 2011-9 November 2019 (Comparator) | UTS investigation period (to 6 January) | April-June 2019 |
|---|--|--|---|-----------------|
| The relationship between South Island hydro generation and South Island hydro storage | South Island hydro generation and South Island hydro storage | 0.53 | -0.16* | 0.21* |
| The relationship between thermal generation and hydro storage and hydro generation | Thermal generation and South Island hydro generation | -0.52 | 0.71* | 0.40* |
| | Thermal generation and South Island hydro storage | -0.37 | 0.00* | -0.53 |
| The relationship between the spot price and hydro storage and hydro generation | The spot price and South Island hydro generation | -0.10 | 0.79* | 0.44* |
| | The spot price and South Island hydro storage | -0.26 | -0.46 | -0.25 |
| | The spot price and North Island hydro generation | -0.01 | 0.54* | 0.34* |
| The relationship between South Island hydro storage and northwards flow over the HVDC | South Island hydro storage and northwards flow over the HVDC | 0.56^ | -0.39* | 0.24* |
| The relationship between North Island hydro generation and North Island hydro storage | North Island hydro generation and North Island hydro storage | 0.53 | -0.17* | 0.68* |

| Market dynamic | Correlation between | 1 June 2011-9 November 2019 (Comparator) | UTS investigation period (to 6 January) | April-June 2019 |
|--|---|--|---|-----------------|
| The relationship between South Island hydro storage and price separation | Correlation of the ratio of Benmore nodal price to Haywards nodal price and South Island hydro storage. | -0.33 [^] | 0.24* | -0.19 |
| | Correlation of the ratio of Invercargill nodal price to Benmore nodal price and South Island hydro storage. | -0.35 [^] | 0.35* | -0.37 |

[^]This only includes data back to 2014, when Pole 3 came into operation

*Significantly different from 2011-2019 correlation at the 5% level. Cells highlighted in orange are those where the correlation was a different sign to the correlation from the comparator period (2011-2019).

We also tested the significance of the correlations between the UTS period and the April to June period. All were significantly different at the 5% level except the correlation between South Island storage and price, and the correlation between North Island hydro generation and price.

The correlations are based on daily data, as storage data is only available daily. Generation is the daily sum, price the daily load weighted average, price separation the daily average ratio, and northwards flow over the HVDC the daily average.

5 Duration of unusual outcomes

- 5.1 Prices fell on 18 December 2019, and this date defined the boundary of the period the Authority considered constituted a UTS in the PDP. This preliminary view was based in part on the effect that withholding generation had on the spot price. So, a key concern was the spot price paid by purchasers.
- 5.2 Haast point out that after this date in December North Island hydro generation and thermal generation could have been displaced by South Island generation, albeit with little impact on the spot price. Had this displacement happened the overall dispatch would have been more efficient because:
- North Island water was valuable at the time because of the impending HVDC outage;
 - North Island thermal generation would be more costly than spilling hydro.
- 5.3 The PDP notes this efficiency cost but does not consider it when it narrows the preliminary UTS period to between 3 December and 18 December. This narrower period is based on the spot price difference between what we estimated the spot price would be if excess spill was used to generate, and what actually happened.

- 5.4 When prices fell in mid-December, both Contact and Meridian stated in the media that prices fell due to reduced demand. This implies that resumption of normal competition was not the reason for the fall in prices.
- 5.5 To the extent that the period the Authority considers may constitute a UTS is characterised by a lack of competitive pressure (as we have discussed above), it may have been ongoing until Clyde stopped spilling on 27 December and Contact was no longer required to manage its spill gate in the same way.
- 5.6 Extending the period of any UTS until 27 December would therefore be consistent with reduced competition preventing North Island thermal and hydro generation being displaced – along with the effect on the spot price – being a material determinant of whether there was a UTS.
- 5.7 As the reduced competition preventing North Island thermal and hydro generation being displaced is not part of normal market operations, we consider there would be logic and support for extending the period of any UTS until 27 December and that this would be consistent with the UTS provisions.
- 5.8 We note that the confluence of factors and the consequent reduction of competition was not as pronounced in November, and the same logic would not support extending the period of any UTS back earlier in time than 3 December.⁴

⁴ Note that Haast submitted that November should be included in the UTS period, and that the spill gate reason given by Contact – and hence their avoidance of being marginal - may have been circumvented by using the must-run dispatch action or specified low ramp rates. We welcome submissions in light of Haast's analysis.

Appendix A Format for submissions

| | |
|-----------|--|
| Submitter | |
|-----------|--|

| Question | Comment |
|---|---------|
| <p>Q1. Do you have any further comments on the Authority’s analysis that the confluence of factors identified led to reduced competition?</p> <p>Q2. Do you have any further comments on whether the resulting reduced competition led to outcomes that were different from what could reasonably be expected as normal for the market?</p> <p>Q3. Do you have any comments on our refined empirical analysis?</p> <p>Q4. Do you have any comments on whether our analysis supports the timeframe for any UTS which may be found being 3-27 December and the reasons for this?</p> <p>In your response to each question please provide the reasons for your answer.</p> | |

Glossary of abbreviations and terms

| | |
|--------------------|---|
| Authority | Electricity Authority |
| Act | Electricity Industry Act 2010 |
| Code | Electricity Industry Participation Code 2010 |
| Regulations | Electricity Industry (Enforcement) Regulations 2010 |